magnus Group

Joint Event on

10th Edition of International Conference on

Neurology and Brain Disorders &

5th Edition of Global Conference on

Addiction Medicine, Behavioral Health and Psychiatry

21-23
October

Baltimore, Maryland
USA

Venue: Best Western Plus Hotel & Conference Center
5625 O'Donnell Street Baltimore, MD 21224
Baltimore, Maryland, USA

BOOK OF ABSTRACTS

OCT

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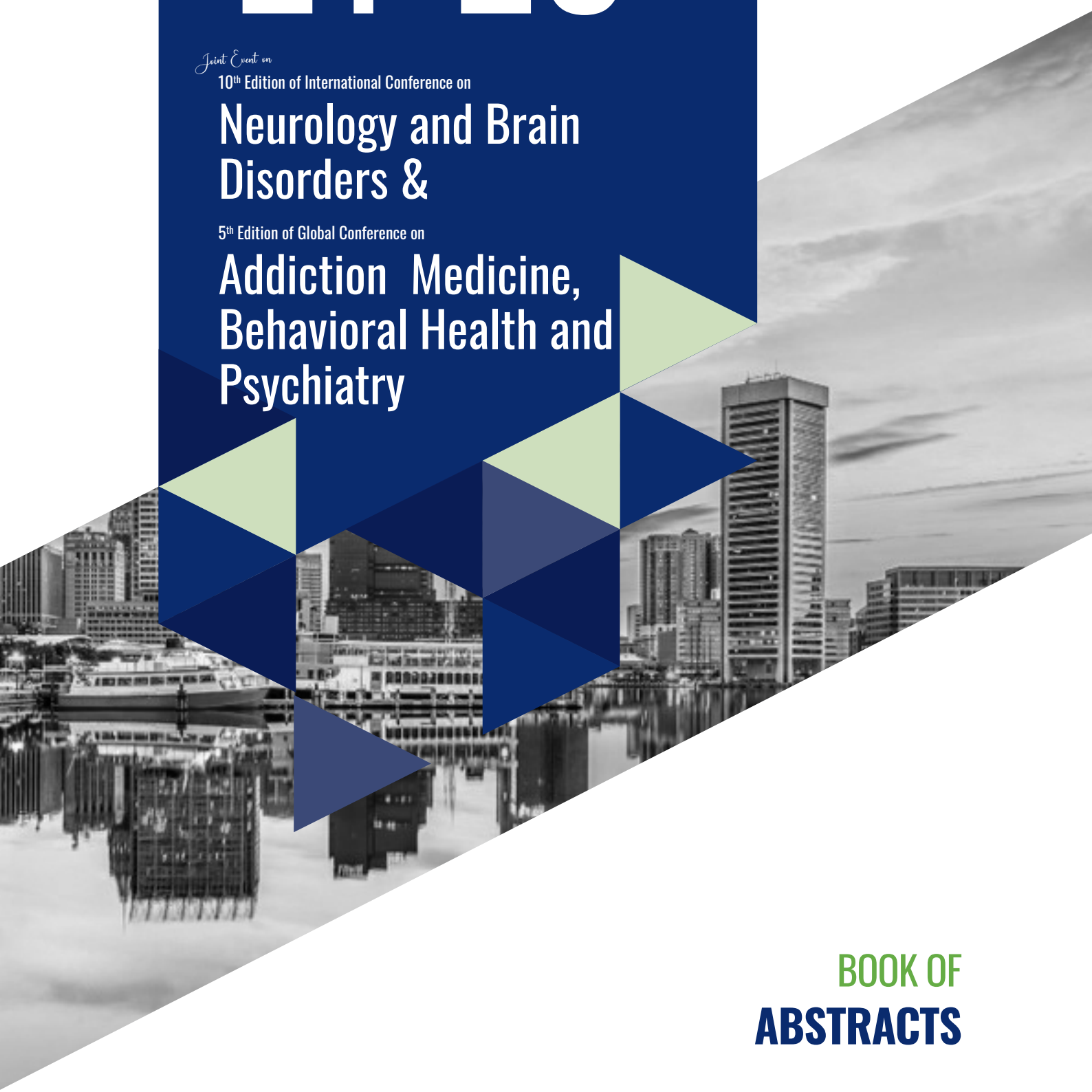

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Thank You All...

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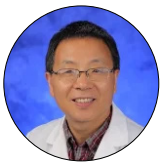

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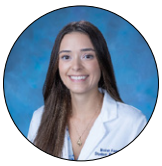

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Thank You All...

Welcome Message

Ann Marie Leonard Zabel,

Curry College & NEALAC Clinic, United States

Dear Esteemed Congress Visitors and Distinguished Speakers,

It is both a privilege and a delight to extend a warm welcome to the esteemed participants of the 5th Edition of the Global Conference on Addiction Medicine, Behavioral Health, and Psychiatry (GAB 2024) in the vibrant city of Baltimore, Maryland, USA.

Our conference theme, "Healing Minds, Empowering Lives: Integrative Approaches to Mental and Behavioral Health," embodies our collective commitment to advancing knowledge and fostering collegiality within the critical fields of addiction medicine, behavioral health, and psychiatry. Throughout the event, we anticipate a rich exchange of expertise, insights, and innovative strategies that will empower professionals with invaluable skill sets, elevating the quality of care delivered to those in need.

The distinguished speakers assembled here bring a wealth of knowledge, aligning with current practices and treatment modalities. Their contributions promise to resonate deeply, offering practical insights that reinforce excellence in patient care. Together, through collaborative presentations, engaging poster sessions, and insightful discussions, we aim to explore applied research and treatment approaches that hold significant promise for individuals navigating the complexities of addiction, treatment, recovery, and stigma.

As like-minded colleagues, we have the unique opportunity to pool our resources and expertise, collectively contributing to the advancement of humane and compassionate care for individuals struggling with the Disease of Addiction. We are genuinely excited about the prospect of meeting you in person and fostering meaningful connections during this enriching conference experience.

Here's to a conference filled with knowledge, collaboration, and shared dedication to making a positive impact on the lives of those affected by addiction. We eagerly anticipate the pleasure of your company at GAB 2024.

Welcome Message

DR. Ashton Christopher,

Center for Recovery, Canada

Dear congress visitors,

It is an honor and pleasure to write a few welcome notes. Advances in

neuroscience over the past 20 years have provided key evidence to untangle the many complexities of behavior associated with substance use disorders. Rationale answers from basic neuroscience, which explain the seeming irrationality of addiction, finally provide clients with explanations they have been seeking. Equally, understanding these neurobiological mechanisms opens new therapeutic windows to guide clients into sustained remission.

Tremendous morbidity, losses and mortality exist in severe substance use disorders with the overwhelming compulsion and actions taken to consume substances. This talk explains how progression of the anti-reward system drives substance seeking and consumption beyond any possibility of personal choice intervening.

Welcome Message

Denis Larrivee,

Loyola University Chicago, United States

Dear Conference attendees,

I am honored to extend a few words of welcome to the many professionals who are active supporters of addiction research. As you are aware, addiction research has entered a new era in brain based studies. Beyond the investigation of dopamine pathways that once were a major focus, new investigations explore how broad based neurological systems facilitate drug dependence. These new studies draw insights from homologous impairments seen in cognitive diseases, such as impaired self-recognition and action execution processes. Etiologies for these diseases have previously remained obscure in part because of study strategies that relied on gene based investigations. This reliance tended to focus on molecular mechanisms within and between nerve cells rather than on how these cells are organized to carry out behavioral functions. The new focus sees the brain in the light of its systemic character, where neuronal populations and not molecular groupings are the foundation of the brain's organization and hierarchy. These approaches are opening exciting avenues in addiction research, including such topics as cortical maps and representations, plasticity modulation, and nerve networks, which promise to extend our conception of how addiction molds brain functioning.

Welcome Message

Meni Koslowsky,

Ariel University, Israel

Dear conference participants.

I am delighted to write a few words of welcome to those who will be attending the congress in the Fall of 2024. My message to all of you is that in medicine, as well as any discipline that requires interactions among people seeking assistance, empathy is a critical component. Although skills and knowledge provide the basis for medical student success, beliefs about their capabilities to use these skills can dictate whether they can develop effective patient-physician communication. A core feature of the doctor-patient relationship is empathy. Empathy that improves patient-doctor communication can make the relationship more effective. Furthermore, empathy improves many aspects of healthcare practice including patient satisfaction and clinical outcomes. As such, teaching the medical student how to listen to the patient is a critical skill for enhancing the likelihood of treatment success.

Welcome Message

Nile Stanley,

University of North Florida, United States

Dear conference visitors,

It is my privilege to offer takeaways of my upcoming keynote address. Therapeutic bibliotherapy referred to as a "social prescription" is a hot topic and can complement traditional medical or psychological therapies. An interesting question arises, should bibliotherapy and other art therapies be supported by American health insurance as it is in England? Bibliotherapy provides a unique avenue for personal growth, self-awareness, and resilience. While it may not directly prevent drug addiction, it contributes to overall well-being and equips individuals with viable tools to navigate life's challenges. The presentation will present an IRB-approved research study. You will acquire knowledge and personal awareness of the protective factors that increase resilience. You will review the components of a successful, award-winning non-profit, mental health provider.

Welcome Message

DR. Raj Gopalan,

BSRM Consulting, United States

Dear Congress attendees,

It's my honor to welcome you all. Whether we are using smartphones, watching TV, ordering goods online, booking travel, or browsing the internet, Artificial Intelligence (AI) has been an integral but often unnoticed part of these technologies for years. AI enhances our experiences by making them more relevant and personalized.

While healthcare delivery has traditionally been paper-based and slower to adopt technology, significant strides have been made in the past decade. This progress is ensuring healthcare providers to deliver more appropriate, tailored care to their patients.

Despite advancements, AI and machine learning (ML) are unlikely to replace healthcare professionals anytime soon. However, organizations and professionals embracing AI/ML for deduction, diagnosis, treatment, and operations gain a distinct advantage. These technologies enhance efficiency, quality, and cost-effectiveness, surpassing those not leveraging AI's potential.

I look forward to insightful discussions and collaborations that will shape the future of healthcare and technology at this Congress.

Welcome Message

Robert B. Slocum,

University Of Kentucky Healthcare, United States

Dear conference participants and visitors,

I am honored to offer these brief notes of welcome for you concerning my presentation. Functional Seizures (FS) [also known as Psychogenic Nonepileptic Seizures (PNES)] are involuntary paroxysmal episodes that are frequently misdiagnosed and mistreated as epileptic seizures. Many patients with FS have a history of sexual,physical, or emotional abuse or other traumatic experiences. Cultural influences, a family code of silence, or a personal sense of shame may inhibit patient communication about their overwhelming experiences. FS is a communication disorder in which distress is expressed somatically in a pathological way instead of an adaptive and verbal manner. A seizure-like event may provide distraction from an overwhelming situation or experience but at a terrible cost to the patient. Narrative Medicine (NM) is a communication therapy that engages and integrates the patient's life story and overwhelming experiences through interactive conversations and writing exercises. NM helps patients work through the biographical disruption of their condition that threatens their coherent sense of self. NM helps patients communicate more effectively about unspeakable distress and discover a narrative antidote to the communication disorder of FS.

Welcome Message

Sam Vaknin,

Cambridge, United Kingdom

Dear Colleagues

Welcome to the 5th Edition of Global Conference on Addiction Medicine, Behavioral Health and Psychiatry. This gathering is one of the richest ever. As neuroscientists and mental health practitioners, we are all faced with the conundrum: is addiction a disease or a dysregulatory behavioral dysfunction? What about the social dimensions of addictive behaviors? Is there such a clinical entity as an “addictive personality”? The scientific program aims to tackle all these aspects, many of which are much neglected in both the literature and in other conferences. Among the more titillating presentations: cultural dynamics in addiction; the edo questionnaire; and my video presentation on when psychotherapy becomes addictive. We wish you a thought-provoking time: addiction to new knowledge is encouraged!

Welcome Message

PROF. Thomas J. Webster,

Interstellar Therapeutics, United States

Dear Congress Visitors,

The brain has often been called the final frontier in medical research. From the intricacies of neural networks to the blood brain barrier, it still contains so many unknowns. Neurological disorders affect the body's autonomic, peripheral and central nervous system and include diseases such as multiple sclerosis, Alzheimer's disease and other dementias, Parkinson's disease, epilepsy, migraines, and so many others. Especially concerning are the number of new and prolonged psychological disorders that have emerged during COVID-19 as a result of COVID-19 isolation, lost diagnoses, missing treatment, and unfortunately lost research time. It is time to make up for this lost time ! Our patients need and deserve it !

As we continue to emerge from COVID-19, we need to take advantage of every conference possible to push our field ahead. While COVID-19 kept us from interacting with one another to develop solutions in neurology, that time has stopped and we need to double-down and make up for lost time. Even though we could not meet over the past several years, healthcare problems in neurology continued and even grew, and the statistics are as alarming as ever. For example, in 2019, it was estimated that neurological disorders accounted for a total of 7.5 million years lost due to premature death and a total of 8.2 million years that people have lived with neurological disabilities (Burden of Neurological Conditions, www.PAHO.org, accessed Sept. 22, 2022). And the statistics are getting even worse due to lost diagnostic, treatment, and research time that occurred during COVID-19. So, come to Baltimore, The Charm City, where the research will motivate you to finally develop approaches to treat diseases from the final frontier of medicine – the Brain. Don't simply just be a part of the future, help create it.

Welcome Message

Yan M Yufik,

Virtual Structures Research, Inc, United States

Dear Colleagues,

It is an honor to welcome participants of the 10th International Conference on Neurology and Brain Disorders. We are living at the time of great accomplishments in neuroscience, which are accompanied by great expectations and growing challenges. Accomplishments are due to a confluence of factors including emergence of powerful techniques allowing in vivo monitoring and measurement of neuronal processes, development of computational systems enabling analysis and manipulation of vast amounts of data and, last but not least, recent successes in developing computational approximations of neuronal mechanisms (AI). Rapid advances in all these areas create expectations that breakthrough results unlocking “the mysteries of the brain” are close at hand. Challenges come from the mounting uncertainty about future relations between AI systems and humans and, more importantly, from the realization that “mystery” is shaped as a jigsaw puzzle so that increasing the number of data pieces can make the ‘unlocking’ task harder, and that approximating neuronal mechanisms in computers does not necessarily equate to understanding them. Thanks are due to organizers and Scientific Committee of this conference for creating a venue for discussing these challenges.

ABOUT
MAGNUS GROUP

Magnus Group, a distinguished scientific event organizer, has been at the forefront of fostering knowledge exchange and collaboration since its inception in 2015. With a steadfast commitment to the ethos of Share, receive, grow, Magnus Group has successfully organized over 200 conferences spanning diverse fields, including Healthcare, Medical, Pharmaceutics, Chemistry, Nursing, Agriculture, and Plant Sciences.

The core philosophy of Magnus Group revolves around creating dynamic platforms that facilitate the exchange of cutting-edge research, insights, and innovations within the global scientific community. By bringing together experts, scholars, and professionals from various disciplines, Magnus Group cultivates an environment conducive to intellectual discourse, networking, and interdisciplinary collaboration.

Magnus Group's unwavering dedication to organizing impactful scientific events has positioned it as a key player in the global scientific community. By adhering to the motto of Share, receive, grow, Magnus Group continues to contribute significantly to the advancement of knowledge and the development of innovative solutions in various scientific domains.

ABOUT
CPD Accreditation

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Continuing Professional Development (CPD) credits are valuable for attendees as they provide recognition and validation of their ongoing learning and professional development. The number of CPD credits that can be earned is typically based on the number of sessions attended. You have an opportunity to avail 1 CPD credit for each hour of Attendance. Some benefits of CPD credits include:

Career advancement: CPD credits demonstrate a commitment to ongoing learning and professional development, which can enhance one's reputation and increase chances of career advancement.

Maintenance of professional credentials: Many professions require a minimum number of CPD credits to maintain their certification or license.

Increased knowledge: Attending and earning CPD credits can help attendees stay current with the latest developments and advancements in their field.

Networking opportunities: This conference provide opportunities for attendees to network with peers and experts, expanding their professional network and building relationships with potential collaborators.

Note: Each conference attendee will receive 20+ CPD credits.

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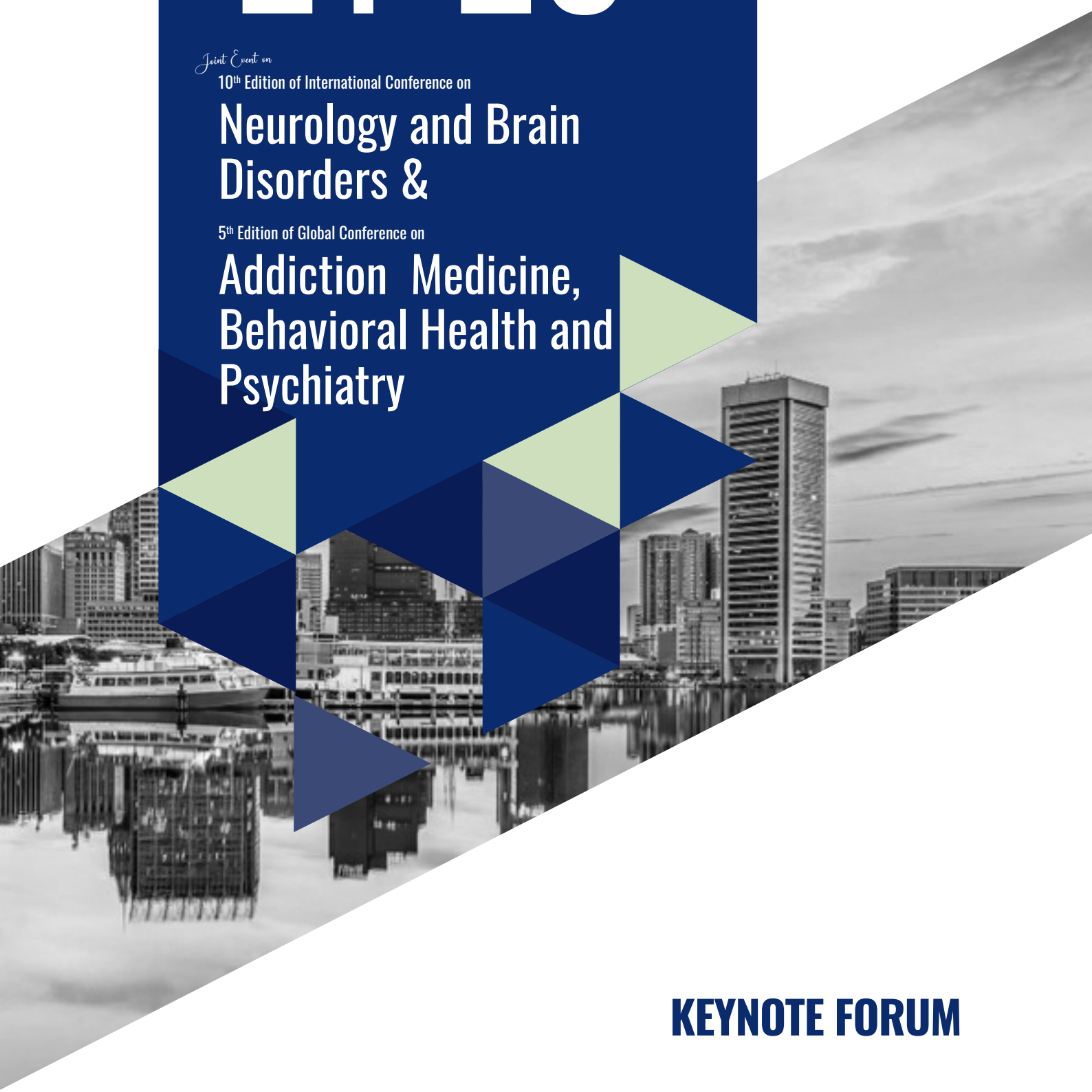


KEYNOTE FORUM

The opposite of addiction is connection: The intersection of attachment, positive psychology and nervous system regulation

Addiction is commonplace in most cultures worldwide, but so is the desire to heal. Thirty-five years ago, clients came to me with the sole purpose of stopping their self-destructive behaviors. Today it's a different story: Not only do they want to put an end to their cravings, but they also want to live better lives as well, with greater intimacy and more satisfying relationships. The root cause of their suffering tends to be brokenheartedness. I have found that their addictive, compulsive behaviors are really about pain, and the remedy is reliable relationships and deeper connection.

Based on the premise that we are biologically-wired for connection, this presentation explores the intersection of nervous system regulation, Attachment theory and positive psychology. Because addiction and trauma tend to be inseparable, we will look through the lens of trauma healing to help clients move toward long-term recovery from chemical dependence as well as behavioral addictions.

For individuals in recovery from addictions and trauma, deeper contact with others holds even more significance to promote sustainable sobriety. Developing secure attachments is not the short-term goal; breaking down barriers that get in the way of secure attachments is the key. Addiction thrives on isolation, shame and secrecy, and to diminish this stigma, this presentation looks at long-term recovery from the perspective of establishing dependable relationships in order to mend broken hearts.

Attendees will acquire useful strategies to teach clients how to build sustainable, long-term recovery, develop greater meaning, and practice nervous system regulation—essential elements toward a more fulfilling, deeply-connected life in recovery.

Audience Take Away Notes

- Describe how nervous system regulation supports sustainable sobriety?
- Name three examples of brokenheartedness?
- Give one example of a positive psychology intervention that promotes greater connection?
- Identify three emotional resilience skills?

Andrew Susskind LCSW, SEP, CGP

Private Practice, Santa Monica, California, USA

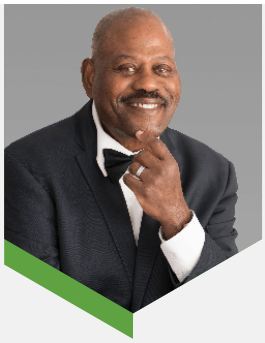
Biography

Andrew Susskind is a Licensed Clinical Social Worker, Brainspotting Practitioner, Group Psychotherapist and Author, he brings a multi-faceted perspective to work. Andrew ability to relate compassionately to those in recovery stems from his personal and professional experience with trauma and addictive, compulsive behaviors. Susskind's recent publications include It's Not About the Sex: Moving from Isolation to Intimacy after Sexual Addiction (Central Recovery Press, 2019) and The It's Not About the Sex Workbook (Routledge Press, 2024). Andrew has been in private practice in Los Angeles since 1992.

The missing vital sign

The most important information about any client or patient is the PHI, (Personal Happiness Index). Like temperature, pulse, or BP, PHI is a true "vital sign" and the tool needed for determining it is the Edo Questionnaire (aka PISA Scale).

The Edo Questionnaire is a twelve-item self-assessment scale that can identify happy people, unhappy people, very happy, very unhappy, languishing, or flourishing individuals in any given cohort. PHI ranges from 0.125 on the languishing end to 8.000 on the flourishing end of the scale. The questionnaire has good internal consistency with an alpha value of 0.88. Content validity ratio is 0.85—with ten SME used in calculating the CVR. Test-retest reliability is 0.95. Like all other vital signs, PHI should be routinely determined by every clinician—no matter what specialty.



Alphonsus Obayuwana

Triple-H Project LLC, United States

Biography

Alphonsus Obayuwana M.D., Ph.D., CPC. is both a physician and a happiness guru. He is the Founder and CEO of Triple-H Project LLC, Perrysburg, Ohio, in USA. He is an award-winning author who has published several peer-reviewed articles in the national medical journals on the subject of Human Hope, including the Hope Index Scale that became widely used at Coca-Cola, General Motors, Veterans Administration, and many academic institutions inside and outside USA. After thirty years of relentless research on Human Hope & Happiness, Alphonsus successfully derived the Triple-H Equation that is at the core of The Mathematics of Happiness. Throughout his tenure as instructor, assistant professor, associate professor, and professor—respectively at Johns Hopkins, University of Maryland, Eastern Virginia Medical school, Ohio University College of Osteopathic Medicine, and University of Toledo—he taught and mentored medical students, resident physicians, nurses, and fellows in the art of caring and promoting happiness for themselves and their patients. Dr. Obayuwana is also a retired Major in the US Air Force (Reserve).

Shadows unveiled: The interplay between adolescent Traumatic Brain Injury (TBI) and substance use disorders

This presentation unravels the intricate relationship between Traumatic Brain Injury (TBI) and youth Substance Use Disorders (SUD), revealing the shadows that obscure their interconnected challenges. Adolescents navigating the confluence of TBI and SUD often face a complex web of shared risk factors, leading to a compounding impact on neurobiology and behavior. Through an exploration of the neurobiological effects and behavioral manifestations arising from this interplay, the presentation aims to provide a nuanced understanding of the unique challenges posed by the coexistence of TBI and SUD. Real-life case studies illuminate diverse scenarios where these conditions intersect, emphasizing the need for tailored treatment approaches. The discussion extends to preventive strategies, advocating for early intervention to mitigate risks associated with the simultaneous presence of TBI and SUD in youth.

Emphasizing cross-disciplinary collaboration, the presentation underscores the importance of a holistic, team-based approach for effective support and intervention. By empowering the audience with knowledge and resources, this presentation aims to foster awareness, understanding, and proactive measures to support adolescents grappling with the shadows cast by the intersection of traumatic brain injury and substance use disorders.

Audience Take Away Notes

- Introduce the shared risk factors that create an interplay between traumatic brain injury and youth substance use disorders
- Delve into the neurobiological effects of traumatic brain injury and substance use disorder on the developing brains of youth and how they intersect influencing behavior and complicate the overall picture
- Present a case that exemplifies the diverse scenarios where traumatic brain injury and substance use disorders coexist
- Emphasize the importance of personalized interventions to effectively support these individuals
- Advocate and stress the significance of early intervention as a proactive measure to reduce risks, enhance outcomes, and provide better support for affected youth

Dr. Ann Marie Leonard-Zabel

Full Professor of Psychology and Department Coordinator, Curry College, Massachusetts, USA
President and Owner of NEALAC Clinic, Cape Cod, Massachusetts, USA

Biography

Dr. Ann Marie Leonard-Zabel is a Full Professor of Psychology and Department Coordinator at Curry College in Massachusetts, USA. She received awards from Curry College involving Person of the Year, Excellence in Teaching, Excellence in Research, Excellence in Partnership Collaboration, Woman of Inspiration, and an invited two-time presenter at the Curry Authors event. She is a frequent speaker and keynote at national and international conferences involving School Psychology, School Neuropsychology, Disability Analysis, Homeland Security, Violence-Aggression, Forensic Examining, Autism, Trauma, A-D/HD, COVID-19/Long COVID and Post COVID-19 conditions among children and youth, Ethics, and Addictions. In addition, sheowns a private international practice specializing in evaluations, consultation, and in-service trainings for neuro-behavioral learning disabilities, neuro-developmental disorders, emotional-behavioral disorders, forensic examiner evaluations and

substance use/abuse disorders. For the past 17 years, she has served as a clinical supervisor/clinical instructor for the School Neuropsychology Institute training psychologists in School Neuropsychology. Dr. Leonard-Zabel has published chapters and training programs in the areas of Autism, Mental Health, Learning Disabilities, Telepractice Therapy, Diversity-Equity-Inclusion, as well as chapters in Ethics, TBI, Addictions, and Forensics. Dr. Leonard-Zabel is a Board of Director for the Learning Disabilities Worldwide Congress and is one of a group of Global Goodwill Ambassadors-USA for the Global Goodwill Ambassador Foundation (GGAF) focusing on the UN SDG 3-Good Health and Well-Being (strengthen the prevention, assessment and treatment of substance use disorder) and SDG 4-Quality Education (disabilities and human rights) and SDG 16 - Promote Peaceful and Inclusive Societies (decrease violence and abuse of children and youth). Dr. Leonard-Zabel is currently developing a course to bring global awareness on the topic “The Hijacked Brain-Adolescent Addiction” for the Global Goodwill Ambassador Foundation (GGAF) Learning Institute. She received the Lifetime Achievement award in School Neuropsychology and the Distinguished Lifetime Career Achievement award from the American Board of Disability Analysts.

Dynamics of the anti-reward system

Much tragedy and stigmatization arise from what appears to the uninformed as a selfish, insatiable urge to consume substances for those with severe Substance Use Disorder (SUD). Indeed, the lengths to which addicted persons often go to for substances can violate personal and societal values and create great personal risk.

A robust neurobiological explanation exists for this which has not yet been elaborated fully in the literature: An anti-reward system centred within the Lateral Habenula (LHb), rostral medial tegmentum, ventral tegmental area and Nucleus Accumbens (NAc) is present in healthy people to amplify signals which indicate negative reward. Developed to help persons avoid repeats of negative experience, this system amplifies negative dopamine spikes previously encoded through reward prediction error determined by the NAc.

In short, previous negative experiences, when cued externally or internally, result in an amplification of the negative dopamine state previously experienced. Through engaging the rest of the limbic system and hypothalamus, a strong dysphoria is experienced signalling avoidance of the experience.

Through the progression of addiction, this system is hijacked to compulsively push persons to continue substance use to avoid activation of tremendous dysphoria and craving (withdrawal). Over time, pavlovian learning results in a positive dopamine burst in the mesolimbic pathway when cues to substances are experienced. As tolerance and dependence develop, a negative dopamine spike likewise occurs when anticipated (cued) reward is omitted. This in turn, activates the LHb. Reward omissions activate neurons in the Lateral Habenula (LHb), which indirectly inhibits DA neurons via activation of GABAergic neurons in the Rostromedial Tegmental nucleus (RMTg).

Repeated activation of the LHb results in neuroadaptations producing hyperexcitability and hyperreactivity, further increasing amplification of negative dopamine states. This is experienced as learning to avoid negative dopamine states at all costs. Withdrawal has become learned and, through the anti-reward system, becomes the predominant driver for continued use. The greater the severity of SUD, the greater the neuroadaptations in the anti-reward system and dysphoria experienced with omission of substances.

Dr. Christopher Ashton BEng, MD, MBA, ICADC

Program Director, TEDDs on Chapel, Centre for Neuroscience and Recovery, United States

Biography

Dr. Ashton has many years of experience in health and social services clinical, counselling and research practice, with proven skills in mixed methods research, developing, implementing, and evaluating services, policies, and programs. Chris holds in-depth expertise in the neurobiology of mental health and addictions, applying research methods and findings into best practices in counselling.

Genetic decoupling of brain networks and epigenetic factors in diseases of agency

Impaired self recognition and action execution feature prominently in schizophrenia, as well as in several other cognitive diseases. Though identified as a diseases of agency, the etiology of schizophrenia, in particular, has remained obscure. Whole genome studies have thus far failed to identify gene candidates exerting more than a marginal influence on behavioral symptoms, with affected SNPs numbering well above 12,000 and pool sizes of risk alleles potentially running into the thousands. The indiscriminate and massive number of affected alleles seen in these studies implicates a higher order, organizational and regulatory impairment, rather than one involving specific genetic factors, which affects self-recognition and the ability to execute actions. Such a substrate is likely to be embedded within the interactive properties of large cell clusters such as those comprising neural circuits or even large-scale networks of the brain, which adopt top down regulatory control over behavioral and motor actions. The process of decoupling regulation from genetic oversight to one entailing a systemic and top down supracellular organization raises questions regarding whether the decoupling process itself or the systemic organization are impaired in these diseases. Given that decoupling processes involve developmental events, a failure in epigenetic mechanisms could affect the development of top down neural control leading to excessive or incorrect regulation of plasticity, thereby affecting self recognition. Alternatively, the regulatory structure itself could be the primary impairment. Consistent with this latter possibility, impaired body representations are correlated with the inability to attribute actions to oneself. Such representations are increasingly well understood–for example, several leading proposals link the sensorial representation of the body termed the Peripersonal Space (PPS) to the self/agent-and could offer a model for investigating the etiology of the disease. This talk will explore current findings of developmental and plastic processes and their influence on self regulation and self identification in these diseases.

Denis Larrivee

Loyola University Chicago, United States

Biography

Dr. Denis Larrivee is a Visiting Scholar at the Mind and Brain Institute, University of Navarra Medical School and Loyola University Chicago and has held professorships at the Weill Cornell University Medical College, NYC, and Purdue University, Indiana. A former fellow at Yale University's Medical School Denis received the Association for Research in Vision and Ophthalmology's first place award for studies on photoreceptor degenerative and developmental mechanisms. Denis is the editor of a recently released text on Brain Computer Interfacing with InTech Publishing and an editorial board member of the journals Annals of Neurology and Neurological Sciences (USA) and EC Neurology (UK). An International Neuroethics Society Expert he is the author of more than 95 papers and book chapters in such varied journals/venues as Neurology and Neurological Sciences (USA), Journal of Neuroscience, Journal of Religion and Mental Health, and IEEE Explore. In 2018 was a finalist in the international Joseph Ratzinger Expanded Reason award sponsored by the Francis Vittorio University of Madrid.

Psychostimulants for children: Are we over or under dosing?

An estimated 3% to 10% of school children meet the DSM-V criteria for ADHD (Attention-Deficit/Hyperactivity Disorder), however, to be over-diagnosed, the rate of children inappropriately diagnosed with ADHD (false positives) would have to be larger than the number of children with ADHD who are under-identified and not diagnosed (false negatives). Accordingly, a number of investigators take the position that under-treatment with psychostimulants, especially in children and adolescence, will result in continued ADHD symptomatology including future Substance Use Disorder (SUD). However, other researchers and clinicians believe otherwise and espouse laudable arguments for caution and prolonged methylphenidate or other psychostimulant treatment. While there is ongoing controversy of the role of genetics and epigenetics linked to ADHD, it seems clear that a number of dopaminergic genes and their risk polymorphisms act as DNA antecedents impacted by epigenetic induced methylation. Our hypothesis and literature review suggest that one possible solution is to embrace non addictive interventions to induce global dopamine homeostasis.

Audience Take Away Notes

The audience will learn about the genetic antecedents of attention deficit hyperactivity disorder and the importance of genetic prescreening for prevention of reward deficiency syndrome which is the hypodopaminergic state which is the real phenotype of mental health disorder endotypes like substance use disorder. The new psychiatric genomic science helps to identify medications which are right for the individual brain. In all cases for children especially nutraceutical interventions are preferred over pharmaceutical interventions. A diet devoid of sugar and caffeine is the most prudent. Addressing the genetically induced dopamine deficiency state of RDS in early children will hopefully prevent future manifestation of substance use disorders

Kenneth Blum[1,2], Catherine Dennen[3], Paul R. Carney[4], Elizabeth Gilley[2*], Panayotis K. Thanos[5], Eric R. Braverman[2], David Baron1, Colin Hanna[4], Edward J. Modestino[6], Mark S. Gold[7], Igor Elman[8], Rajendra D. Badgaiyan[9]

[1]Division of Addiction Research & Education, Center for Sports, Exercise & Mental Health, Western University Health Sciences, Pomona, CA, USA

[2]The Kenneth Blum Institute of Neurogenetics & Behavior, LLC., Austin, TX, USA

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[8]Cambridge Health Alliance, Harvard Medical School, Cambridge, MA, USA

[9]Department of Psychiatry, Mt. Sinai School of Medicine, New York, NY, USA

Biography

Elizabeth Dale Gilley is completing dissertation research in Reward Deficiency Syndrome at National University in San Diego, California, USA. She is the founder of the Elle Foundation, incorporated in Dallas, Texas in 1995. Elizabeth currently leads the team efforts of Elle Research and Elle Resource in West Palm Beach, Florida. She has published in peer review consistently since 2017 and has produced primary source original research in family and individual psychological genomics since 2020. She created Reward Deficiency Syndrome Solution Focused Brief Intervention therapy, RDS paradigm psychoeducation and the Reward Deficiency Syndrome Severity of Symptom measurement scale.

Clinical pharmacology of marijuana: Update 2024

Over the past decade, marijuana use throughout the world has increased including within the United States where it remains a federally-banned substance. According to a 2024 newsweek report, cannabis sales worldwide may be approximately $61 billion this year, and much higher by 2028.

Many conditions are being self-treated with marijuana including anxiety, posttraumatic stress disorder, and chronic pain. In regard to the latter condition, advanced clinical research is needed to document such applications. In an ongoing pilot study led by Dr. Goldstein, daily oral doses of a defined dose combination of THC-CBD combination over a four-week period have been shown to reduce pain scores and use of other analgesic medications in patients with chronic neuropathic pain; these data will be shown.

In addition, other topics to be presented are clinical pharmacological aspects of THC: Endogenous cannabinoid receptor system, mechanisms of action, adverse effects, addiction liability, physical dependence, withdrawal reactions and drug interactions.

Frederick J Goldstein PhD, FCP

Professor of Clinical Pharmacology Philadelphia College of Osteopathic Medicine, United States

Biography

Dr. Goldstein is Professor of Clinical Pharmacology in the Department of Bio-Medical Sciences at PCOM. Goldstein research interests have focused on pharmacologic methods to reduce pain in post-operative, cancer and hospice patients. Goldstein currently conducts a research study using THC to improve analgesia in patients presenting with chronic neuropathic pain. He created the term "Suicidogen": Any factor that causes a person to think about and possibly commit suicide [can be searched on the internet] in addition to teaching and research at PCOM, lectures in pharmacology at the University of Pennsylvania School Of Dental Medicine. Dr. Goldstein serves on the editorial board of, and reviews submissions for, the Journal of Opioid Management. Goldstein is an active member of the National Board of Osteopathic Medical Examiners where writes and reviews questions for the COMLEX Level 1 test.

Cannabis/CBD for treating neurological disorders

Cannabis is the most used illegal drug in the world with an estimated 2.5% of the world's population (180 million) using it regularly (World Drug Report 2017) 1. Medicinal and/or recreational cannabis use is associated with significant health consequences) (WHO, 20162; Volkow et al.3), and cannabis use as medicine remains the subject of extensive reviews and debates around the globe. There is paucity of clinical evidence from placebo controlled, double-blind randomized clinical trials that would support the approval of the cannabis plant, whether smoked or as an extract as medicine by the FDA or other regulatory agency in any country. FDA has approved three cannabis compounds: (i) synthetic THC (Dronabinol, Marinol) for treating chemotherapy-associated nausea & vomiting; (ii) a synthetic cannabinoid like THC (nabilone, Cesamet) to stimulate appetite in AIDS-wasting and for treating chemotherapy associated nausea and vomiting; and (iii) CBD (Epidiolex) for treating two rare conditions of epilepsy (LG-Dravet syndromes) in young children and a rare benign brain tumor. A combination of CBD and THC (nabiximols, Sativex) is approved for treating neuropathic pain in 20+ countries (but not in the USA). Neither FDA nor any other regulatory agency has approved cannabis, THC, CBD, nor any of the 125 identified cannabinoids for treating a wide range clinical indications including neurological disorders being promoted (Khalsa et al., 2018, 3 Khalsa et al. 20234). The national academy of sciences (2017) 5 and others recommend that additional research be conducted before any cannabinoid, but not smoked cannabis, can be used to treat any neurological disorder. This presentation will further show if current clinical evidence is adequate to support the use of cannabis, CBD, or any other cannabinoid to treat many clinical conditions including neurological disorders being promoted. If time permits, Dr. Khalsa will also discuss the various mechanisms of funding at NIH.

Learning Objectives: The participants will learn (i) the current knowledge on adverse health consequences of cannabis; (ii) the current research available on medicinal cannabis, CBD, or other cannabinoids; and (iii) clinical evidence supporting cannabis/CBD for treating neurological disorders.

Jag H. Khalsa MS, PhD., DFISAM

Adjunct Professor, George Washington University School of Medicine and Health Sciences, Washington, DC., Institute of Human Virology, UM School of Medicine, Baltimore, MD; and Special Volunteer at National Institute on Drug Abuse, National Institutes of Health, Gaithersburg, MD; USA

Biography

Jag H. Khalsa, MS, PhD, DFISAM, currently is an Adjunct Professor, GWU School of Medicine & Health Sciences, Washington, DC., and Institute of Human Virology, UM School of Medicine; and serves as a Special Volunteer/Guest Researcher at National Institute on Drug Abuse, NIH, following retirement after 40 years of US Federal service (10 at FDA and 30 years at NIH) as the Chief, Medical Consequences of Drug Abuse and Infections Branch, NIDA, NIH. Jag H is a recipient of numerous Lifetime Achievement awards in Addiction Science and Addiction Medicine, including Distinguished Fellow of the International Society of Addiction Medicine (DFISAM), and serves on several editorial boards including the Journal of Addiction Medicine.

3DYNAFS-MBaFUS: A virtual lab of microbubble-amplified focused ultrasound for noninvasive treatments of neurodisorders

Focused Ultrasound (FUS), especially when amplified by Microbubbles (MB), offers non-invasive options for treating deep-seated and brain tumors and other neurodisorders, by enabling targeted surgical ablation and/or local Blood-Brain-Barrier Opening (BBBO) for effective drug delivery. However, clinical translation faces significant challenges due to complex and intertwisted dependencies among various FUS and MB-related parameters, coupled with sensitivity to patient-specific conditions. To expedite the deployment of these non-invasive treatments using Microbubble-amplified Focused Ultrasound (MBaFUS), Dynaflow has developed a two-way coupled numerical platform, which models MBs in a Lagrangian fashion while solving acoustic and thermal fields in bio-media using an Eulerian approach. This allows for bidirectional interactions, where the acoustic field affects bubble dynamics, and bubble behavior influences pressure and heat deposition in bio-media.

MBaFUS serves as a virtual lab, streamlining therapy development and reducing the time and effort required for extensive testing. Researchers can explore new applications and advance basic science with this platform. Furthermore, it can function as a Treatment Planning System (TPS) in clinics for patient-specific optimizations. We demonstrate its efficacy in non-invasive deep-seated tumor ablation, validated against in vitro and ex vivo experiments where MBaFUS treatment for ex-vivo porcine tumor was conducted. Ongoing efforts to explore its potential for liquid biopsy, non-invasive diagnosis of brain diseases, will also be discussed. Lastly, we illustrate the prospects of MBaFUS's as a powerful tool to optimize Blood-Brain Barrier Opening (BBBO) for targeted drug delivery in treating neurodisorders such as Parkinson's and Alzheimer's diseases

Dr. Jingsen Ma

Dynaflow, Inc., Jessup, MD, U.S.A

Biography

Dr. Jingsen Ma is the Vice President at Dynaflow, Inc (DFI), a leading research company specializing in multiphase flow and cavitation. Dr. Ma earned Ph.D. in Chemical Engineering from the Chinese Academy of Sciences in 2007, conducting postdoctoral research on air-entrained naval flows modeling at RPI until 2010. With extensive experience in computational multiphase fluid dynamics, Dr. Ma expertise spans various industries, including oil & gas, marine, and biomedical sectors. Dr. Ma is a renowned expert in multi-scale modeling of cavitating flows, particularly in Microbubble-amplified Focused Ultrasound (MBaFUS) applications, earning DFI prestigious awards from the American Society of Mechanical Engineers (ASME) such as the CFD Best Paper (2020), Multiphase Flow Best Paper (2021), and the Knapp Award (2022), and Innovation Award at the 2023 TechConnect World Innovation Challenge. Apart from research, Dr. Ma is actively engaged in academic and engineering communities. Dr. Ma founded and leads ASME's Forum on Multiphase Flows with Bio-applications and served as the Outstanding Track Organizer of FEDSM2018. Also held positions as the Chair of the CFD Technical Committee (TC) and Vice-Chair of the Multiphase Flow TC of ASME. Currently, Dr. Ma's primary focus is seeking investment and developing joint proposals to accelerate the clinical translation and commercialization of DFI's MBaFUS—a Virtual Lab and TPS for noninvasive ablation and targeted drug delivery solutions for diseases like brain tumors, PD and AD.

The therapeutic value of the design and development of neurophysics therapy's psychophysical 'grids' to afford reliable point to point measurements in space/time of the initial conditions of a patients perception, action and cognition and the correction/modulation of sensory perceptual errors in the treatment of chronic pain CRPS and other complex chronic psychophysical conditions

NeuroPhysics Therapy (NPT) is a fascinating field that delves into the discrete functionality and behaviour of the human nervous system. It explores how our nervous system perceives and responds to the environment, and through the development and application of specialized techniques aims to optimize its function and behavioural potential. This specialized therapy has helped large number of people from around the globe, ranging from those with spinal cord injuries, chronic pain, complex neurological diseases and disorders, psychophysical diseases and disorders to elite athletes seeking physical and emotional well-being.

In this presentation NeuroPhysics Therapy founder Ken Ware, will describe how standardized pieces of resistance exercise machines are utilized to obtain fine grain detailed assessment/analyses relative to how patients suffering from chronic conditions such as pain (CRPS), neuropathy are perceiving and responding to their environment.

These unilateral exercise machines provide a stable measurable 'grid' that informs of the asymmetries relating to how each hemisphere is responding to and anticipating future stress within a purposefully prescribed super slow speed and time frame. In cases of chronic conditions, the self-applied mild resistance is commonly perceived as noxious and or threating. These are sensory perception and response errors given that the patient is nested within a safe supporting environment and is acting upon the environment in a purposeful and voluntary manner.

These patients' responses under such mild controlled conditions highlights their rogue psychophysical 'sensory generalization' default responses to all environmental stimuli, given that their system refers to its history to inform averages of perception and response to novel environmental stimuli.

Keywords: CRPS, NeuroPhysics Therapy, Psychophysical Grids, Rogue Sensory Generalization, Anterior Cingulate Gyrus.

Ken Ware

Founder of Neurotricional Sciences and NeuroPhysics Therapy, Gold Coast, Queensland, Australia

Biography

Ken Ware has been in private health, wellness and rehabilitation practice since 1988, while doing Ken has conducted independent and collaborative research and consulting for community projects. Ken Presented unique research papers at more than 25 major International Science Conference, including Neuroscience, Physics, Psychology and Life Sciences, covering a very broad scientific audience. Ken Relative publications in 'Frontiers in Clinical Physiology'-'World Journal of Neuroscience'–'World Journal of Cardiovascular diseases. A Former Mr. Universe 1994, National powerlifting and Bodybuilding champion and record holder. Recipient of Majesty, Queen Elizabeth's' 'Australian Sports Medal'-in 2000, in recognition for Ken personal contributions to the development of the Australian Sporting Culture.

Brain microrna and metabolic arrest

Unlike the brains of humans, animal brains are subject to extremes of environment–and must keep neural function intact during and after extreme conditions. Frogs and turtles totally freeze in winter, displaying no measurable brain activity and a flat-lined heart. Hibernating ground squirrels have brains that survive weeks at 0oC. Mole rats survive deep hypoxia/anoxia and maintain CNS function. These states are termed "suspended animation" and are characterized by global suppression of metabolic functions and the reprioritization of energy usage to essential survival processes. This extreme reorganization is elicited, in large part, by the regulatory controls of microRNAs. Our studies are the first to investigate miRNA biogenesis and regulation in extreme brains of vertebrates. The studies are informed by the creation and analyses of miRNA "OMES"–complete RNA-seq studies that have uncovered both up and down regulation of key microRNAs. These studies, coupled with quantitation of miRNA biogenesis factors, illustrated an overall reduction in the majority of these processing proteins-showing a potential suppression of miRNA maturation. Bioinformatic target enrichment of the up-and-downregulated miRNAs of each extreme brain predicted their involvement in the potential activation of various neuroprotective processes such as synaptic signaling, intracellular signal transduction, and anoxia/ischemia injury protection. The predominantly downregulated microRNA fingerprints identified in nature, suggests a microRNA-mediated cytoprotective mechanism responsible for maintaining neuronal functions and facilitating successful whole brain Metabolic Rate Depression [MRD].

Dr. Kenneth Storey

Professor, Carleton University, Canada

Biography

Kenneth B. Storey FRSC is a Canadian scientist whose work draws from a variety of fields including biochemistry and molecular biology. Kenneth is a Professor of Biology, Biochemistry and Chemistry at Carleton University in Ottawa, Canada.

Attachment style as an explanation for burnout among health professional caregivers and the moderating effect of mindfulness

Odelia Ben Harush[1], Meni Koslowsky[1*], Ohad Avny[2], Yehuda Frankel[2]

[1]Ariel University, Israel

[2]Hebrew University, Israel

Biography

Meni Koslowsky is currently a Professor of Psychology at Ariel University. Koslowsky Ph.D. is from Columbia University, and has taught previously at Long Island University, University of Connecticut, and Bar-Ilan University. Main areas of interest are research methodology, personnel selection, and organizational behavior including measures of performance, lateness behavior, absence, and organizational citizenship behavior. Latest H index is 51 which place Koslowsky in the top 10% of all researchers in field.

Background: For workers in the health professions, burnout is always a potential consequence. The term 'burnout' was first introduced by Freudenberger in 1974 to describe the conditions in which a person experiences physical and mental exhaustion caused by occupational stress (Freudenberger, 1974). Later, Maslach and Jackson (1981) defined burnout as a three-dimensional syndrome that consisted of depersonalization, emotional exhaustion, and low personal accomplishment (Maslach & Jackson, 1981, Yao et al., 2018). Burnout is especially common in jobs that are directly related to people, especially in the case of healthcare professionals who provide patient care services and face more challenges including communication with patients and their relatives as well as interaction with colleagues in teams (Yao et al., 2018).

Recent research has shown that physicians who work with patients who misuse opioids are likely to experience negative emotions (70%) or suffer from burnout (19%; Dhanani et al., 2022.). Individuals suffering from the syndrome put patients at risk besides manifesting various types of health problems. The present study examined personality factors as a risk factor for high levels of burnout among health professionals. In addition, the mindfulness variable was measured here. People who experience and achieve more current attention and awareness can help individuals better manage themselves and reduce autonomous behavior. As such, the main study hypotheses were:

1. Anxious attachment style is positively correlated with burnout
2. Avoidant attachment style is positively correlated with burnout
3. Mindfulness moderates the relationship between attachment style and burnout so that the relationship between the variables is higher for high levels of mindfulnes

Methods: The investigation here examined a sample of Israeli nurses (N=60), nearly all of whom were full-time employees. The instruments used here included the: MBI- Maslach Burnout Inventory (1996), SRMA-Self-Report Measures of Adult attachment (1998), and mindfulness- FFMQ questionnaire- The five facet mindfulness questionnaire (2006).

Results: Burnout was found to be related in the expected direction to avoidant attachment style and anxious attachment style. Mindfulness was not found to moderate the relationship.

Implications: According to the present findings, management must understand that burnout formation is a complex process that appears to depend on personal factors. As such, health organizations are advised to set up interventions that help reduce the burnout phenomenon. It may want to focus on those who are high on avoidance and anxiety. It may be advisable to team up with health practitioners who differ in their avoidance and anxiety levels so as to allow them to function more efficiently.

Intermittent hypoxic conditioning-induced exosome: Intervention for ischemic stroke treatment

Ischemic stroke is a leading cause of death and adult disability worldwide. Currently, the only FDA-approved treatment is tissue Plasminogen Activator (tPA). Over two decades ago, normobaric Intermittent Hypoxic Training (nIHT) was identified as beneficial for ischemia and reperfusion injury. More recently, the therapeutic potential of exosomes carrying various biological cargos has emerged. This presentation explores the possibility of using exosomes derived from IHT subjects as a novel treatment for ischemic stroke patients.

Method: Microglia, EOC 20, was exposed to the following groups: normoxia control, OGD-reoxygenation, nIHT, OGD-reoxygenation+nIHT, and OGD-reoxygenation+Exosome(nIHT). The OGD-reoxygenation protocol consists of 90 minutes of 0.1% O2 followed by 24 hours of normoxia. The 3-day IHT program consists of five to eight daily cycles of 5-10 minutes of hypoxia (4–3.5% O2) with intervening 4-minute reoxygenation. Exosomes were harvested as described in the exosome harvesting kit (Invitrogen). Calcein-AM assays were used to demonstrate the cellular protective effects of nIHT. Reactive oxygen species were measured using H2DCFDA. M2 phenotype changes were quantified using immunocytochemistry by staining CD206 on the cell surface. Representative pro-and anti-inflammatory cytokines were quantified by ELISA. The phagocytic activity of microglia was examined using a commercial phagocytosis assay kit. Data in this study were expressed as mean±SEM. Multiple comparisons between groups were accomplished by one-way ANOVA combined with Tukey post hoc test. $P<0.05$ was considered statistically significant.

Results: The Calcein-AM assay indicates that nIHT induces microglia protection against OGD-reoxygenation. Exosomes harvested from nIHT recapitulate the protective effect of IHT against OGD and reoxygenation. CD206 expression on microglia treated with nIHT was significantly increased compared to the normoxia control ($P<0.05$). Exosomes harvested from nIHT carry the protective cargo induced during the nIHT to the damaged microglia. The phagocytic activity of microglia in the nIHT group is significantly increased by more than 12 times compared to the normoxia group. Reactive oxygen species generation after OGD-reoxygenation was increased by about 50% compared to the normoxic control. nIHT reduced ROS generation in OGD-reoxygenation.

Conclusion: Exosomes collected from nIHT can be stored and used to treat hypoxia-reoxygenation stressed cells for recovery.

Myoung-gwiRyou

Department of Medical Laboratory Sciences, Public Health, and Nutrition Science, Tarleton State University, Fort Worth, Texas, USA

Biography

MDr. Ryou's research centers on investigating cellular and physiological response mechanisms under ischemic and hypoxic conditions, aiming to develop clinical interventions for ischemic stroke and myocardial infarction. Dr. Ryou earned a bachelor's degree in medical technology from Yonsei University in South Korea and a Ph.D. in Biomedical Science from the University of North Texas Health Science Center. Additionally, Dr. Ryou completed postdoctoral training at the University of Texas Southwestern Medical Center in Dallas, TX. Dr. Ryou is an Associate Professor of Medical Laboratory Sciences at Tarleton State University, part of the Texas A&M University System.

Audience Take Away Notes

- Normobaric Intermittent Hypoxia (IH) as an intervention for ischemia and reperfusion injuries?
- Does intermittent hypoxia regulate the Microglia activation?
- What is the benefit of the application of exosomes in ischemic stroke conditions?
- Can exosomes released from IH have the same cardiovascular protection effect as IH?

Using bibliotherapy for developing resilience for coping with life's challenges

Bibliotherapy involves using books, guided self-reflection, and individual agency as tools for growth and healing. Resilience refers to an individual's ability to bounce back from adversity. Building resilience can be a protective factor against debilitating life challenges and Substance Use Disorders (SUDs). Therapeutic bibliotherapy can complement traditional medical or psychological therapies.

Non-profits, like hope at hand, Inc. often have limited resources for conducting and disseminating research on the impact of their mental health programming.

This session describes how research can promote collaboration, validate programming, and engage underserved youth and college students in therapeutic art and poetry experiences. The University of North Florida, and another university, co-authored a research study with hope at hand, Inc. A quasi-experimental study showed that bibliotherapy intervention resulted in a significant difference in scores on the resilience scale for adults with undergraduate college students. The research supported significant outcomes of programming utilizing bibliotherapy with themes of resilience to help individuals make sense of their lives. Preliminary results suggest bibliotherapy improves resilience in undergraduates and underserved youth. Organizations that collaborate, perform well, increase impact, show evidence-based results that measure progress better to serve clients.

Audience Take Away Notes

- Bibliotherapy provides a unique avenue for personal growth, self-awareness, and resilience. While it may not directly prevent drug addiction, it contributes to overall well-being and equips individuals with valuable tools to navigate life's challenges
- The presentation will address how therapeutic bibliotherapy can complement traditional medical or psychological therapies
- The presentation will present an IRB approved research study and show how mental health professionals can collaborate with universities and non-profits to develop an inquiry stance, conduct research, and apply evidence-based strategies for increasing their own and their organizations' impact
- Acquire knowledge and personal awareness of the protective factors that increase resilience
- Review the components of a successful, award-winning non-profit, mental health provider
- Studying successful organizations allows participants to learn from their best practices. Counselors can gain insights into effective strategies for client engagement, program development, and community outreach

Nile Stanley

University of North Florida,

United States

Biography

Dr. Nile Stanley is an Associate Professor of Literacy Education and the Arts at the University of North Florida, Dr. Stanley has 36 years of experience as a reading specialist, poetry educator, artist in residence, educational diagnostician, and visiting scholar of narrative psychology in China, Germany, and Vietnam. Published research in the Journal of Poetry Therapy, Reading Psychology, and Language Magazine. Dr. Stanley is an editorial board member of the Journal of Poetry Therapy and a past editor of the Florida Reading Journal. Dr. Stanley is a founding board member of Hope at Hand, Inc., a non-profit center that provides art and poetry interventions for underserved youth. The AETNA Insurance Company awarded Hope at Hand, Inc, as one of the best non-profit mental health providers in North Florida.

Artificial Intelligence/Machine Learning (AI/ML) models could predict the risks for brain tumors months ahead of diagnosis using routine blood markers

Background: Brain tumors are the second leading cause of cancer deaths among children and young adults, with an estimated 1 million Americans living with a brain tumor. Each year, 95,000 new cases are diagnosed, of which 30% are malignant with a survival rate of only 35%. Females are one and a half times more likely than males to develop brain tumors. Meningioma and Glioblastoma account for 50% of all brain tumors. The 5-year survival rate for Glioblastoma is only 10%.

Methods: Machine Learning (ML) models were trained using over 2000 sets of blood test results data from patients with and without brain tumors sourced from MIMIC-IV, a hospital-wide Electronic Health Record (EHR) dataset from Beth Israel Deaconess Medical Center, Boston, MA. A gradient boosted model was employed with 300 trees, a maximal depth of 30 layers, and gain ratio as the criterion for attribute selection. The model's performance was evaluated using 10-fold cross-validation, demonstrating optimal results. Input parameters included age, gender, and results of routine blood markers such as complete blood counts, differential counts, comprehensive metabolic panels, and lipid panels recorded up to 6 months before brain tumor diagnosis.

Results: The model was tested in a population with a brain tumor prevalence of 1%, achieving an area under the curve (AUC) of 100% and accuracy of 99%. This yielded 100% sensitivity, 99% specificity, 83% positive predictive value, and 100% negative predictive value, with an F measure of 90% and Youden index of 0.99. Creatinine, cholesterol, white blood cells, and triglycerides predominantly contributed to identifying brain tumor risk.

Conclusion: The brain and kidneys share similar microvascular structures, making them susceptible to common pathophysiological processes. Elevated serum creatinine levels have been associated with cognitive impairment in older adults with diabetes. Additionally, brain tumors can lead to metabolic changes in the body, potentially affecting kidney function and influencing serum creatinine levels. The UK Biobank found that higher pre-diagnostic Total Cholesterol (TC) and High-Density Lipoprotein Cholesterol (HDL-C) levels were associated with a higher risk of glioma in men. Brain cancer cells, particularly glioblastomas, depend heavily on cholesterol for growth and survival, subverting normal cholesterol regulation mechanisms to accumulate cholesterol. Neutrophils play a significant role in the brain tumor microenvironment, potentially influencing tumor growth, angiogenesis, and treatment resistance. The immune system, including white blood cells, plays a role in detecting and eliminating abnormal cells, including cancerous cells. The neutrophil-lymphocyte ratio (NLR) has been proposed as a

Raj Gopalan

BSRM Consulting, Durham, NC, USA

Biography

Raj Gopalan is a senior physician executive with over 35 years of experience in general medicine and healthcare information technology. Raj has a National Library of Medicine (NLM) fellow with a master's degree in medical informatics and has published several articles in distinguished scientific journals. Raj has held senior executive roles at US Oncology, UNC Health, Advent Health, Wolters Kluwer, and Siemens Healthineers. Raj work demonstrates that AI/ML-based prediction models can help identify patients at risk for life-threatening diseases such as cancer, chronic illnesses, and acute conditions using routine blood tests, as well as in therapy selection and monitoring.

biomarker for brain cancer prognosis, with higher NLR associated with higher tumor grades and poorer outcomes in glioma patients. Dysregulation or impairment of immune surveillance mechanisms could theoretically contribute to an increased risk of tumor formation or progression. AI/ML models have identified patterns in the combined values of these markers, contributing to predictive models that may help identify the risk for brain tumors months before neurological symptoms appear, facilitating prompt diagnosis and treatment.

Audience Take Away Notes

- Understand the significance of routine blood markers in assessing brain tumor risks
- Implement AI/ML models for identifying brain tumor risk in clinical practice
- Initiate research to study the biochemical mechanisms of these markers affecting brain tumor risk
- Utilize simple routine blood tests driven by AI/ML models to monitor high-risk patients and follow up with additional imaging studies to detect brain tumors early for intervention

Narrative medicine: A communication therapy for the communication disorder of Functional Seizures (FS) also known as Psychogenic Nonepileptic Seizures (PNES)

Patients with Functional Seizures (FS) (also known as Psychogenic Nonepileptic Seizures (PNES), have involuntary paroxysmal episodes that resemble epileptic seizures but without organic etiology. Many patients with FS have a history of sexual, physical, or emotional abuse or other traumatic or overwhelming experiences. FS is a communication disorder in which distress is expressed somatically in a pathological way instead of a healthy verbal manner. The patient's body may seem to enact a communication of its own as the patient cannot or will not communicate directly about an overwhelming and unspeakable subject. Patients with FS are frequently misdiagnosed and mistreated for epileptic seizures. Accurate diagnosis may be delayed for many years. FS may cause severe disruption of the patient's quality of life in terms of employment or schooling as well as relationships, and activities of daily living. Some patients with FS have been accused of faking symptoms or malingering, and stigmatized by health care providers, coworkers, family members, and others in society. Patients with FS may have family histories of poor interpersonal communication and conflict resolution, with inherited codes of silence and shame concerning sensitive or traumatic subjects. Patients with FS may have Post-Traumatic Stress Disorder (PTSD) as a comorbidity. They may have significant dissociation and inadequate emotional expression. Narrative Medicine (NM) is a communication therapy that draws out the patient's narrative of illness or injury and overwhelming experiences through interactive conversations and writing exercises. NM provides space for the patient to explore thoughts and feelings in a guided conversation with a collaborator who listens attentively. NM is patient-centered and open-ended with focus on exploring topics the patient needs to discuss. NM seeks to help patients identify meaning and identity in the context of their lives and challenges. Unlike Cognitive Behavioral Therapy (CBT), there is no script or checklist for NM sessions. NM sessions are not confrontational. The "teller" and "listener" share a "dyadic" professional relationship that encourages trust and respect. This interactive process is dynamic and may take unexpected turns. Both teller and listener can be changed by an NM session. Patients can reflect on their difficult stories relative to their sense of identity, sources of strength, new insights, and hope for the future. Unstated or previously silenced concerns may be voiced by the patient. An unhurried context of trust where the patient is heard can encourage the patient to communicate about disturbing history and situations. NM helps patients work through the biographical disruption of their condition that may threaten their sense of an integrated and coherent self. Narrative writing exercises have also proven helpful for patients facing a variety of traumas and major stresses. A patient with FS

Robert B. Slocum Ph.D.

Narrative Medicine Program Co-ordinator, University of Kentucky HealthCare, Lexington, Kentucky, USA

Biography

Robert B. Slocum is the Narrative Medicine Program Coordinator at University of Kentucky HealthCare. Robert holds doctorates in law (Vanderbilt), ministry (University of the South), and theology (Marquette). Robert has experience in pastoral ministry as well as academic teaching and administration. Robert has taught undergraduate courses in religious studies and ethics and an Assistant Professor (voluntary faculty, Internal Medicine) at the University of Kentucky College of Medicine (COM). Robert teaches a fourth-year COM elective on the narrative basis for patient care and resilient practice. Robert is a member of the Hospital Ethics Committee. Robert is the author, editor, or co-editor of 14 books, including a journal of reflections. Robert 36 articles have appeared in theological or medical journals and as book chapters, and has made presentations at more than two dozen theological and medical conferences. Robert has also published short fiction and poetry. Robert is interested in the clinical application of narrative and the significance of narrative for identity formation. Robert sees Narrative Medicine as a bridge between medical humanities and clinical practice.

who constructs a story (written or oral) about personal trauma or overwhelming stress can discover a narrative antidote to the communication disorder and inhibition of FS. The patient with FS can become the teller of the story who discovers hope by putting the unspeakable into words. Old taboos and codes of silence can be let go as the patient collaborates with an attentive NM provider. Finding words for difficult experiences and sharing the story can help patients process their thoughts and feelings to reintegrate traumas and other experiences relative to their sense of meaning, self-identity, beliefs, and goals. Difficult personal history cannot be changed, but the patient may come to see their challenges in a new light. Patients can begin to reclaim their lives from the communication disorder of FS and other functional disorders.

Audience Take Away Notes

- This presentation will help the audience to understand the causes and symptoms of Functional Seizures (FS), and respond appropriately when encountering patients with PNES
- This presentation will help the audience to understand the need for Narrative Medicine (NM) interventions for patients with FS, and to make appropriate referrals for care with NM
- This presentation suggests future possibilities for research concerning the effectiveness of NM applications for patients with FS

Treatment of chronic muscle spasm and pain with the CMECD® procedure

It has been noted by multiple researchers that there is Spontaneous Electrical Activity (SEA) at painful trigger points. This author has studied chronic muscle spasm and found that SEA is always present and appears to be the cause for the chronic nature of muscle spasm and resulting chronic pain. Chronic muscle spasm and resulting chronic pain can last for years and cases where the spasm lasted for decades were not only found but successfully treated with the CMECD® procedure. This procedure consists of EMG guidance searching for the SEA and using a combination of phenoxybenzamine, Lidocaine and dexamethasone to extinguish the SEA. Large areas of muscle often need to be treated. Thanks to lidocaine acting as an antiarrhythmic, the SEA is extinguished within seconds and the phenoxybenzamine then takes over after about one hour. With the resolution of the SEA, the muscle can immediately relax. The phenoxybenzamine forms a covalent bond on the alpha motoneuron receptor and the result is a duration of action of 2-3 months. This is enough time for the muscle to recover the prolonged effect of ischemia resulting from the prolonged spasm. Muscles treated in this fashion need only a single injection. Recurrences are rare and only occur if there is a repeat overuse or traumatic injury. The CMECD® procedure is available for use by any medical caregiver that is licensed to give injections. The ability to permanently relieve chronic pain without the use of opioid drugs should prompt interest in this procedure.

Audience Take Away Notes

- The audience will be exposed to an EMG guided injection procedure that will allow them to treat chronic pain resulting from chronic muscle spasm with a single injection regardless of the length of time the chronic spasm had been present. Details and practical considerations will be covered. The EMG presentation will be reviewed with treatment and outcome EMG videos. Theoretical considerations will be discussed
- The ability to make use of the CMECD® procedure will allow physicians to treat individuals suffering from chronic pain. The economy of the procedure will allow them to directly treat patients directly and be rewarded with the personal accomplishment of immediate and sustained relief of chronic pain. The EMG findings that will be presented offer an opportunity for further research in the origin and treatment of chronic pain and chronic muscle spasm

Roger H. Coletti MD

Interventional Health, PA, Lewes, DE, USA

Biography

Dr. Coletti received a BA from Georgetown University College of Arts and Sciences and also received a Master of Arts from Hofstra University. Dr. Coletti received MD from State University of New York at Downstate. Dr. Coletti medical internship and residency was performed at Nassau County Medical Center in East Meadow, NY and did two years of cardiology fellowship at Columbia Presbyterian Medical Center in New York and then transferred to Westchester County Medical Center where Dr. Coletti completed one year of Interventional Cardiology fellowship. Dr. Coletti was awarded FACC, FASNC, and FSCAI fellowship status. Current interest is chronic muscle spasm and pain.

When suggestible patient pleases therapist

Suggestibility is a clinical features of certain mental health issues, such as Histrionic Personality Disorder (HPD), Paranoid Personality Disorder (PPD), Borderline Personality Disorder (BPD), schizotypal personality disorder, bipolar disorders, and psychotic disorders.

Suggestibility is often comorbid with impaired reality testing and a pronounced fantasy life bordering on a delusional disorder. Patients with this profile are very amenable to a wide spectrum of cues, including subliminal and body language ones.

Some suggestible patients try to please their therapists: They fake expected behaviors and they collude in or originate a shared fantasy with the clinician.

The shared fantasy involves both transference and countertransference. The therapist is coopted into becoming an active participant in the contamination and compromise of the therapeutic process thus undermining the therapeutic alliance.

Boundaried therapists should prevent this from happening. But, regrettably, some of them don't because it caters to their own psychological emotional needs and to their cognitive distortions (such as grandiosity).

Sam Vaknin Ph.D.

Cambridge, United Kingdom

Biography

Sam Vaknin is the author of "Malignant Self-love: Narcissism Revisited" and other books about personality disorders. Vakin work is cited in hundreds of books and dozens of academic papers: Vakin is Visiting Professor of Psychology, Southern Federal University, Rostov-on-Don, Russia and Professor of Finance and Psychology in CIAPS (Centre for International Advanced and Professional Studies). Vakin spent the past 6 years developing a treatment modality for Narcissistic Personality Disorder (NPD). Over the years, with volunteers, it was found to be effective with clients suffering from a major depressive episode as well.

The future of neuroscience education, from active learning to the metaverse

In 1906, the Italian biologist and pathologist Camillo Golgi and the Spanish pathologist and histologist Santiago Ramóny Cajal shared the Nobel Prize for Medicine and Physiology 'in recognition of their work on the structure of the nervous system'. They are considered the founders of neuroscience: for the first time, the world could visualise neurons in the brain. 118 years later, neuroscience has changed the landscape of bioscience research. It is an overall young discipline that is still growing at an incredible rate. From an educational perspective, it has fully embraced the digital revolution, which the pandemic has accelerated, and is attracting students from a high number of scientific backgrounds, from biology to medicine, from psychology to engineering, from philosophy to computing. But what will the future of neuroscience education look like? This talk will guide the audience through some of the most innovative aspects that will shape the future of neuroscience education, from active and distance learning to the metaverse, via mixed reality, gamification and technology-enhance learning.

Audience Take Away Notes

- Analysing advantages and limitations of active learning approaches
- Familiarising with a range of assessment strategies for in-person and distance teaching
- Recognising the potential of augmented reality, virtual reality and metaverse in medical education

Stefano Sandrone PhD, MEd

Imperial College London, United Kingdom

Biography

Stefano Sandrone is an Italian neuroscientist and educationalist working at Imperial College London. Stefano won the Science Educator Award presented by the Society for Neuroscience and the B. Baker Teacher Recognition Award from the American Academy of Neurology twice. Stefano wrote three books, including Nobel Life, in which Stefano interviewed 24 Nobel Laureates about their Life stories, advice for future generations, and what remains to be discovered.

Neural nanomedicine: Fighting stroke, improving stem cell delivery, healing nerves and using artificial intelligence

Nanomedicine is the use of nanomaterials to improve disease prevention, detection, and treatment which has resulted in hundreds of FDA approved medical products. While nanomedicine has been around for several decades, new technological advances are pushing its boundaries. For example, Artificial Intelligence (AI) has revolutionized numerous industries to date. However, its use in nanomedicine has remained few and far between. One area that AI has significantly improved nanomedicine is through implantable sensors. This invited talk will present research in which implantable sensors, using AI, can learn from patient's response to implants and predict future outcomes. Such implantable sensors not only incorporate AI, but also communicate to a handheld device, and can reverse AI predicted adverse events. Examples will be given in which AI implantable sensors have been used in orthopedics to inhibit implant infection and promote prolonged bone growth. In vitro and in vivo experiments will be provided that demonstrate how AI can be used towards our advantage in nanomedicine, especially implantable sensors. Lastly, this talk will summarize recent advances in nanomedicine to both help human health and save the environment.

Audience Take Away Notes

- What is neural nanomedicine?
- How can neural nanomedicine can used to improve health?
- What is the future of neural nanomedicine?

Thomas J. Webster

Interstellar Therapeutics, Boston, MA, USA; School of Health Sciences and Biomedical Engineering, Hebei University of Technology, Tianjin, China

Biography

Thomas J. Webster's (H index: 121; Google Scholar) degrees are in chemical engineering from the University of Pittsburgh (B.S., 1995; USA) and in biomedical engineering from RPI (Ph.D., 2000; USA). Webster served as a professor at Purdue (2000-2005), Brown (2005-2012), and Northeastern (2012-2021; serving as Chemical Engineering Department Chair from 2012-2019) Universities and has formed over a dozen companies who have numerous FDA approved medical products currently improving human health. Webster is currently helping those companies and serves as a professor at Hebei University of Technology, Saveetha University, Vellore Institute of Technology, UFPI, and others. Dr. Webster has numerous awards including: 2020, World Top 2% Scientist by Citations (PLOS); 2020, SCOPUS Highly Cited Research (Top 1% Materials Science and Mixed Fields); 2021, Clarivate Top 0.1% Most Influential Researchers (Pharmacology and Toxicology); 2022, Best Materials Science Scientist by Citations (Research.com); and is a fellow of over 8 societies. Prof. Webster is a former President of the U.S. Society For Biomaterials and has over 1,350 publications to credit with over 53,000 citations. Webster was recently nominated for the Nobel Prize in Chemistry (2023).

Predictors spontaneous neurological recovery and factors that affect the outcomes of management of patients with traumatic spinal cord injuries

The incidence of Traumatic Spinal Cord Injuries (TSCI) is small and ranges between 10-50/million population/year. Prior to the second WW the great majority of patients died within two years of injury. Since the 2nd WW, due to the efforts of the pioneers who dedicated their professional lives to the field of TSCI, most well managed patients have been able to lead enjoyable, dignified, fulfilling, productive and often competitive lives and many with depending on the presence of short and long tract sensory sparing exhibit significant degrees of neurological and functional recovery locally or below the level of their injury. To achieve this however requires in depth understanding of the systemic effects of cord damage on the neurological and functional outcomes and expert simultaneous management of the injury together with the potentially devastating and life-changing medical, physical, psychological, social, financial, vocational, environmental & matrimonial consequences that affect the patient, family members. Knowledge experience and skills in the adequate management of patients with TSCI necessitate training in dedicated Centres that treat all aspects of TSCIs in large numbers and under one roof.

TSCIs cause a multi-system physiological impairment and malfunction. This impairment is dynamic and affects the functioning of the various system of the body during the transitional stage between spinal areflexia and return of autonomic and spinal reflexes. During this transition the management of the various systems of the body requires modulation. Following the return of reflex activity the function of the various systems affected remains at risk of being unstable and erratic. This is due to the effects of the various inter-system autonomic and spinal reflex activity caused by the loss of inhibitory and coordinating influence of the higher centres. The combination of an unstable neuro- physiological impairment and sensory impairment/loss can in inexperienced hands result in the development a wide range of potential complications and increase in disability. Some complications can further damage the injured and physiologically unstable spinal cord, cause neurological deterioration, delays or absence of recovery imposing further challenges to patients and clinicians. Fortunately with adequate Active Physio Conservative Management (APCM) of the injury and its medical effects almost all complications following TSCI can be prevented or diagnosed early and treated before further damage develops.

This necessitates a period of treatment in recumbence until the full return of the autonomic and spinal reflexes. This period ranges between four to eight weeks.

Neurological recovery can be predicted early in the presence of spared

Professor W S El Masri FRCS Ed, FRCP, PHF

Hon. Clinical Professor of Spinal Injuries (SI), Keele University Emeritus Consultant Surgeon In Spinal Injuries, The Robert Jones & Agnes Hunt Orthopaedic (RJAH) Hospital Oswesty UK. Past President of the International Spinal Cord Society (ISCoS), Past President of the British Association of Spinal Cord Injury Specialists (BASCIS), United Kingdom

Biography

Prof W S El Masri FRCS Ed, FRCP currently Hon. Clinical Professor of Spinal Injuries (SI), Keele University has trained between 1971 & 1983 in the Oxford group of hospitals, Guys & Stoke Mandeville hospitals and the USA. W S El Masri obtained the first accreditation in Spinal Injuries and General Surgery in 1982. Appointed Consultant Surgeon in Spinal Injuries at the Midland Centre for Spinal Injuries in 1983. W S El Masri personally treated 10,000 patients with and published 145 manuscripts. W S El Masri is the author of the: Concepts of "Physiological Instability of the Spinal Cord", "Time related Biomechanical Instability", "Micro-instability of the injured spine" and published the largest series of Bladder cancer in SCI patients. W S El Masri has repeatedly demonstrated and published on the discrepancy between the radiological and neurological presentation of patients in support of the hypothesis that

sensory tracts and depending on the extent of the sparing when complications are prevented or diagnosed and treated early. This recovery has been repeatedly documented by various groups to occur irrespective of the radiological presentation on X-rays, CT & MRI since 1969. Unfortunately it has been rarely referred to in the literature in the last three decades.

The last three decades have witnessed increasing claims of benefits of a mechanical interventional approach focusing on the injured spine often at the expense of the adequacy of management of the medical and non-medical effects of the cord injury. Claims that early interventions expedite the mobilisation, rehabilitation and discharge of patients; improve neurological outcomes or achieve both are currently influencing practice in both well-resourced and under-resourced countries. The risk of further mechanical and non-mechanical damage to neural during or after an intervention and during some of the related practices can be potentially detrimental to neurological and functional outcomes.

I will in this presentation discuss the extent of anticipated neurological recovery, the factors that influence its achievement, the role of clinical and radiological findings, and the role of surgery on the short, medium and long term.

the initial force of the impact and the quality of the management of both the injured spine and the effects of cord injury are the two majpr determinants of the initial neurological loss and the neurological outcome. W S El Masri is Past-President of the International Spinal Cord Society; Past Chairman British Association of Spinal Cord Injury Specialists and has lectured world-wide. W S El Masri won many National and International awards

Novel stem cell therapy to boost recovery from ischemic brain injury

Ischemic brain injury after Cardiac Arrest (CA) remains challenging with high mortality and disability and causes irreversible neurological dysfunction in over 90% of CA survivors. Current medical treatments do not effectively combat neuronal loss. Neural Stem Cell (NSC) engrafting is an emerging therapeutic strategy with considerable promise that, however, is severely compromised by limited cell functionality after in vivo transplantation. Metabolic Glycoengineering (MGE) employs sugar analogs to introduce functional groups to hNSC surface proteins to enhance cell adhesion, and, consequently, survival rates. This talk evaluates the impact of MGE on human NSC (hNSC) therapy for brain recovery after CA. We developed the novel Ac5ManNTProp analog and optimized the treatment conditions and differentiation ability with hNSCs in vitro. To evaluate the TProp treatment on stem cell therapy and 4-week long-term outcomes after resuscitation, twenty-one Wistar rats were randomly assigned to three groups 3 h after 8 min-CA (n=7): the control group, NSC group, and TProp-NSC group. To evaluate the effects of modulation Wnt signaling on functional outcomes after CA, another twelve adult Wistar rats were randomly assigned into two groups (N=6): Wnt-inhibitor IWR-1 modified NSC and 8min-CA rats Wnt-promotor HLY78 modified NSC. Neurological Deficit Scores (NDS) were assessed at 24, 48, 72h, and weekly after resuscitation. open-field, elevated maze, and tail suspension tests were performed weekly to monitor behavioral progression, and cell migration was quantified using immunohistochemistry of brain tissues. MGE using the “TProp” monosaccharide analog stimulates the Wnt/□-catenin pathway, improves cell adhesion, and enhances neuronal differentiation in human NSCs in vitro thereby substantially increasing the therapeutic potential of these cells. For the first time, MGE significantly enhances NSC efficacy for treating ischemic brain injury after asphyxia CA in rats. In particular, neurological deficit scores and neurobehavioral tests, which showed improvement with "stand-alone" NSC therapy, achieved even greater efficacy when the therapeutic cells were pretreated with TProp. The TProp-NSC group exhibited significantly stronger neuroprotective functions including enhanced differentiation, synaptic plasticity, and reduced microglia recruitment; furthermore, Wnt pathway agonists and inhibitors demonstrated a pivotal role for Wnt signaling in these processes. MGE as a promising avenue for addressing current limitations associated with NSC transplantation via beneficially influencing neurite development and neural regeneration, offers enhanced therapeutic options to boost brain recovery following global ischemia.

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Biography

Xiaofeng Jia, M.D., M.S., Ph.D., FCCM is the Professor with Tenure in the Department of Neurosurgery, Orthopaedics, Anatomy Neurobiology, the Director of the Neurosurgical Stem Cell Research at the University of Maryland and the Adjunct Professor in the Department of Biomedical Engineering at Johns Hopkins University. He is a fellow of the American College of Critical Care Medicine (FCCM), and the past Chair of the Research Section, Society of Critical Care Medicine (SCCM). He is the Editor in Chief of the IJMS. Current research interests include brain recovery after cardiac arrest, stem cell therapy, therapeutic hypothermia; peripheral nerve injury and regeneration. Dr. Jia has been a PI

Audience Take Away Notes

A review of the exciting frontier of stem cell therapy for acute neurological injuries including stroke, global ischemic injury. The attendee will be able to evaluate the status of human neural stem cell transplantation in the treatment of neurological injury after cardiac arrest. The attendee will analyze the translational value of preclinical studies in the application of stem cell therapies after neurological injury. Attendees will investigate the limitations of translation of these stem cell therapies to clinical practice and will discuss potential solutions to this challenge. The attendee will be able to discover the potential applications and evaluate the status of human stem cell transplantation in the treatment of neurological injury after cardiac arrest. Attendees will learn the basic science involved in stem cell procurement, generation, and differentiation.

on multiple grants from NIH, DARPA, AHA, et al including three active RO1s. He has been serving as a Chartered member of the NIH study section and as an Adhoc member for NIH, DOD, VA, European Commission; et al. Dr. Jia has published 151 peer-review journal papers with 83 of them as the first or corresponding author. Heis a recipient of the 2021, 2022, and 2023 SCCM Star Research Achievement Awards.

Human understanding and machine intelligence: A systems neuroscience perspective

Aristotle's "Metaphysics" starts with a pronouncement "Humans desire to understand", establishing understanding capacity as the defining characteristic of human intellect separating humans from the other species. Throughout history, cognitive capacities remained a subject of philosophical inquiry until, in the last century, advances in science and technology (communication engineering, electrical engineering, computer engineering, etc.) stimulated attempts to borrow notions and methods from those disciplines and apply them in the study of cognition, which often resulted in a less than a perfect fit. In particular, fitting models of cognition into the computation-theoretic framework resulted in downplaying the role of understanding in human performance and focusing instead on the models of learning. Massive efforts concentrated on machine learning in the last half century culminated in the recent proliferation of highly sophisticated systems that can learn and accumulate indefinitely large amounts of data but, as such systems readily disclaim, remain clueless about the meaning and significance of the data they manipulate. Facing the situation of growing reliance on systems that are devoid of understanding and whose operation is impenetrably opaque to their users has brought the issue of understanding to the forefront of scientific process encompassing multiple disciplines, from quantum physics to psychology and neuroscience. Still, no models of understanding have been advanced thus far that would convincingly map the key features of the understanding capacity onto the underlying neuronal mechanisms. This talk will review the state-of-the-art in the study of understanding, will outline a model by these authors (dubbed "gnostron model") treating understanding within the framework of systems neuroscience, and suggest applications of the model in elucidating differences in the operation of understanding under normal and pathological conditions.

Audience Take Away Notes

- The audience will be exposed to a novel approach in conceptualizing and modeling neuronal mechanisms underlying higher cognitive functions
- The hope precisely is that the acquired information will facilitate further research
- As a practical matter, the presented theory can facilitate design of novel diagnostic and therapeutic approaches for disorders involving the understanding capacity

Yan M. Yufik[1*], Tomas Yufik[1,2]

[1]Virtual Structures Research, Inc. Potomac, MD, USA

[2]Psychology Department, California State University San Bernardino, San Bernardino, CA, USA

Biography

Yan M. Yufik holds Ph.D. in Physics and received post-doctoral training in Cybernetics and Cognitive Science. Yan pioneered research in machine understanding and formulated a model of understanding mechanisms (gnostron) expressing ideas and approaches orthogonal to those motivating the models of learning (perceptron). Until 2015, Yan was directing a firm conducting advanced R&D for the DoD. Presently, heads a non-profit dedicated to machine understanding studies. In 2021, Yan organized and co-edited Special Issue in Frontiers Systems Neuroscience seeking to represent the state-of-the-art in the study of understanding. Yan has published over 40 papers and five book chapters on the subject and received 5 US patents.

Neuroimaging by evaluation nerve repair and remodeling of acupuncture in children with cerebral palsy

Objective: To investigate the effect of and Acupuncture on brain plasticity and motor development in children with cerebral palsy. Investigate effect on mechanism of apoptosis of brain nerve cells, regulating the expression of neurotrophic factors, promoting the remodeling of nerve synaptic structure and motor development in young rats with cerebral palsy. Two: To evaluate the effect and mechanism of acupuncture on cerebral palsy. Three: The nerve repair effect of acupuncture on cerebral palsy.

Methods: In this study, 146 cases of brain injury and 1078 cases of cerebral palsy were included by randomized controlled study with ICF Gross motor function measure, Peabody fine motor function, Gesell, muscle tension, joint activity, activity of daily living transcranial doppler, skull B ultrasound, Brain Nuclear Magnetic Resonance Imaging MRI, Positron Emission Tomography SPECT, Diffusion tensor tractography evaluation method.

Results: the recovery rate of extracellular space (92.3%) was significantly higher than that of the control group (70.8%) ($P<0.05$), Transcranial Doppler, TCD total efficiency (79.3%) was significantly higher than that in the control group (51.8%) ($P<0.05$). Acupuncture to promoting the development of neurological and cognitive movement under 6 months children, effectively reduce the neurological sequelae. The total effective rate of the children with cerebral palsy was 87% in the acupuncture group, which was significantly higher than that of the control group ($P<0.01$). The total effective rate of brain MRI was 59.55% in the acupuncture group and 13.25% higher than that in the control group ($P<0.01$). The total effective rate was 91.3% in the 1 year follow-up group, which was significantly higher than that in the control group ($P<0.01$). The FA value of white matter fiber bundle was significantly higher than that of acupuncture at 60 times ($P<0.05$). The recovery rate of ultrasonous brain injury (86.7%) in acupuncture group was significantly higher than that in control group (64.4%) ($P<0.05$). The recovery rate of brain SPECT in acupuncture group was 96.4%, which was significantly higher than that in the control group ($P<0.01$).

Conclusion: Acupuncture rehabilitation not only promote the development of white matter and gray matter in children with cerebral palsy, but also promote the brain function of children with cerebral palsy remodeling and compensation, and promote social adaptation, language and other cognitive function development, children with cerebral palsy movement and Fine motor function development and recovery, improve the children's self-care ability.

Keywords: Cerebral Palsy, Acupuncture, Nerve Repair, Remodeling, Motor Function.

Zhenhuan Liu

Nanhai Maternity and Children Hospital Affiliated to Guangzhou University of Chinese Medicine, China

Biography

Zhenhuan LIU professor of pediatrics, Pediatric acupuncturist Ph.D. tutor and has been engaged in pediatric clinical and child rehabilitation for 40 years. Led the rehabilitation team to treat more than 40,000 cases of children with intellectual disability, cerebral palsy and autism from China and more than 20 countries, More than 26800 childrens deformity returned to school and society and became self-sufficient. The rehabilitation effect ranks the international advanced level. Vice-chairman of Rehabilitation professional committe children with cerebral palsy, World Federation of Chinese Medicine Societies. Visiting Profassor of Chinese University of Hong Kong in recent 10 years. Zhenhuan is most famous pediatric neurological and rehabilitation specialists in integrated traditional Chinese and Western medicine in China. Zhenhuan has edited 10 books and has published 268 papers in international and Chinese medical journals.

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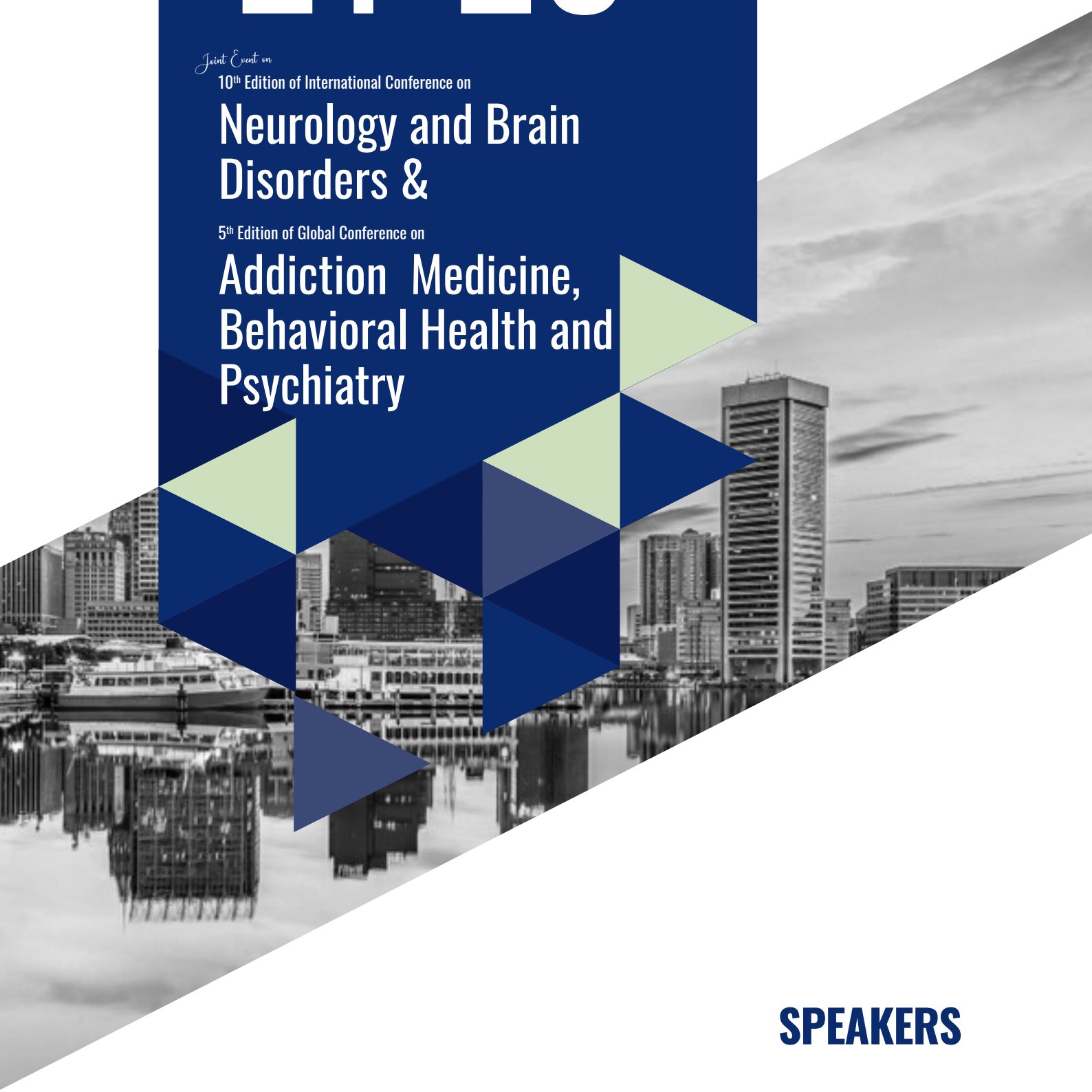

SPEAKERS

Adam Gunton
Executive Director: Recovered On Purpose, Denver, CO, United States

Social media as the fastest growing peer-to-peer addiction recovery program

Social media has organically evolved from its original purpose of connecting friends and family to becoming a powerful tool for addiction recovery. This speech will dive into how the addiction recovery community, along with treatment professionals, can harness the unparalleled power of social media to inspire, support, and connect individuals suffering with substance use disorder with the community and resources necessary to recover.

The revolution of addiction recovery is happening online, where personal recovery stories share hope and motivation for those struggling with addiction on a scale never seen before. The impact of these narratives—shared widely through social media—cannot be overstated. Through platforms with reach to every corner and rural area of the world, individuals who might otherwise remain isolated are finding their way into supportive, understanding communities.

This talk will be broken down into sections with tools and processes the audience will learn to take home and utilize in their own strategy for content and reaching more people in need of their services. The sections break down as follows:

The Power of Recovery Stories: Personal narratives shared through social media are powerful catalysts for change. These stories inspire addicts and alcoholics, showcasing real-life triumphs over adversity and the exciting times recovery brings to one's life.

Organic Reach Potential: Social media platforms have an incredible organic reach, making it possible to touch the lives of those who may not engage with traditional recovery programs, or ever hear of them otherwise.

Simple Community Building: Finding your community has never been easier. Social media connects individuals suffering drug or alcohol addiction with others who understand their journey, fostering a sense of belonging and mutual support.

Peer Communication: Messenger services provide a private, direct line for peer communication, offering timely support, advice, and encouragement. With the right treatment resources in local areas, virtual treatment services, and nonprofit organizations to give through messenger, individuals reaching out are caught in the crucial time window for first step support.

Creating Impactful Content: Effective content creation can reach millions, engaging and motivating those seeking recovery. This segment will explore best practices for crafting resonant messages.

Case Study: Recovered On Purpose: A detailed examination of how Recovered On Purpose has successfully leveraged social media to support thousands of individuals in their recovery, showcasing practical examples and outcomes.

Audience Take Away Notes

- Real life stories of people who have used social media to find recovery from substance use
- How to create engaging content with potential for reaching thousands or more people
- The exact communication process Recovered On Purpose uses with peers reaching out for help
- How to build community and support people who find you on their journey to recovery

Biography

Adam Gunton is an author, speaker and thought leader in addiction treatment and recovery. After overcoming addiction in 2017, Adam found his life's purpose in helping addicts find the same freedom. His 2019 bestselling autobiography from chains to saved, sparked the idea for his nonprofit Recovered On Purpose: helping others in recovery share their stories. Adam has now helped publish dozens of books and hundreds share their stories with his program Recovery Speaker: Share Your Story Powerfully. With social media reaching millions online monthly, and his TEDx Talk: Relapse Prevention Failed, Adam and his teams have helped thousands find recovery.

Alexander Kharibegashvil

Iakob Gogebashvili Telavi State University, Faculty of Exact and Natural Sciences, Telavi, Kakheti, Georgia

Neurochemical theory of epilepsy and mental diseases pathogenesis. Role of the blood-brain barrier

Background and Aims: In epileptology and psychiatry, a huge layer of clinical facts have been accumulated, many of which have not received a proper explanation. An attempt to explain some of the clinical manifestations of epilepsy and mental illness is presented.

Methods: Consideration of these clinical manifestations in the light of the proposed new hypotheses, theories.

Results: In the article, in light of the presented hypotheses about the pathogenesis of epilepsy and mental diseases the author considers certain clinical manifestations of epilepsy, touches upon the neurochemistry of behavior, as well as the neurotransmitter hypothesis of schizophrenia. In the context of this hypothesis, there are discussed the clinical signs of epilepsy such as forced normalization, reinforcement epilepsy activity during sleep deprivation, and other clinical manifestations of epilepsy. Two kinds of "clinical-electroencephalographic dissociation" are proposed. An explanation for the pathogenesis of forced normalization in migraine has also been proposed. It has been suggested that disturbances in the metabolism of different neurotransmitters cause the development of various psychiatric diseases. The presented theory also considers mental diseases and the biological antagonism of schizophrenia and epilepsy. The role of the blood-brain barrier in the development of epilepsy is considered. According to the author's assumption, the blood contains psychogenic and epileptogenic substances, the concentration of which in the blood is higher than their concentration in the brain. If the function of the blood-brain barrier is impaired, their content in the brain can increase and cause epilepsy or mental disorders. In addition to the antiepileptic system of the brain, the concepts of the borderline and extracerebral antiepileptic and antipsychotic systems are proposed.

Conclusion: The intensification of the development of neurochemical theories in epileptology will accelerate the creation of new antiepileptic and antipsychotic drugs.

Keywords: Epilepsy, Neuro Mediators, Forced Normalization of Electroencephalogram Image, Behavior, Biological Antagonism of Schizophrenia And Epilepsy, Blood-Brain Barrier.

Audience Take Away Notes

- The presentation will help attendees better understand the pathogenesis of epilepsy and mental diseases
- A better understanding of pathogenesis will improve the treatment of epilepsy and mental illness
- Other faculty could use this presentation to expand their research or teaching in the field of epilepsy and mental diseases

- The intensification of the development of neurochemical theories in epileptology will accelerate the creation of new antiepileptic and antipsychotic drugs

Biography

Dr. Alexander Kharibegashvili graduated from the Tbilisi Medical Institute in 1978. After that, Alexander completed internship and clinical residency at the Institute of Clinical and Experimental Neurology in Tbilisi, specializing in epilepsy, and electromyography training at the 2nd Moscow Medical Institute. Currently works at Telavi State University and Telavi Regional Hospital. Author of articles and inventions in the field of neurology, psychiatry and neurosurgery.

Alexei Alexandrov

Head of clinic, Addiction Department, Minsk regional clinical center "Psychiatry-narcology", Minsk, Belarus

Did use of electronic cigarettes and smokeless tobacco by belarusian teenagers and young adults has urging and aggravating or preventive and replacement public health effect on tobacco smoking?

Background: Belarus still have a high population level of tobacco consumption. Tobacco smoking in Belarus is major risk for the NCDs mortality (1). E-cigarettes and Heat-Not-Burn Products (HTP) are becoming increasingly popular as an alternative to cigarettes. There a lot of discussions is novel products a «gateway» to smoking for tobacco naive youngsters or could prevent it.

Aims & Objectives: Main aim was to determine the patterns of smoking and vaping. Goals were estimate changes of such behavior among young age groups and analyze shifts in prevalence during last 5 years. Method we conduct analysis of the two recent Belarus surveys data: 2016 and 2020 STEPS (prevalence of the main risk factors for NCDs among the population aged 18-69), 2015 and 2021 Global Youth Tobacco (GYT) (prevalence of the smoking and vaping among the students aged 13-15). The statistical processing was performed using the Microsoft Office software package; Pearson's correlation analysis to analyze the correlation between smoking and vaping (current or past) patterns, product type and age

Results: According to the 2016 and 2020 STEPS surveys (n=5010, n=5385 respectively) prevalence of current smoking in aged 18–69 from 29.6% to 26, 7% respectively (from 31.3% to 25.9% in aged 18–29 for 2016 and 2020) (2, 3). Prevalence of vaping among current smokers was 3, 8% in 2016 and 6, 1% 2020 (9.9% and 13% respectively of aged 18–29). Percentage of former smokers are 14.4% (including 8.3% of respondents aged 18–29 years). Percentage of former vapers among current tobacco smokers and non tobacco smokers was 5, 4% and 0, 9% respectively in aged 18–69 respondents (8.1% and 1.8% of respondents aged 18–29 years). Prevalence of HTP consumption in 2020 was 3, 0% and 7, 6% of aged 18-69 and aged 18–29 respectively (no 2015 data 2015). Correlation analysis revealed no significant correlation between current and former tobacco smoking with current and past e-cigarettes use and current HTP use in any year and any age groups including aged 18-29. Prevalence of current smoking among 13–15 years adolescents estimated by the GYT (n=2992, n=3493, 2015 and 2021 respectively) decreased from 9.4% to 7.6% (4, 5). The number of smokeless tobacco users increased from 0.6% in 2015 to 1.7 in 2021 GYT Survey. Prevalence of vaping in 2021 was 15.1 % (boys 14.7, girls 15.5 (no 2015 data). Percentage of former tobacco users decreased from 36.5% in 2015 to 27.2 % in 2021. Correlation analysis revealed no significant relation between current cigarettes and smokeless tobacco use in any year and between smoking and vaping in 13–15 aged.

Discussion & Conclusion: Recent surveys in the Belarus have shown decrease in smoking both among young adults and teenagers and increase in vaping in young adults but non among teenagers. Some adult smokers switch from traditional cigarettes to use of HTP and quit smoking. Instead of media translated fears about consumption of HTP by teens our analysis found no evidence of such products spreading.

Keywords: Tobacco Smoking Reduction, Heat-Not-Burn Products, E-Cigarettes, Smokeless Tobacco, Young Population.

Biogrpahy

Alexei Alexandrov is a graduated from Vitebsk state Medical University in 2000 as medical doctor and in 2001 he received specialization in psychiatry. In 2005, he finished his Ph. D. thesis about dual disorders (psychiatric and substance use) in Belarus Medical Academy of Postgraduate Education. He graduated from such institution in 2012 as specialist in public health. He worked as a Senior and Invited lecturer at the Psychiatry and Addiction medicine, Public Health and Healthcare Management, Primary Heath Care Departments. He worked as a psychiatrist and psychotherapist from 2002 to now in inpatients and outpatients clinics with focus on mood and substance use disorders psychosocial and pharmacological treatment. During 2008-2011 He worked as chief specialist in addiction medicine of Ministry of Health of Republic of Belarus. From 2011 to now he has been worked at the Minsk regional clinical center "Psychiatry-narcology". From 2002 to now he take part in different drug prevention, treatment, rehabilitation and harm reduction activities in Belarus in firm cooperation with governmental, international and nongovernmental actors. He take part in the organization and management of opioid substitution treatment programs in Belarus: legislative (national drug treatment and opioid substitution treatment clinical protocols, regulatory documents in the field of medical use of narcotic drug and drug treatment) and methodological support of pilot OST project, opening of 5 new OST sites, counselling and training for OST specialists. He has also take part in the organization and management of alcohol and drug rehabilitation in-patients centers. He took part at the preparation of the Belarus Narcotic Drugs Law and Belarus Mental health Law. During last years Dr. Alexandrov has focused on research work in the field of mental health, drug and alcohol addiction, provision of the public health education and practical work in the Minsk region and Republic of Belarus. He strongly advocate health approach to persons with mental health problems, drug use and of HIV. Now he is the Head of the Minsk regional clinical center "Psychiatry-narcology". His interests are regulation and practice of medical use of narcotic drugs, legal issues of mental health and drug abuse, harm reduction, management of psychiatry and addiction treatment care, drug abuse treatment (drug free and medically assisted), substitution treatment, alcohol and drug abuse prevention in schools and families, working places and primary health care, suicide prevention, vulnerable youth early intervention programs, law enforcement, prison health, mental health disability, social work and rehabilitation in mental health and drug abuse, public mental health, drug use and HIV, HIV and mental health, violence and mental health, nicotine dependence, tobacco control and harm reduction.

Alok Kumar*, Anjali Singh
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Microparticles are involved in the pathogenesis of Japanese encephalitis virus infection

Increases in the circulation of Microparticles (MPs) indicate the progression of inflammation, immune cell activation, and the involvement of cell death pathways. Herein, in the current study, we investigated the role of MPs in Japanese Encephalitis Virus (JEV) infection. We found that macrophage cells are susceptible to JEV infection, leading to a significant increase in macrophage-derived MPs in the conditioned media compared to control macrophage cells ($p<0.05$). JEV-infected MPs contain JEV nucleotides and further activate naïve macrophage cells, thereby inducing proinflammatory cytokine release. A significant increase was found in nitric oxide ($p<0.01$) and TNF-α ($p<0.05$) expression in macrophages treated with JEV-infected MPs. Notably, neutralizing MPs through heat inactivation or by blocking MPs receptors (such as annexin) significantly mitigates the JEV-induced inflammatory response of nitric oxide ($p<0.01$) and TNF-α ($p<0.01$) and reduces the JEV copy numbers by 4-fold. Overall result shows MPs involve in JEV pathogenesis. The identification of the important roles played by MPs in JEV pathogenesis and the development of inflammation will support the novel therapeutic approach development to control acute JEV infection.

Audience Take Away Notes

- Microparticles are submicron membrane vesicles shed from the cell surface of both healthy and virus infected cells
- This work demonstrates how microparticles alter the characteristics of cells exposed to them, thus constituting a system of cell-cell communications, complementing cell-cell contacts and communication by soluble factors like cytokines
- The experimental result concludes that microparticles released by JEV infected cells contain virions, are endocytosed by naive cells, and lead to a progressive inflammation. Control or neutralization of microparticle can inhibit JEV infection

Biography

Dr. Alok Kumar is an Additional professor at Department of Molecular Medicine and Biotechnology in Sanjay Gandhi Postgraduate Institute of Medical Sciences (SGPGI), Lucknow. Dr. Kumar conducted postdoctoral work training and studied the role of neuroinflammation in CNS injury at the Center for Shock, Trauma and Anaesthesiology Research (STAR-ORC), University of Maryland School of Medicine, Baltimore, Maryland, USA. He joined SGPGI as faculty in 2018. Dr. Kumar has authored or co-authored several peer-reviewed publications. His work has garnered numerous grants and awards, including the Ramalingaswami fellowship award from Department of Biotechnology (DBT, New Delhi) for research in Japanese encephalitis brain viral infection, Prof. E. Vijayan Award in Neuroscience for best oral presentation of the paper, first place and best poster award in National Capital Area TBI Research Symposium at National Institutes of Health (NIH), Bethesda, USA, scored among top twenty best research fellows at National Neurotrauma Conference in Phoenix, USA and many travel awards from National Neurotrauma Symposium, USA, Federation of European Neuroscience Societies (FENS), Belgium and International Society for Neurochemistry (ISN), USA. His contribution in scientific field for "CNS injury and immune cell activation" were well acknowledged and highlighted in number of USA media reports for instance "Mystery brain particles and their role in seeding neuroinflammation", 2017; “Do spinal cord injuries cause subsequent brain damage?“ 2014; among others. He is an ad-hoc reviewer of several international neuroinfectious diseases, neurotrauma and neuroscience journals. He has been a member of the National Neurotrauma Society (NNS) USA, the Society for Neuroscience (SFN), USA, and International Brain Research Organization (IBRO), France.

Arslan Ahmad[1], Dr. Ali Imran[1,2*]

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Role of black tea antioxidants in brain disorder

Black tea, known for its antioxidant properties, has garnered attention for its potential therapeutic effects on brain disorders. In this study, we delve into the specific role of black tea antioxidants, focusing on their compositional analysis, extraction methods, and neuroprotective benefits, particularly through the isolation. This study explores the therapeutic and antioxidant potential of black tea, focusing on compositional analysis, polyphenol extraction, and the neuroprotective effects of theaflavin. Black tea demonstrated significant nutritional composition, particularly in protein and fiber. Ethanol proved to be the most effective solvent for extraction, with optimal results observed at 60 minutes. Extracts displayed notable antioxidant activity, while isolated theaflavin exhibited even higher antioxidant capacity. In efficacy experiments on male albino mice with sciatic nerve injury, theaflavin treatment led to improved functional recovery, muscle mass restoration, and decreased oxidative stress markers. These findings highlight the potential of theaflavin-rich diets in preventing lifestyle-related brain disorders.

Audience Take Away Notes

- Food processing industry, pharmaceutical industry and herbal industry
- It will attract the attention of business community owing to its cost effectiveness and safety
- Provide viable solution for the utilization of agro-industrial waste into useful products

Biography

Dr. Ali Imran is an Associate Professor in the Department of Food Science with over a decade of experience. Dr. Imran specializes in formulating plant-based nutraceutical interventions to combat oxidative stress-related ailments in both animal and human models. With over 150 publications in esteemed food science and nutrition journals, Dr. Imran has garnered expertise in the field. Dr. Imran has secured numerous competitive research grants pertinent to the area of expertise. Currently, Dr. Imran investigating the impact of plant-based nutraceuticals on brain health using animal models. Additionally, Dr. Imran serves as a postdoctoral research fellow at the School of Agriculture, Food, and Ecosystems at the University of Melbourne, Australia and has edited and authored over 10 book chapters emphasizing the health benefits of polyphenols.

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Right-sided ataxia in adolescent craniocervical chordoma with mass effect on the brain stem: A case-report

Introduction: Chordomas are rare, locally aggressive tumors which arise from embryological remnants of the notochord. Found in the craniocervical junction (C1-C2), mobile spine, and sacrum, they are particularly uncommon in pediatric and adolescent patients, especially those which originate near the craniocervical junction. These tumors can pose significant surgical challenges due to their proximity to critical neurovascular structures. Pediatric and adolescent chordomas in the craniocervical junction typically present with symptoms such as head and neck pain, paresthesias, dysesthesias, and cranial nerve palsies. However, in some cases, patients exhibit less common symptoms which include but are not limited to ataxia, foot-drop, and weakness. Previous literature has found other early-onset, generalizable symptoms lending to this diagnosis, such as pain, rigidity, and weakness.

Methods: We present a C2 chordoma in a 19-year-old male with brainstem compression and extensions to the prevertebral space, the bilateral foramina of Luschka, and the left hypoglossal canal. We describe his unusual clinical presentation as well as complete treatment regimen.

Results: Patient early-onset symptoms included intermittent right hand weakness progressing to difficulty with bilateral hand coordination. Fourteen months later, the patient developed additional right-foot drop and difficulty walking which brought him to seek clinical treatment. Late-onset symptoms included left oral tongue fasciculations and dysphagia. The patient denied common symptoms such as head and neck pain, paresthesias and dysesthesias. Treatment included an endoscopic endonasal resection and posterior cervical fusion followed by proton-beam therapy for prevention of remittance. As of eighteen months post-treatment, the patient has regained most neurological functions with no evidence of recurrence. He remains neurologically intact and has resumed daily activities with minimal difficulty.

Conclusion: Pediatric and adolescent craniocervical chordomas typically present with symptoms such as head and neck pain, rigidity, paresthesias, dysesthesias, and cranial nerve palsies. However, some patients may present with rarer, more generalized symptoms. We describe a 19-year-old male patient who initially presented with ataxia in the right hand progressing to the right foot. This unique clinical presentation suggests that the presence of rarer symptoms, such as ataxia, in the absence of common symptoms can still be early clinical indications of pediatric craniocervical chordomas, as shown in previous literature. In clinical practice, failure to consider less common symptoms may lead to delayed treatment seeking and diagnosis, and thus should be pursued in order to provide thorough preemptive care.

Audience Take Away Notes

- Pediatric craniocervical chordomas, although typically presenting with common symptoms like head and neck pain, paresthesias, dysesthesias, and cranial nerve palsies, can sometimes manifest through rarer symptoms such as ataxia and limb weakness
- In this case study, the unusual presentation of ataxia in the absence of more common symptoms led to

a delay in the patient seeking diagnosis and treatment. This emphasizes the importance of considering atypical symptoms in order to avoid delayed diagnosis, in turn improving patient outcomes

- Future research should focus on analyzing the progression and variability of symptoms in pediatric craniocervical chordomas to refine diagnostic criteria and reduce delays in diagnosis

Biography

Amanda Brand studied Neuroscience and Biology at Macaulay Honors College at Queens College and graduated with a BA in 2022. Amanda worked as a research assistant in Dr. Carolyn Pytte's neuroscience laboratory for 3 years as an undergraduate, and is an aspiring physician in the neurological field. Amanda currently is a research associate and medical assistant at Washington Avenue Pediatrics in Bergenfield, New Jersey. Amanda has been published in the American Headache Society's 66th edition of Headache: The Journal of Head and Face Pain.

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Restoring the wisdom of the nervous system through brainspotting, trauma healing and addiction recovery

In this workshop, attendees will learn how brainspotting offers individuals with a history of addictive, compulsive behaviors the ability to observe their nervous systems with curiosity and non-judgment. Because addiction is often rooted in attachment ruptures and brokenheartedness, this presentation illustrates how brainspotting can alleviate suffering related to core themes such as grief and loss, unresolved shame and profound isolation. Compulsive sexual behavior will be highlighted as an illustration of disconnection and secrecy, and there will be an exploration of how brainspotting offers the possibility of nervous system regulation and attachment repair as clients develop greater perspective and self-compassion.

Addiction is commonplace in our culture. But so is the desire to heal. Thirty years ago, clients came to me with the sole purpose of stopping their self-destructive behaviors. Today it's a different story: Not only do they want to put an end to their cravings, but they also want to live better lives as well, with greater intimacy and more satisfying relationships. The root cause of their suffering always leads back to brokenheartedness. I have found that addictive, compulsive activities are not about the surface issues, but instead about the underlying suffering, and the remedy is reliable relationships. Because we know that we are biologically wired for connection, brainspotting provides clinicians with a highly effective modality to heal layers of trauma in addition to paving a road toward meaning and purpose.

In this workshop there will be a powerpoint presentation highlighting the twenty-year history of Brainspotting as well as the psychoeducational elements shared with clients prior to engaging in the process. A demonstration of Brainspotting will allow attendees to witness the relational and neurobiological attunement necessary for this intimate process. As a result, there will be a basic understanding of the sequence and flexibility available to clients. After the attendees observe the brainspotting process, there will be an ample opportunity for questions and a detailed exploration of what was observed in the demonstration.

Biography

Andrew Susskind is a Licensed Clinical Social Worker, Brainspotting and Somatic Experiencing Practitioner, Certified Group Psychotherapist and author based in Los Angeles since 1992 specializing in trauma and addictive, compulsive behaviors. Andrew books include It's Not About the Sex: Moving from Isolation to Intimacy after Sexual Addiction (Central Recovery Press, June 2019) and The It's Not About the Sex Workbook (Routledge Press, 2024).

Weinrabe A*, Eran Asoulin

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Music and health: Embracing the ineffability of sound and why it matters

The aesthetic appreciation and exploration of music with its effects on health and wellbeing is well known. Mastering a musical instrument and the impact of sound itself plays various roles in a person's emotional regulation strategies. Contemporary research has validated sounds' transformational capacity in relation to its ability for counteracting dysregulated emotional states, a contributing factor to disease formation. Despite this, the active function of music-especially the ability that sound frequencies have in relationship to consciousness, has received surprisingly little attention and is underexamined in the literature. Our claim is that, as a result, an important aspect of sound–its capacity as an emotional regulation strategy for purposes of raising consciousness, has been largely overlooked. The assumption in the health literature is that sound regulates a person's emotional or mood state in that moment, reducing arousal, or the negative expressions associated with certain emotions. Portrayed in this way, sound acts as a relaxation tool, or in clinical terms, merely as a therapeutic support to other treatments. In this article, we will argue that there is a direct association between sound frequencies with their ineffable capacity to target one critical aspect of emotion–its affectivity, which shows why the previous assumption is false. This article proposes a philosophical explanation for why conceptually, sound–as a frequency generator, has this healing ability, i.e. the capacity for bypassing what ned block refers to as 'phenomenal' consciousness to reach 'access' consciousness. We claim the reverse may also be true: frequencies misused disrupt access consciousness leading to ill-health. We end by exploring implications of this account and why it matters.

Keywords: Sound, Frequency, Affect, Emotion, Consciousness.

Biography

Weinrabe A Holding an Arts (Adv.) Hons Degree in Philosophy, The University of Sydney, and a Master's in philosophy (Medicine) from the Brain and Mind Centre, Sydney Medical School, supervised by Mental Health pioneer Prof. Ian. B. Hickie, Angé has published the hypothesis that dysregulated emotion (mainly anxiety) impairs decision-making in youth. Enrolled in a Ph.D. Also at the University of Sydney, supervised by philosopher of science, Prof. Dominic Murphy, Angé is investigating the critical role and epidemiological value of culture when investigating explanatory models of addiction (substance and behavioural) in youth at critical stages of development.

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Phytomedicine: The promising natural complementary approach towards anti-addiction

The American Society of Addiction Medicine defines addiction as a primary, chronic ailment affecting brain reward, motivation, memory, and related circuitry. Dysfunction in these circuits gives rise to distinctive biological, psychological, social, and spiritual consequences. Individuals with addiction, pathologically pursue rewards and relief through substance abuse and other spectrums of activities such as gambling, internet use, sex, eating, work, and shopping etc. Exhibiting an inability to consistently abstain, impaired behavioral control, cravings, diminished recognition of behavioral and interpersonal issues, and dysfunctional emotional responses. Similar to other chronic diseases, addiction often involves cycles of relapse and remission. Contemporary medical interventions face limitations in effectively addressing the underlying neurobiological and inflammatory processes inherent in addiction. This disease is prevalent among individuals of modern society, being a major cause of disability and the premature mortality. Despite the profound societal, economic, and health impacts associated with various forms of addiction globally, managing this condition remains a formidable challenge, with the recurrence phenomenon posing a particularly significant obstacle to treatment. Furthermore, currently available synthetic drugs exhibit undesirable side effects, and most of the conventional pharmacological treatments prove ineffective for a majority of cases. The quest for new approaches and natural complementary medications has been prompted by the constrained efficacy and adverse effects of existing treatments, prompting a shift beyond the dopamine reward system to target the broader neurobiological deficits, as well as the underlying inflammation and oxidative stress inherent in addiction. In this context, phytomedicine, which harnesses plant-derived bioactive compounds, has garnered attention as a promising, natural, and safe strategy in tandem with conventional treatments for addressing addiction. It encompasses considerations of efficiency, quality, and safety while delving into the mechanisms of action of specific plant extracts, exploring the promising bioactive phytochemicals, and presenting findings related to pharmacology, pharmacokinetics, clinical aspects, and toxicity. Phytomedicine emerges as a potential player in anti-addiction efforts, associated with a holistic approach to health underscoring the interconnectedness of body, mind, and spirit. Its ability to influence dopamine receptors holds promise for developing drugs with protective, anti-inflammatory, and antioxidant effects, potentially restoring core neurobiological deficits and aiding in the battle against addiction. Since last few decade, numerous phytomedicines with promising potential in exhibiting anti-addictive properties has been discovered. For instance, M. speciosa has been investigated as a natural alternative for effectively managing opioid withdrawal symptoms. P. lobata, C. guianesis exhibits the ability to reduce alcohol consumption. Cannabidiol displays promising potential in diminishing addictive behaviors associated with various substances. P. incarnata aids in calming the nervous system, potentially supporting substance withdrawal for anxiety and insomnia. R. Rosea could assist the body in adapting to stress, a common trigger for addictive behaviors. W. somnifera showcases adaptogenic properties, assisting in managing stress and anxiety, potentially supporting individuals in addiction recovery. B. Monnieri contributes to cognitive enhancement and stress management, promoting overall well-being. Ginkgo biloba, with its neuroprotective properties, could aid in cognitive function,

potentially reducing cravings linked to addiction. C. longa exhibits anti-inflammatory, antioxidant, and neuroprotective properties, potentially influencing addiction-related behaviors. N. rustica contains lower nicotine levels compared to commercial tobacco, suggesting its exploration as a harm reduction strategy. Nevertheless, it is crucial to acknowledge that the effectiveness of these phytomedicines may differ among individuals. Consequently, their usage should be approached under the supervision of healthcare professional, as the addiction treatment typically demands a comprehensive and personalized approach tailored to the unique needs of each individual.

Keywords: Addiction, Phytomedicine, Bioactive Phytochemicals, Chronic Disease, Substance Abuse, Brain Reward, Dopamine.

Audience Take Away Notes

- The audience will acknowledge addiction as a prevalent and impactful societal concern, contributing to disability and premature mortality. They will acquire valuable insights into the intricate nature of addiction, recognized as a complex disease. This understanding will encompass the significant biological, psychological, social, and spiritual ramifications arising from dysfunctions within the brain's reward circuitry. They will also become aware of the limitations inherent in current synthetic drugs and conventional pharmacological treatments. Additionally, they will understand the efficiency, quality, and safety considerations associated with phytomedicine, complemented by its holistic approach to health that underscores the interconnectedness of the body, mind, and spirit. Audience could learn the potential advantages of various plant-derived compounds in calming the nervous system, adapting to stress, enhancing cognitive function, and mitigating cravings linked to addiction. The provided information will equips the audience with a comprehensive understanding of addiction, its challenges, and potential avenues for treatment, encouraging a nuanced and informed approach to addressing this complex issue
- This information can empower professionals in various capacities within the healthcare and addiction treatment landscape. It broadens their perspectives, encourages a more holistic approach to patient care, and stimulates further exploration of alternative and innovative strategies in the field of addiction management as:
- **Healthcare Professionals and Therapists:** Understanding the multifaceted nature of addiction helps healthcare professionals and therapists in devising more comprehensive and personalized treatment plans. Awareness of the limitations of current medical interventions prompts professionals to explore complementary approaches, fostering a more holistic view of patient care. Knowledge about phytomedicine and its potential benefits allows professionals to consider natural and safe strategies in conjunction with conventional treatments
- **Addiction Counselors and Recovery Specialists:** Insights into the diverse manifestations of addiction, including behavioral aspects, enable counselors to address a wider range of issues in their therapeutic interventions. Awareness of the challenges posed by recurrence phenomena equips recovery specialists to develop more resilient and effective relapse prevention strategies. Understanding the potential of phytomedicines in managing addiction symptoms offers additional tools for supporting individuals in recovery
- **Pharmacologists and Researchers:** Knowledge about the limitations of current synthetic drugs and pharmacological treatments encourages researchers to explore innovative approaches in plant based safe, natural drug development. Understanding the mechanisms of action of specific plant extracts and their isolated phytochemicals could provide valuable insights for pharmacological research in the field of addiction treatment
- **Public Health Officials and Policymakers:** Recognizing addiction as a major cause of disability and

premature mortality emphasizes the urgency of public health interventions and policy initiatives. Awareness of the societal and economic impacts of addiction aids policymakers in shaping effective public health strategies to address the widespread issue

- **Educators and Trainers in Healthcare:** Providing this information to educators ensures that future healthcare professionals are equipped with a comprehensive understanding of addiction, preparing them for the challenges they may face in their careers. Training programs can incorporate the latest insights on complementary treatments, including phytomedicine, fostering a more holistic approach to healthcare education
- **Harm Reduction Specialists:** Knowledge about phytomedicines like, N. rustica, C. guianesis etc. as a potential harm reduction strategy informs specialists working in tobacco and alcohol control or harm reduction programs
- Certainly, educators and researchers across diverse faculties stand to gain valuable insights from studying the promising role of phytomedicine in addiction prevention, treatment and recovery management. Collaborative efforts and knowledge exchange among these faculties can foster interdisciplinary research, expanding our understanding of the effectiveness of phytomedicine in addressing addiction. Moreover, incorporating phytomedicine into pertinent educational programs spanning various disciplines can equip upcoming healthcare professionals to view phytomedicine as an integral component of holistic patient care
- This information will provide a practical solution to the complex problem of addiction. By introducing the concept of Phytomedicine and its effective approach to addiction treatment. It's will explain its holistic approach, efficiency, quality, and safety considerations and underscores its potential as a comprehensive complementary solution. It will offer practical insights into the potential applications of Phytomedicine in addressing different aspects of addiction. Besides, it will not only identifies the challenges in current addiction treatments but also proposes a potential complementary solution in the form of Phytomedicine, providing a valuable and practical perspective for healthcare professionals and researchers involved in addiction prevention, treatment and recovery management
- The utilization of phytomedicine in healthcare strategy has potential to enhance design accuracy and offer fresh insights for addressing design challenges through data-driven and evidence-based solutions. This application promises to uncover novel information regarding the therapeutic properties of underexplored plants and their phytoconstituents, providing an opportunity to incorporate precise and effective design elements. Moreover, the integration of phytomedicine can support the creation of personalized design solutions and sustainable practices, contributing to improved outcomes in addiction management alongside conventional treatments. This approach emphasizes the importance of thoughtful and accurate design in achieving comprehensive solutions for addiction prevention, treatment and recovery management
- The utilization of phytomedicine for addiction prevention, treatment and recovery management extends beyond addressing specific health concerns, offering a spectrum of potential benefits. Embracing a holistic approach to health, phytomedicine considers the overall well-being of individuals. It advocates for natural remedies, complementing conventional medical treatments to enhance their effectiveness or mitigate side effects. Several key advantages arise from the application of phytomedicine:
- **Cultural and Traditional Practices:** Many herbal remedies within phytomedicine are deeply rooted in cultural and traditional practices, contributing to the preservation and celebration of cultural diversity and heritage
- **Personalization:** Phytomedicines can be customized to meet the specific needs and health profiles of individuals, providing tailored healthcare solutions

- **Sustainable Practices:** The herbs and plants used in phytomedicine are often grown sustainably, promoting environmentally friendly and responsible agricultural practices
- **Community and Education:** Phytomedicine application fosters community involvement through initiatives like community gardens and educational programs about herbal remedies, encouraging knowledge sharing and community engagement
- **Reduced Healthcare Costs:** By focusing on the prevention and management of various types of addiction, phytomedicines have the potential to reduce long-term healthcare costs associated with addiction treatments
- **Empowerment:** Knowledge of herbal remedies empowers individuals to take an active role in their own health and well-being, promoting a sense of control and autonomy
- **Potential for Research**: The study of phytomedicine holds promise for new discoveries and scientific advancements, expanding our understanding of the therapeutic properties of plants and their applications in healthcare
- **Improved Overall Health:** Prioritizing prevention through herbal remedies and embracing a healthy lifestyle can lead to improved overall health and well-being, emphasizing proactive measures for holistic health

Biography

Dr. Anita V. Handore is Founder and Director of innovation based Biotech Startup, Phytoelixir Pvt.Ltd., and Nashik. MS, INDIA. Anita is PhD in Microbiology and M.Phil. In Environmental Science and a prominent women Bio scientist having credit of two process patents in Microbiology, and Plant Biotechnology. Next 3 filed patents are in fields of Agriculture- Biotechnology, Food Technology and Phyto-nutraceuticals. Since last decades, with Anita's masterliness in innovative Research & Development along with special skills of translating laboratorial research into appropriate technology for sustainable livelihood, has greatly contributed to diverse sectors. Dr. Anita has commendably & successfully shouldered managerial & administrative responsibilities and effectively working as, programme Advisory Committee member, for Research Foundations, renowned National University. Anita is Editorial board member and author for various International Journals and books of repute and has been working as research guide-mentor for students of well-known Indian Universities and institutes. Over 89 research publications, presentations in reputed International and National research Journals together with invited talks on use of specific phytomolecules against different types of diseases and disorders including cancer at prestigious International forums and platforms along with 16 book chapters and books published with world leading publishers are to Anita credit. Sequences database of more than nine novel and rare endophytes discovered by Anita, submitted to NCBI GenBank is creditable. As a part of social responsibility, actively participates in various social activities and serve's knowledge and experience for awareness and upliftment of society. Till date, Anita has been honored & appreciated with more than 19 awards for an outstanding research contribution towards Biotechnology, Microbiology, Food and Nutraceutical, Ayurveda -Healthcare, Agriculture, Environment, Education and social sectors by various State level, National and International forums working in scientific and social sectors. With profound vision Dr. Anita has started journey as an entrepreneur with the purpose to serve hidden treasure of nature & bring resilience by revitalizing living beings, using scientific and innovative power to tackle some global challenges & create value for society at large.

Dr. Ankith Bhasi*, Dr. Ramshekhar N Menon, Dr. Ashalatha Radhakrishnan

R Madhavan Nayar Center for Comprehensive Epilepsy Care (RMNC), Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum, Kerala, India

Personality disorders in patients with idiopathic generalized epilepsy

Purpose: To estimate the prevalence of personality disorders in persons with Idiopathic Generalized Epilepsy (IGE) and to compare it with the general population.

Method: The study was conducted in a super specialty epilepsy care center in a tertiary care hospital in South India. Study population included 57 normal control and 57 cases ((≥18 years of age, confirmed cases of IGE). Exclusion criteria included history of any psychiatric disorder, or family history of any psychiatric illness. Self-administered questionnaire was used for study data collection. IPDE-ICD10 screening questionnaire was applied to investigate personality traits and Bear-Fedio Inventory (BFI) was used to study different behaviour traits in patients with IGE and controls. To compare the prevalence of personality disorders in cases and controls we applied Chi Square test. For ascertaining the relation between different demographic variables with the presence of personality disorders, Pearsons Chi Square test and Fischer exact test was applied. Mann Whitney U test was used to analyse the significant difference of Bear-Fedio Inventory (BFI) scores between cases and controls.

Results: Comparing with controls, a higher prevalence of personality disorders was noted among idiopathic generalised epilepsy patients (87.72% in cases versus 36.84% in controls). Personality traits like borderline (p=0.000), anankastic (p=0.000), anxious (p=0.000), histrionic (p=0.000), paranoid (p=0.098), and impulsive (p=0.002) were considerably higher in cases with IGE. This was comparatively higher among females (p=0.034) than males. In BFI also significantly higher scores were found among cases in all behavioural traits except hyper moralism, altered sexual and aggression.

Conclusion: Personality disorders was significantly higher in cases with IGE.

Audience Take Away Notes

- Audience will benefit from understanding the importance of psychiatric assessment in epilepsy
- This research is a flag bearer with respect to providing some knowledge with regard to personality disorders in idiopathic generalized epilepsy
- Without addressing the comorbid issues, no disease can be properly managed, hence this study will help in increasing the efficiency with regard to management of Persons living with Epilepsy (PWE)

Biography

Dr. Ankith Bhasi studied MBBS at the Kerala university from Government medical college, Kottayam and graduated in 2016. Then completed MD degree from All India institute of Medical sciences, Rishikesh. Dr. Ankith is currently pursuing DM Neurology as final year senior resident from Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum.

Badriah Alayidi
University of Nottingham, United Kingdom

Virtual Reality (VR) environment for Multiple Sclerosis (MS) physiological and biomechanical balance response: A cross-sectional observational experimental study

Human balance is essential for maintaining overall health and functional independence, particularly in populations with neurological disorders such as Multiple Sclerosis (MS). As MS progresses, individuals often experience deteriorating balance, leading to increased falls and fear of falling. Virtual Reality (VR) technologies offer promising avenues for assessing balance in controlled environments that simulate real-life scenarios, allowing for detailed investigation of balance dynamics under various conditions. This study aims to assess balance control mechanisms in individuals with MS using VR, comparing these mechanisms with those observed in healthy controls and traditional assessment settings. An empirical approach will be adopted, collecting primary data through detailed observations, physiological and biomechanical evaluations of balance, and rigorous data analysis. The VR environment will be designed to manipulate sensory and cognitive loads, providing insights into how these factors impact balance control among MS patients compared to healthy individuals. Initial reviews suggest high variability in balance responses among MS patients, indicating complex underlying mechanisms of balance dysfunction specific to MS progression. This study anticipates generating detailed data on the effectiveness of VR as a diagnostic tool, comparing it with traditional balance assessments to highlight distinct advantages or limitations. Findings are expected to contribute to a deeper understanding of balance issues in MS, potentially informing future interventions and enhancing personalized treatment strategies to improve long-term outcomes in MS rehabilitation.

Biography

Badriah Alayidi pursued her initial education in physical therapy and rehabilitation at Aljouf University, located in the dynamic region of Aljouf, Saudi Arabia. Badriah passion for neurorehabilitation led to the University of Nottingham, where Badriah accomplished a Master's degree in Neurorehabilitation in 2020. Presently, Badriah is advancing her knowledge and research skills at the same prestigious institution, where Badriah is almost nearing the completion of PhD in Physiotherapy.

Baitubayev Dyusengali[1*], Baitubayeva Madina Dyussengaliyevna[2]

[1]Psychiatrist-narcologist of the Department of Psychiatric and drug addiction in the Psychiatric Dispensary, Riddercity, Republic of Kazakhstan

[2]Assistant lecturer of SSMU, Semey, Kazakhstan

A new line in the physiology of adaptation

The report presentation shows that the current level of physiology does not disclose the biological mechanisms of the organism transition from one range to adapt to a higher with an increase in the regular forces of the stimulus above sub-extreme. A new trend in the physiology of adaptation-proqredient adaptation, explains the mechanism of increasing the tolerance of the organism, with dependence on Psychoactive Substances (PAS). It is scientifically proven that dependences of the organism on PAS not the disease, and the states like proqredient (progressive) adaptation.

Keywords: Hypertrophy of The Endocrine System; A State of Regular, Unfinished Stresses; A Proqredient (Progressive) Adaptation.

Audience Take Away Notes

- Biological mechanisms of increasing tolerance in addiction to psychoactive substances
- They learn that addiction to psychoactive substances is not a disease, but a state of progredient (progressive) adaptation, leading to depletion of the body's adaptive capabilities, concomitant diseases and social consequences
- The audience will understand that a person dependent on any psychoactive substance should not be treated as a patient-but should be treated as an equal person and explain to him that he not sick, but adapted to a certain substance
- Explain that after drug assistance to overcome disease-like psychophysical readaptation, it is necessary to learn to give up the use of psychoactive substances throughout life
- The audience can use the acquired knowledge when carrying out the rehabilitation of people adapted to psychoactive substances
- Report: "a new line in the physiology of adaptation" can be taught to students and psychiatrists and narcologists

Biography

Baitubaev Dyusengali works as a psychiatrist-narcologist for 36 years. Have more than 30 publications in international journals, which have been cited more than 250 times.

Bharanidharan G*, Ramshekar N Menon, George Vilanilam, Mathew Abraham, Chandrahekharan Kesavadas, Bejoy Thomas, Ashalatha Radhakrishnan

R Madhavan Nayar Centre for Comprehensive Epilepsy Care, Department of Neurology, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram, Kerala - 695011, India

Do classical semiology predict the post-operative outcome in patients with temporal lobe epilepsy?

Objective: TLE accounts for about 50-73% of cases being referred for epilepsy surgery. The objective is to find, whether the classical semiology in TLE has a role in predicting the post operative outcome in patients with refractory epilepsy.

Methods: We included 684 patients who underwent a detailed clinical evaluation, neuropsychological assessment, 1.5T/3T MRI, VEEG monitoring, followed by a standard anterior temporal lobectomy from 1995-2008.They were followed up at 3 months, 12 months and yearly with EEG. The outcome was classified in to good, if they don't have either seizure or aura irrespective of the drugs and as bad, even if single seizure occurred postoperatively

Results: Of the 684 patients, 93.7% had behavioral arrest; 88.6% had automatisms, 86.7% had amnesia for the events, 74.6% had auras and 63.6% had antecedents. All the classical semiology features were present in 37.7% of the whole cohort. 47.8% of the study population had good outcome till last follow-up. The mean follow up period was 75.6 months with a maximum follow up of 14 years. Cases with antecedents had lesser probability of seizures at last follow-up (p=0.009). Febrile seizures as a separate variable were found protective (p=0.021) and encephalitis was a risk factor (p=0.026). Behavioral Arrest was associated with poor seizure outcome following surgery (p=0.006). No significant association with outcome was found for the presence of auras, automatisms or amnesia. When the groups with typical and atypical semiologies were compared, we found no significant difference between the seizure outcome in any of the groups.

Conclusion: The presence of antecedents, especially febrile seizures was associated with favorable surgical outcomes. The mere presence of auras, automatisms or amnesia does not affect outcome after TLE surgery. Arrest was associated with a worse outcome. Presence or absence of any combination of classical semiological features had no significant bearing on surgical outcome after anterior temporal lobectomy.

Audience Take Away Notes

- It helps to understand that, though the semiology features help in lateralizing and localizing the epilepsy it has no role in predicting the surgical outcome
- Rather giving much importance to semiology, a thorough evaluation with VEEG and Imaging will help us better delineate the pathology and that would bear effect on the surgical outcomes also

Biography

Dr. Bharanidharan G is a Post graduate Senior Resident (SR) pursuing final year DM neurology training in Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum, Kerala, India. Dr. Bharanidharan has immense interest in the filed of epilepsy.

Catherine M. Cahill* PhD, Jack T. Rogers

Neurochemistry Laboratory, Department of Psychiatry, Massachusetts General Hospital and Harvard Medical School, Charlestown, MA, USA

Preventative measure for Chronic Traumatic Encephalopathy (CTE); potential for small molecule iron response element targeting translation blockers of neurotoxic proteins for the treatment of Traumatic Brain Injury (TBI)

Repetitive Traumatic Brain Injury (TBI) experienced by athletes and military service personnel can lead to acquired neurodegenerative diseases. This includes pathologies related to those of Parkinson's disease, Alzheimer's disease and Chronic Traumatic Encephalopathy (CTE), the latter being a progressive neurodegenerative disease beginning after a long period of latency following multiple TBIs. The initial symptoms of CTE consists of headache, irritability, impulsivity, aggression, depression, short-term memory loss and heightened suicidality. These progress to include cognitive deficits and dementia. The association of CTE with neurodegenerative disease is consistent with repetitive brain trauma and associated hyperphosphorylated tau that promotes the accumulation of other abnormally aggregated proteins including Amyloid beta protein (Abeta) and alpha-synuclein. TBI is marked by increased expression of the AD associated Amyloid Precursor Protein (APP), Tau and the PD associated Alpha Synuclein (SNCA) in the brain and may also co occur with increases in Prion (Prp). We noted that metal ions, particularly Iron (Fe), can regulate these proteins translationally with a role in post-TBI outcomes. Nevertheless, little is known of the role of metals following multiple TBIs and in the development of CTE. There are few promising drug treatments for TBI and concussion injury. Studies have shown that methylphenidate, a dopamine agonist, reduced irritability and aggression, donepezil, a cholinergic agent improved cognition, such as memory and attention. However none of these directly target CTE associated neurotoxic proteins. Our screened small molecules selectively target the mRNAs for APP, SNCA, Tau and Prion 5'Untranslated regions, lowering the translation of these proteins. Our agents have the potential to be used following TBI to prevent the neurodegenerative toxic protein accumulation that lead to CTE.

Audience Take Away Notes

- To understand the brain pathology, and culprit neurotoxic proteins involved in TBI
- To define the role of iron and ferroptosis in TBI and development of CTE
- To ask if exposures to toxic chemicals/metals might predispose to CTE
- To propose use of small molecules inhibitors of toxic protein translation and targeting the Iron Response Element of their mRNAs as treatments for TBI

Biography

Dr. Catherine Cahill received her B.Sc and PhD in Biology/Biochemistry at University College Dublin Ireland. Dr. Catherine then joined the Dept. of Immunology at the Babraham Research Institute, Cambridge UK as a postdoctoral fellow. While pursuing an academic career in the US Dr. Catherine has worked in many disease areas including cancer, diabetes, inflammation and for the past 10 years in Neurodegenerative diseases with a focus on Parkinson's Disease. Dr. Catherine co directs the Neurochemistry Laboratory at Massachusetts General Hospital, Harvard Medical School with Dr. Jack Rogers an internationally known expert in iron and Neurodegenerative disease. They are developing novel therapies for Alzheimer's Disease and Parkinson's Disease.

Cong Lu
Institute of Food Science and Technology, Chinese Academy of Agricultural Sciences (CAAS), Beijing 100193, China

Research on the antidepressant effects and mechanisms of polygonati rhizoma polysaccharides

Depression has become one of the most common types of psychological disorders, characterized by prolonged depressed mood, which severely limits people's psychosocial abilities and greatly reduces the quality of life. Although there are a variety of depression treatment drugs, long-term use is often accompanied by side effects, and there is an urgent need to develop new ingredients to prevent and treat depression. Food and medicine homologues are characterized by high safety, wide sources, wide variety and low adverse effects, so it is important to explore the natural functional factors with the antidepressant effects from food and medicine homologues. As one of the food and medicine homologues in China, Polygonati Rhizoma has diverse bioactive effects. Our research have firstly demonstrated that Polygonati Rhizoma Polysaccharides (PSP) effectively reversed the depressive-like behaviors induced by chronic unpredictable mild stress both in mice and zebrafish. Its antidepressant-like effects might be mediated by altering the HPA axis dysfunction, up-regulating the Neurotransmitters (5-HT and NE) levels, inhibiting the neuroinflammation, regulating the gut microbiota composition and increasing the SCFAs levels. The activities of anti-inflammation, inhibiting HPA axis hyperactivation and normalizing neurotransmitter levels of PSP may be related to the regulation of and polysaccharide is one of the main active components of it. In addition, PSP can exert the anti-inflammatory effects by inhibiting M1 phenotype polarization and promoting microglia polarization toward M2 phenotype, and its regulation of microglia M1/M2 polarization may be related to BDNF/TrkB/CREB and Notch signaling pathways. The current results provides a new insight into the potential of PSP in prevention and treatment of depression and a theoretical basis for the development of novel antidepressant drugs for PSP.

Biography

Cong Lu education in Bachelor in Bioengineering from Harbin Institute of Technology (HIT) 2006.09-2010.07 PhD in Pharmacology Research Direction from Institute of Medicinal Plant Development (IMPLAD), Chinese Academy of Medical Sciences (CAMS) and Peking Union Medical College (PUMC) 2012.09-2017.07. Cong Lu Academic Experience as Postdoctoral in Food Nutrition and Functional Food Innovation Team, Institute of Food Science and Technology (IFST), Chinese Academy of Agricultural Sciences (CAAS) 2017.09-2019.08. Cong Lu then served as an Assistant Professor in Food Nutrition and Functional Food Innovation Team, Institute of Food Science and Technology (IFST), Chinese Academy of Agricultural Sciences (CAAS) 2019.09-2021.12, Associate Professor in Food Nutrition and Functional Food Innovation Team, Institute of Food Science and Technology (IFST), Chinese Academy of Agricultural Sciences (CAAS) 2022.01. Cong Lu Main Research Direction in Quality evaluation of characteristic agricultural products, Mining and utilization of food functional factors, Development of functional food. In the last 5 years, Cong Lu has worked on quality evaluation and function mining were carried out around the food and drug homologous characteristic resources such as Polygonum sibiricum, Ginsenoside, astragalus, daybroccoli, etc., the quality database of food and drug homologous agricultural products was established, the non-targeted screening technology of functional factors was broken through, and more than 20 kinds of active ingredients were excavated.

Sardina F[1]*, Giulia Fianco[1], Alessandro Paiardini[2], Chiara Gabellini[3], Rinaldo C[1]*

[1]Institute of Molecular Biology and Pathology, National Research Council of Italy, c/o Sapienza University of Rome, Rome, Italy
[2]Department of Biochemical Sciences, Sapienza University of Rome, Rome, Italy
[3]Department of Biology, University of Pisa, Pisa, Italy

Nf1-associated gliomas: Antioxidant treatments and spastin inactivation as possible therapeutic approaches

Neurofibromatosis type 1 (NF1) is the most common tumor predisposition syndrome and glioma is one of the prevalent tumors associated with it. Gliomagenesis in NF1 patients results in a heterogeneous spectrum of neoplasms, ranging from low-to high-grade, that can occur throughout their entire lifespan.

The NF1 tumor suppressor gene encodes neurofibroimin, a GTPase-activating protein that acts as a negative regulator of the RAS oncoprotein. Loss of neurofibromin expression, as observed in NF1.associated tumors, is predicted to increase cell growth and survival through hyperactivation of RAS. Neurofibromin is also involved in regulating the cytoskeleton and cell motility. The ability of glioma cells to migrate long distances through the brain is a major obstacle to effective treatment of this tumor.

The Microtubule (MT)-severing protein spastin is an AAA ATPase enzyme controlling MT dynamics and Lipid Droplet (LD) trafficking and functions. Spastin plays key role in processes requiring active rearrangement of the cytoskeleton and membrane remodeling, such as cell proliferation and motility. Our observations indicate that spastin silencing or its inhibition, induced by the ATP competitive inhibitor spastazoline, reduces colony-forming capacity, single cell speed and migration ability in glioma cell models. We identified the molecular players involved in spastin-dependent LD behavior by mass spectrometry analyses. Automated cell imaging-based pipelines were developed to measure the number, size and distribution of LDs, as well as MT cytoskeleton organization, to investigate LD behavior and its crosstalk with migration. Furthermore, recent evidence supports the beneficial effect of antioxidants on the prevention and treatment of NF-1 associated tumors. Thus, the effects of antioxidant compounds in combination with spastin inhibition will be also analysed, opening the way to develop new therapeutic strategies for NF1-associated gliomas.

Audience Take Away Notes

- Our work aims to expand knowledge on the relationship between energy reserves (LD) and cell migration in the context of gliomas. It provides a practical solution for automatic cell-imaging analysis, particularly for the number of LDs and MT cytoskeletal organization. Additionally, we propose new therapeutic strategies based on the use of natural compounds

Biography

Dr. Rinaldo studied Biology at Federico II University of Naples and received her PhD from the same institution in 2002. Dr. Rinaldo then joined Dr. Soddu's research group at Regina Elena Cancer Institute (IRE) in Rome, Italy as a PostDoc, where Dr. Rinaldo contributed to characterising a new pro-apoptotic regulator of the p53 oncosuppressor gene, the HIPK2 kinase. In 2011, Dr. Rinaldo became a permanent researcher and started her own research group at IBPM-CNR in Rome, Italy. Currently, Dr. Rinaldo is a senior researcher at the same institution, leading a group that studies the molecular mechanisms that control tumor growth and the response to anti-cancer treatments.

Posson D
National University, United States

Automated neurofeedback as a primary addictions intervention

Automated NeuroFeedback (ANF) has a significant presence in the literature for its efficacy in alleviating the symptoms and behavioral manifestations that significantly challenge recovery from addictive disorders, with no enduring negative side-effects. ANF bridges the gap between positive clinical trial results, and ease of use as a primary mental health/peak performance intervention. ANF typically leads to reduction up to 85% of symptoms in the first 20-30 training sessions. ANF has shown efficacy in alleviating symptoms of ADHD, depression, PTSD, insomnia and many other brain dysregulation issues that co-occur with addicted populations. ANF can and should be implemented in clinical and subclinical settings. ANF is safe, effective, affordable, scalable, and appropriate from the single practitioner to every sized system of care. The brainpaint ANF system includes a pysho-physiological questionnaire that automatically produces individualized brain training protocols to train a multiplicity of brain-phenotypes related to symptoms of addictive disorders as well as many other co-occurring psychophysiological symptoms. These systems decrease the cost of brain-training significantly, reduce the training and experience requirements for brain-trainers, and will increase recovery potential in nearly all addiction treatment models. The aim of this presentation is to illuminate the broad understandings of ANF brain-training as an essential primary intervention in addictions treatment.

Dongze Chen[1*], Yali Zhang[2]

[1]Key Laboratory of Carcinogenesis and Translational Research (Ministry of Education/Beijing), Department of Genetics, Peking University Cancer Hospital & Institute, Beijing, China

[2]Department of Occupational and Environmental Health Sciences, School of Public Health, Peking University, Beijing, China

Frailty and the dynamic progression trajectories of stroke-dementia comorbidity: Insights from multi-state models and genetic analyses

Importance: Stroke and dementia frequently co-occur, with frailty serving as a critical risk factor for both conditions. However, the relationship between frailty and the progression trajectories of stroke-dementia comorbidity has not been definitively established.

Objective: To determine whether there are associations between frailty and the progression trajectories of stroke-dementia comorbidity.

Design, Setting, and Participants: This study integrated both observational and genetic analyses. First, this prospective, longitudinal cohort study used data from the UK Biobank and CLHLS to test for associations. Second, Mendelian Randomization (MR) analyses were conducted by using 14 frailty-related genetic variants to test for genetic associations. The baseline assessment of UK Biobank was between 2006 and 2010 and follow-up until March 31, 2021, for England and Scotland, and February 28, 2018, for Wales. The CLHLS cohort was initially established on January 13, 1998, with seven subsequent follow-up interviews conducted in 2000, 2002, 2005, 2008–09, 2011–12, 2014, and 2017–18. Participants with baseline dementia, stroke, or Parkinson's disease, those with missing data on key variables, and diagnosed with stroke and dementia on the same day were excluded. The final analysis included 459,924 and 20,653 participants from UKB and CLHLS, respectively. Statistical analysis was performed between March 2024 and July 2024.

Exposures: Frailty was assessed using the Frailty Index (FI) and categorized as robust (FI≤0.10), prefrail (0.10<FI≤0.25), or frail (FI>0.25).

Main outcomes and measures: The outcomes of interest were stroke, dementia, stroke-dementia comorbidity, and mortality. Theses outcomes were ascertained via self-reported data, International Statistical Classification of Diseases, Tenth Revision, codes or official death registries. Multi-state models and MR were used to assess associations between FI categories and stroke-dementia comorbidity.

Results: In the UK Biobank cohort, 13409, 3984, and 996 participants developed incident stroke, dementia, and their comorbidity over a median 12.5-year follow-up, while in the CLHLS cohort, 1670, 253, and 97 participants developed these conditions over a median 4.1-year follow-up. In comparison to robust, frail group significantly elevated the risk of transitioning from enrollment to stroke [HR (95%CI): 2.32 (2.19-2.45) in UK Biobank; 1.36 (1.15-1.60) in CLHLS], from enrollment to dementia [2.56 (2.31-2.83); 1.65 (1.14-2.38)], from enrollment to mortality [2.32 (2.23-2.42); 1.67 (1.58-1.76)], from stroke to stroke-dementia comorbidity [1.59 (1.23-2.05); 3.58 (1.86-6.87)], and from stroke to mortality [1.25 (1.11-1.40); 1.32 (1.06-1.65)] in both cohorts. MR analyses revealed that genetically predicted frailty index was causally associated with higher risks of stroke, dementia, and stroke-dementia comorbidity. Conclusions and relevance: Our findings suggested that frailty played an important role in the dynamic transitions of stroke-dementia comorbidity, offering important insights for the clinical management and public health strategies.

Audience Take Away Notes

- The audience will learn about the significant association between frailty and the progression of stroke-dementia comorbidity, allowing healthcare professionals to better identify at-risk populations
- This research will aid clinicians in implementing frailty assessments in routine evaluations, facilitating early intervention strategies for stroke-dementia comorbidity management
- Other faculty can leverage these findings to enhance their research on geriatric care or cognitive health, and incorporate this information into curricula related to aging, neurology, and public health
- The study offers actionable insights for designing screening protocols that integrate frailty assessments, potentially streamlining workflows in clinical settings
- By identifying key risk factors like hypertension and diabetes, this research can inform the design of targeted interventions and care plans, improving patient outcomes

Biography

Dr. Dongze Chen studied Biostatistics at the School of Public Health, Peking University, graduating with a master's degree in 2020. Dr. Dongze then joined the Genetics Research Laboratory at the Peking University Clinical Oncology Institute to pursue a PhD in Epidemiology and Health Statistics. Under the supervision of Researcher He Zhonghu, Dr. Dongze is conducting in-depth research in the fields of neuroepidemiology and upper gastrointestinal cancer epidemiology, with an expected completion date for his medical doctorate in 2026. Dr. Dongze has published 8 research articles in SCI(E) journals.

Elham Azimzadeh
Department of Cognitive and Behavioural Sciences and Technology in Sport, Faculty of Sport Sciences and Health, Shahid Beheshti University, Tehran, Iran

The impact of physical guidance on motor learning in children with cerebral palsy

Children with Cerebral Palsy (CP) have weak physical abilities and their limitations may have an effect on performing everyday motor activities. One of the most important and common debilitating factors in CP is the malfunction in the upper extremities to perform motor skills and there is strong evidence that task- specific training may lead to improve general upper limb function among this population. However, augmented feedback enhances the acquisition and learning of a motor task. Practice conditions may alter the difficulty e.g., the reduced frequency of PG could be more challenging for this population to learn a motor task. So, the purpose of this study was to investigate the effect of Physical Guidance (PG) on learning a tracking task in children with Cerebral Palsy (CP). Twenty-five independently ambulant children with spastic hemiplegic CP aged 7-15 years were assigned randomly to five groups. After the pre-test, experimental groups participated in an intervention for eight sessions, 12 trials during each session. The 0% PG group, received no PG; the 25% PG group, received PG for three trials, the 50% PG group, received PG for six trials, the 75% PG group, received PG for nine trials, and the 100% PG group, received PG for all 12 trials. PG consisted of placing the experimenter's hand around the children's hand guiding them to stay on track and complete the task. Learning was inferred by acquisition and delayed retention tests. The tests involved two blocks of 12 trials of the tracking task without any PG being performed by all participants.

They were asked to make the movement as accurate as possible (i.e., fewer errors) and the number of total touches (errors) in 24 trials was calculated as the scores of the tests. The results showed that the higher frequency of PG led to more accurate performance during the practice phase. However, the group that received 75% PG had significantly better performance compared to the other groups, in the retention phase. It is concluded that the optimal frequency of PG played a critical role in learning a tracking task in children with CP and likely this population may benefit from an optimal level of PG to get the appropriate amount of information confirming the Challenge Point Framework (CPF), which state that too much or too little information will retard learning a motor skill. Therefore, an optimum level of PG may help these children to identify appropriate patterns of motor skill using extrinsic information they receive through PG and improve learning by activating the intrinsic feedback mechanisms.

Keywords: Cerebral Palsy, Challenge Point Framework, Motor Learning, Physical Guidance, Tracking Task

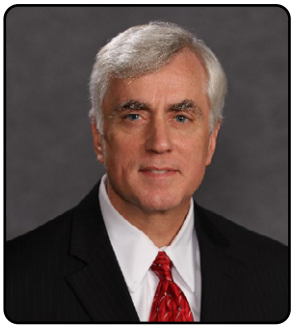
Audience Take Away Notes

- Findings of the present study can help children with spastic hemiplegic cerebral palsy to identify appropriate patterns of motor skill and improve learning new motor tasks by using extrinsic information they receive and activating the intrinsic feedback mechanisms
- Reduced feedback or information results in a self-regulatory strategy in learning motor skills. Therefore, an increased efficiency in encoding process and improved performance in children with spastic hemiplegic cerebral palsy is expected

- The results of this study may help physiotherapists and occupational therapists to provide effective therapeutic interventions to improve motor learning in children with spastic hemiplegic cerebral palsy

Biography

Dr. Elham Azimzadeh studied motor behavior at the Shahid Beheshti University, Iran and graduated as MS in 2006 at University of Tehran. Dr. Elham received PhD degree in 2012 at the Shahid Beheshti University and obtained the position of an assistant professor of motor behavior at University of Shahid Beheshti. Dr. Elham has published some research articles in the field of developmental disorders.



Eric A. Kreuter, Ph.D., CASAC-t
Cornerstone of Rhinebeck – New York/Primary Counselor/Rhinebeck, NY, USA

Use of expressive writing as an effective adjunct treatment for chemical addition

Addiction to chemical substances in a significant problem not just in the United States, but globally. Drugs are becoming harsher, and fentanyl is attempting to be made resistant to Narcan. Individuals who suffer from the disease of addiction face long-term consequences to continued use, including the risk of death. Much more needs to be done. This presentation is on the author's published theory on the efficacy of prompted creative writing found useful in the treatment of addition to chemical substances. The presentation will cover the amplified benefits of inclusion of this type of adjunct approach fitting for a structured program formerly relying mostly on group lectures and other forms of counselling. The effects that will be shown through anecdotal evidence demonstrate the longevity of this approach leading to many cases of longer-term sobriety than otherwise likely. The speaker has found that writers in several treatment facilities have benefitted from such creative writing and are able to maintain long-term sobriety through continued writing and participation in weekly creative writing group meetings. Treatment facilities are expanding their counselling choices to include creative writing as a treatment option, and it is not a worthy component of the treatment plan for some recovering addicts. Former participants in the creative writing program are starting to open up new pathways to other treatment programs encouraging inclusion of creative writing as a adjunctive treatment modality.

Audience Take Away Notes

- The audience will learn how to design and implement an effective writing program within individual or group counseling
- A more effective overall treatment program will develop allowing the patient to express his or her views more prominently within the therapeutic setting
- The theories and research will demonstrate ready adaptability to any treatment program or academic setting
- Those interested in learning how to apply this treatment modality are easily trained
- Addition of this approach is very cost-effective

Biography

Dr. Eric A. Kreuter is a Primary Counselor at Cornerstone treatment center in Rhinebeck, NY. Dr. Kreuter has four years of prior experience as weekend counselor at St. Christopher's Inn, located in Garrison, NY. Dr. Kreuter holds master's degrees in psychology and Christian Leadership, a doctorate in Clinical Psychology and has recently retired form a long career as a Forensic Accountant/CPA with a national public accounting firm. Dr. Kreuter has published an academic book about this presentation (Nova Science Publishers), as well as a recent article published by the Journal of Creative Writing Studies (Rochester Institute of Technology).

Eskinder Woldeyesus Ersado
Wolaita Sodo University, Ethiopia

The magnitude of risky behaviors and it's associated psychosocial factors among Wolaita Sodo University students, Ethiopia

Background: Students living in university hostels are a distinct group of university students who have unique needs and problems. Risky behavior is defined as behaviors leading to sexually transmitted diseases and unintended pregnancies. According to the joint United Nations program on HIV/AIDS, HIV infection was very high among adolescents and youths living in sub-Saharan Africa including Ethiopia. This study was aimed to assess prevalence of risky behavior and associated factors among Wolaita Sodo University students, Wolaita Sodo City, Ethiopia.

Methods: An institution based cross-sectional study design was employed. All students of Wolaita Sodo University were considered as a source population. Data was collected by pre-tested and structured questionnaire collect, and SPSS version 25 used for analysis. Bivariate and multivariable logistic regression analysis was employed and adjusted odds ratio with their respective 95% CI was used.

Results: The total of 755 students included in the study, making the response rate of 100%. The prevalence of risky behavior among students in this study is 32.7% with 95% CI (30.7, 48).

Conclusion: In this study risky behavior among the students was high. Following students in the campus, having students or mini media and teaching students about risky sexual behavior is essential.

Keywords: Magnitude, Risky Behavior, Wolaita Sodo, Ethiopia.

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Investigating unique and recurrent copy number variations in inflammation-related genes in alzheimer's disease and related disorders among Saudi patients

Background: Alzheimer's Disease (AD) is a progressive neurodegenerative disorder and the primary cause of dementia, characterized by declining memory and cognitive function. Research has identified significant genes and risk alleles associated with AD, which shares common inflammatory pathways with related conditions such as Type 2 diabetes, major depressive disorder, hypertension, hyperlipidemia, and dyslipidemia. However, more in-depth molecular research on inflammatory genes relevant to AD and its related disorders in Arab countries, including Saudi Arabia, is needed.

Objectives: This study investigates inflammatory genes in AD and its related disorders by conducting Copy Number Variation (CNV) analysis for chromosomal regions in a cohort of 68 Saudi patients.

Methods: DNA was analyzed using the CytoScan-HD array. Two layers of filtering criteria were applied. All identified CNVs were cross-referenced with the Database of Genomic Variants (DGV).

Results: A total of 189 CNVs, including 102 gains and 87 losses, were identified, containing genes implicated in the inflammatory processes of AD and its related disorders. Notably, the MIR650 gene, associated with the inflammatory processes of AD, was recurrent in the studied cohort, while the FKBP5 gene was unique to a case of late-onset AD (LOAD). The findings highlight the genetic landscape of AD and provide pioneering insights into rare variants within genes linked to the inflammatory cascade of AD and its associated disorders in a cohort of 68 Saudi patients.

Conclusions: This study provides valuable information on the presence of CNVs implicated in the inflammatory processes of AD and its related disorders in Saudi Alzheimer's patients.

Biography

Dr. Fadia El Bitar is a prominent scientist specializing in genetics and neurodegenerative diseases, particularly Alzheimer's disease. She is currently based at the King Faisal Specialist Hospital and Research Center in Riyadh, Saudi Arabia. Her work focuses on identifying the genetic causes of Alzheimer's disease in Saudi patients and developing in vitro models of the disease by converting patient-derived fibroblasts into neurons. This innovative approach aims to facilitate the discovery of effective drugs to mitigate the toxic effects of amyloid peptides involved in Alzheimer's pathology. Dr. El Bitar holds a PhD in Cellular and Molecular Biology from the National Institute for Science and Health (INSERM) at the University of Auvergne, France, which she obtained in 1999. She also earned a Master's degree in Cellular and Molecular Biology from the University of Blaise-Pascal in 1995, and a Bachelor's degree in Biochemistry from the Lebanese American University in 1991. Her research has made significant contributions to the understanding of Alzheimer's disease, particularly through her exploration of neuroprotective agents that could potentially offer new therapeutic avenues. For instance, her studies on synthetic analogues of curcumin have shown promising results in protecting neuronal cells from amyloid-induced toxicity. Dr. El Bitar's work is supported by notable national and

international collaborations and has been recognized through various publications and conference presentations. Her research has also benefited from substantial funding, including a notable grant from the King Abdulaziz City for Science and Technology, highlighting the importance and impact of her contributions to the field of neurogenetics and personalized medicine.

Farsana F J
University of Kerala, India

Tumortrack pro: Enhancing tumor progression analysis through quantitative MRI

Tumor progression refers to the gradual development and growth of cancerous cells within the body. Understanding this process is crucial for effective diagnosis, treatment planning, and patient management. Traditional methods often rely on qualitative assessments and static imaging, which may not fully capture the dynamic nature of tumor growth. This abstract introduces a novel software solution designed to enhance the comprehension of neurological tumor progression through quantitative mapping techniques. The dynamic Tumor Microenvironment (TME) consists of various components that interact with each other and influence cancer growth and progression. Quantitative maps, such as the Transverse Relaxation Rate (R2*), Transverse Relaxation Time (T2*), Proton Density (PD), and longitudinal relaxation time (T1), help identify the chemical composition of tumors. R2* mapping highlights regions of poor oxygenation within tumors, influencing treatment response and prognosis. Altered T2* values may indicate hemorrhagic or necrotic areas within tumors. The T1 relaxation rate in MRI is a crucial parameter that reflects the chemical composition and microenvironment of tumors. Variations in water content, macromolecule concentration, cellularity, oxygenation, and pH levels between tumor and normal tissues lead to differences in T1 relaxation times, which can be used diagnostically to characterize and differentiate tumors. The proposed software tool is designed for computing quantitative maps and conducting further analysis. This application leverages the power of the Qt framework for its user interface and incorporates the Visualization Tool kit and Insight Tool Kit libraries for advanced visualization and image processing capabilities.

Audience Take Away Notes

- ·The audience can use this knowledge to better understand the dynamics of tumor progression and the importance of quantitative mapping in tumor analysis. This could be particularly useful for medical professionals, researchers, and students in the field of oncology and neurology
- The methodologies and findings from this research could certainly be used by other faculty to expand their own research or to incorporate into their teaching, particularly in courses related to oncology, neurology, or medical imaging
- Automating the process of quantitative mapping and providing a user-friendly interface through the Qt+ framework, this tool could significantly simplify the job of designers and engineers working in the field of medical imaging software

Biography

Farsana earned her B. Tech in Electronics and Communication Engineering from the University of Kerala in 2010 and her M. Tech in VLSI and Embedded Systems from Cochin University of Science and Technology in 2012. She completed her Ph.D. in Non-Linear Dynamics at LBS Centre for Science and Technology, University of Kerala, in 2020. After her Ph.D., she joined the Medical Imaging and Computational Lab at Digital University Kerala as a research engineer. Her research focuses on the pre-processing of GRE images for computing Oxygen Extraction Fraction (OEF), Quantitative Susceptibility Mapping (QSM), quantitative mapping and synthetic MRI.

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Survival prognosis of parkinson's disease in Baku

Introduction: Parkinson's disease, as a severe neurodegenerative pathology, has a negative impact on the quality and life expectancy of people. One of the criteria characterizing the medical and social severity of the disease, is the probability of survival after its initial manifestation.

Methods: The observation was carried out retrospectively, information was collected on all patients (110 patients) who were first diagnosed with Parkinson's disease in 2009-2010. These patients are provided with free medications, which made it possible to provide diagnostic monitoring for them in clinics. During 2010-2019 years 94 patients with Parkinson's disease died. All medical death certificates were selected for analysis. Diagnoses in column "a" of this document were accepted as direct causes of death, regardless of the presence or absence of a causal relationship between these diagnoses and Parkinson's disease. The survival index was calculated using the Kaplan-Meier moment method based on mortality after the initial diagnosis of patients. The average error of the indicator was determined using the Greenwood formula.

Discussion: At the time of initial diagnosis, 58.2% of patients were under 70 years of age, and 41.8% were over 70 years of age. The majority of them (70.9%) did not report symptoms of dementia. The proportion of men among patients (72.7%) increased up to 3 times. Over the past 10 years, 94 patients (85.5%) experienced acute cerebrovascular disorders (36.25), acute myocardial infarction (24.5%), died from pulmonary thrombosis (11.7%) and pneumonia (10.6%). During this period, the survival rate of patients in the first, second, third, fourth, fifth, sixth, seventh, eighth, ninth and tenth years (0.94, respectively); 0.87; 0.86; 0.84;0.76; 0.75; 0.74; 0.65; 0.56 and 0.41.

Conclusions: The survival rate of patients with Parkinson's disease within 10 years after the manifestation of symptoms ranges from 0.94 to 0.41 (five-year survival rate is 0.76). The survival rate depends on the age at the onset of the disease (≤70 N>70 years old 0, 96±0, 20 – 0, 50±0, 11; 0, 91±0, 41–«0»), and sex (in men 0.93±0.33–0.29±0.11 and in women 0.97±0.23–0.65±0, 15), from multimorbidity (0.87±0.50 patients with dementia, 0.88±0.61 patients with cardiovascular diseases, 0.97±0.21–0.48±0.11 in persons without chronic diseases). The average annual probability of death in Baku (8.55%) is close to the corresponding indicator for people of Asian origin living in the United States of America (8.5%), and is 2 times higher compared to the corresponding indicator for the population of Sweden (4.0%).

Keywords: Survival of Parkinson's Disease, Age of Onset, Multimorbidity.

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Non-invasive monitoring in acute TBI patients: Proposal of an algorithm when the CT scan is unavailable in centers' health of LMIC

Background: Traumatic Brain Injury (TBI) is considered one of the main causes of disability and mortality in the worldwide1, 2, 3. For its prompt diagnosis and adequate management, it is essential to have the necessary technology as well as experienced health professionals. The main issue in health centers of Low Middle-Income Countries (LMIC) is not having either of these two tools or they are present but inefficiently, thus decreasing patient survival notoriously4. The newness of we propose: how to assess a neurocritical patient and recognize an increase in Intracranial Hypertension (IH) in an environment where a CT scan is not available.

Hypothesis: We propose a clinical and useful protocol for the initial care and attention of patients with severe Traumatic Brain Injury (TBI) in Low Resource Health Centers (LMIC), precisely in the context in which CT is not available: with the main objective of highlighting those patients who must be referred to a highly complex hospital (with ICU and Neurosurgeon service available) and those who do not.

Methodology: This clinical algorithm only includes those patients admitted to the Emergency Room (ER), over 18 years old>, with a recent diagnosis of TBI less than 72 hours< and Glasgow Scale (GCS) less than 13<. On the other hand, this protocol is designed to be carried out in a low-resource hospital in which a CT scan is not available. Each patient will be evaluated individually continuously over a period of 7 days (mean). The key diagnostic tool that replaces CTscan is non-invasive and will be detailed in the protocol. This algorithm excludes those patients under 18 years of age<, with GCS greater than 3<, recent cardiac arrest, who do not have an accurate diagnosis of TBI or whose onset time after diagnosis is greater than 72 hours>. The difficulty in understanding this algorithm is low, so it is designed to be carried out by junior resident doctors, and supervised by senior residents.

Biography

Dr. Francisco Zarra M.D, graduated as a Doctor from the University of Buenos Aires, Argentina. He currently works volunteer like Research Associate in the Department of Critical Care, Hospital "Eva Perón de Merlo", Argentina, and doing your M.P.H in University of Cordoba (UNC). At the same, he participant in international International Clinical Trials and Multicenter Studies. Currently is member of the Neurocritical Care Society (NCS) and National Neurotrauma Society (NNS), as well as Board Member Editor of several Journals international on Neurosurgery and Neurocritical Care. He has published more than 15 articles in recognized Journals.

Sydney Shaffer, Elizabeth Baumann, George Diaz* MD

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A case of nitrous oxide induced vitamin B12 deficiency with secondary myelopathyu

Objective: To present a unique case of Nitrous Oxide (NO_2)-induced vitamin B12 deficiency with secondary myelopathy.

Background: Nitrous Oxide (NO_2), commonly known as “laughing gas”, is frequently used as an anesthetic agent, but is also abused recreationally in the form of “whippets”. Whippets are nitrous oxide containing steel cartridges that are inhaled and cause euphoria. Prolonged N_2O exposure has been associated with the development of the rare neurological disorder, N_2O-induced vitamin B12 myelopathy. We report a case N_2O-induced B12 myelopathy and explore the underlying biochemistry to demonstrate how N_2O pathologically disrupts the normal metabolic roles of vitamin B12, thus resembling the same clinical phenotype as Subacute Combined Degeneration of the Spinal Cord (SCDSC).

Case: 47-year-old gentleman without significant medical history presented with three months of ascending numbness and tingling of the bilateral lower extremities which rapidly progressed from the toes to the mid thoracic region and bilateral upper extremities two weeks prior to presentation. This was associated with progressive unsteady gait and bladder retention.

Neurological examination revealed normal cortical function and intact cranial nerves with no facial diplegia and reactive pupils bilaterally. Motor exam was significant for only bilateral tibialis anterior 4/5 and otherwise 5/5 strength throughout. No atrophy or fasciculations were observed. Reflexes were absent in the bilateral ankles. No upper motor neuron signs. Plantar responses were equivocal bilaterally. Sensory was significant for decrease in vibration and proprioception in the distal bilateral lower extremities. There was hyperesthesia and allodynia to touch extending proximally toward the torso. He was able to stand without assistance but was not able to ambulate independently secondary to severe gait ataxia. Romberg and tandem gait were unable to be obtained.

Labs demonstrated low vitamin B12 level of 192 pg/mL (normal: 300-1200 pg/ml); elevated Methyl Malonic Acid (MMA) level 48,000 nmol/L (normal: l87-318 pg/ml); elevated homocysteine level 26.85 pg/ml (normal: 6.6-14.80). Spinal fluid was normal

Imaging: MRI brain was unremarkable. MRI cervical spine with and without contrast demonstrated abnormal T2 hyperintensity and enhancement of central gray matter of the Cervical C3 to C7 spinal cord with patchy enhancement at the levels of C2 through MRI thoracic spine with and without contrast demonstrated long segment abnormal enhancement of the entire thoracic spinal cord with involvement of the central and posterior cord.

Discussion: Nitrous Oxide (NO_2) is a colorless, odorless gas that has been used as an anesthetic for over a century. N_2O has gained popularity as a recreational drug, known as “whippets" due to its euphoric effects (1). Abuse of, and prolonged exposure to N_2O has been associated with neurological manifestations,

specifically, spinal cord myelopathy resembling Subacute Combined Degeneration of the Spinal Cord (SCDSC), secondary to the impact of N_2O on vitamin B12 metabolism.

Conclusion: "Whippets" are a common, easily accessible, recreational drug that contains Nitrous Oxide (NO_2) which is known to inactivate vitamin B12. Patients can have normal B12 levels but typically have elevated Methylmalonic Acid (MMA) and homocysteine levels signifying this inactivation- as is true in our case. This patient's myelopathy effectively appeared as B12 deficiency/SCDSC which was further confirmed by abnormal spinal cord signals on MRI cervical and thoracic imaging secondary to N_2O/ whippet abuse. Patient recovered after 3 months of high intensity IM B12 to treatment prevent profound long-term peripheral nerve and spinal cord damage.

Audience Take Away Notes

- Awareness of use of NO_2 on B12 metabolism and clinical symptoms
- Recognize causes of B12 deficiency in the clinical setting
- Yes, further research is needed and clinical teaching to doctors and allied health is needed.
- Yes B12 treatment via IM injection is easy, practical, curative and inexpensive
- This B12 treatment is curative and can prevent significant disability in patients with B12 deficiency or dysfunction t

Biography

Dr. George Diaz is a neurologist for the Memorial Healthcare System. In addition to Vascular Neurology, Dr. Diaz is also board certified in Neurology, Brain Injury Medicine, and Neuromuscular Medicine. Dr. Diaz has lectured on multiple neurological issues, such as acute ischemic stroke, neurological emergencies, and neuromuscular diseases. Dr. Diaz earned his Bachelor of Science degree in chemistry at Florida International University and his medical degree at the University Of Miami School Of Medicine. He interned and completed his neurology residency at the University of Miami-Jackson Memorial Hospitals. Dr. Diaz also completed a Neuromuscular Fellowship at the University of Texas Medical Center.

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Innovative sEEG based device for neural recordings, ablation and drug delivery into the brain

Stereoelectroencephalography (sEEG) electrodes are routinely used to identify the epileptogenic zone (EZ) in patients with drug resistant epilepsy. The sEEG electrodes are FDA-cleared for temporary (<30 days) neural activity monitoring, recording and stimulation. Here we present bench and in vivo studies for two new clinical functions added to the sEEG electrodes: 1) temperature-controlled radiofrequency ablation (RFA) andConvection Enhanced Drug delivery (CED).

Methods: RFA was tested in ex vivo chicken breast and in vivo swine brain, using a proprietary RF generator. Lesions obtained for different ablation parameters (time and temperature) were evaluated with MRI and histology. CED was tested in 0.6% agarose gel. Concomitant neural recordings and CED were evaluated in rat and swine models. DD-sEEG electrodes were stereotactically implanted into the Hippocampus (HC) and Putamen (PUT), and penicillin (5000 units/µl) was used to modulate neural activity. MRI with gadolinium (Gd; swine) and histology (rat) were used to evaluate diffusion Volume (Vd).

Results: sEEG-guided RFA created reproducible lesions with sizes proportional to temperature and time. In vivo and ex vivo lesions were comparable and varied between 4 and 10 mm in diameter, depending on the RFA parameters. Bench studies demonstrated CED for infusion rates of 0.5-15 µl/min and infused volumes (Vi) of 100-1000 µl, with Vd/Vi ratio of 2.7-3.4. Penicillin elicited seizure-like episodes, consisting of large amplitude bursts of coordinated activity interspaced by quiet periods, in both rat and swine HC. MRI visualization of Gd demonstrated localized infusions in the swine PUT and HC. Histological examination of the rat brain tissue showed confined Vd.

Conclusions: These data demonstrate the ability of a single sEEG-based device platform to perform multiple functions: record brain activity, stimulate, ablate and deliver drugs. This has the potential to increase the accuracy of diagnosis and offer treatment within one surgical procedure. Furthermore, real time monitoring of neural activity during infusion of therapeutic compounds can be used to probe the function of various brain structures, and/or evaluate onset and mechanism of action, dosing, efficacy and safety of therapeutic compounds.

Audience Take Away Notes

- Learn about available research and clinical tools for probing neural activity using combined pharmacological and surgical approaches
- Learn about a modular device platform that enables diagnosis and treatment within a single procedure
- Learn about a new device that monitors neural activity in real-time during therapeutic compound delivery (drugs, gene and stem cell therapies)

Biography

Guadalupe Zepeda studied Biomedical Engineering at California Polytechnic State University, SLO and graduated in 2021. Guadalupe has now established herself as an engineer at NeuroOne Medical Technologies where Guadalupe initially focused on process improvements of NeuroOne's flex circuits. Now Guadalupe is focused on device development.

Gustavo Alves Andrade Dos Santos

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Biomarkers in alzheimer's disease–new perspectives

The development of an early and assertive diagnosis of Alzheimer's Dementia can contribute to a better quality of life for patients, mainly by providing targeted therapy with measurable results. Biomarkers can be detected in blood levels and, more recently, the feasibility of their identification in salivary samples has been verified. The big challenge lies in the levels of detection and the probable relationship between concentrations in different biofluids. Blood and saliva samples have been evaluated in search of biomarkers, such as TAU and Amyloid Beta, both closely related to the pathophysiology of Alzheimer's disease. Due to hyperphosphorylation, the normal function of the TAU protein is compromised in terms of stabilization of microtubules in neural networks, leading to the destabilization of microtubules, interfering with axoplasmic flow, and resulting in loss of neuronal connectivity. Hyperphosphorylated tau, in addition to neurofibrillary tangles, is also found in other locations, such as around amyloid plaques. There are hypotheses that associate the protein called Neurofilament Light chain (NfL) with Alzheimer's disease. NfL stands out as a reliable biomarker in conditions related to neurodegenerative diseases. The NfL is part of a complex called Neurofilament (Nf), where associates with other filament subunits intermediates, such as the heavy chain of Neurofilament (Nf-H), Medium chain (Nf-M) and alphainternexin. In an individual without neurodegenerative disease, that is, under normal conditions, small amounts of Nf-L are released during different stages of the development, maturation and aging cerebral. But it is known that axonal damage or degeneration neuronal release significantly higher Nf-L in the cerebral interstitial fluid, in the Cerebrospinal Fluid (CSF) and even in the blood. Recently, some tests for screening Alzheimer's disease in blood fluid have been presented, however they cannot yet be considered definitive methods. The biomarkers to be used are the Beta amyloid protein in fractions 40 and 42 amino acids and the TAU protein (pTAU, tTAU), in the TAU181 and TAU 217 subtypes. In this case, the TAU protein has received greater projection and confidence regarding its participation in the pathophysiology of Alzheimer's disease. Doctors have been discouraged from using CSF fluids due to issues related to pain, cost, and risk of infections. A diagnostic solution based on salivary detection can be considered exceptional, especially for screening in small and medium-sized economic countries, places where Alzheimer's disease has grown the most.

Audience Take Away Notes

- Proposal for new diagnostic strategies
- Improve diagnostic assertiveness
- This investigation can act as an impetus for new discoveries about the pathophysiological process
- Our studies are not yet completed, but they strengthen the hypotheses.
- We provide new information

Biography

Gustavo Alves Andrade dos Santos is a Pharmacist-Biochemist (Sao Paulo, Brazil); Doctor in Biotechnology, Master in Pharmacy; Post Doctorate in Anatomy and Surgery from Neurobiology (University of Chicago), Clinical Pharmacy (University of Central Florida), USA; Hospital Pharmacy (Necker Hospital) Paris, France; He is a Professor at the São Leopoldo Mandic Faculty of Medicine, Araras; Member of the Alzheimer's Association International (ISTAART) and Member of the American Society of Health-System Pharmacists (ASHP). Assistant Researcher at UNICAMP.

Hesham Elnazer
University of Sussex, United Kingdom

ADHD medication management: Current practices and research

Attention Deficit Hyperactivity Disorder (ADHD) presents complex challenges in medication management that are critical for optimising patient outcomes. This presentation offers a comprehensive overview of current practices and research in ADHD medication management, focusing on treatment options, efficacy, and tolerability. We will explore licensed ADHD medications in the UK, including their various formulations and durations of action, and review the NICE 2018 guidelines that shape treatment protocols for different age groups and comorbid conditions.

The session will delve into efficacy data from a network meta-analysis of 133 randomised controlled trials (RCTs), providing insights into the comparative effectiveness of different ADHD medications. We will also assess tolerability based on a 12-week study, highlighting e differences between drugs and placebo. Key strategies for optimising medication through forced dose titration will be discussed, alongside findings from the QbTest feasibility study, which examines the use of computerised assessments in medication management.

Special considerations, including the impact of ADHD medications during pregnancy, management of hypertension, and risks of psychosis, will be addressed. Additionally, we will cover non-licensed medications and adjunctive treatments, long-term effects, and safety concerns associated with ADHD medication withdrawal.

The presentation will conclude with practical recommendations for clinicians, emphasising the importance of personalised treatment strategies and ongoing monitoring to ensure the best outcomes for patients with ADHD.

Biography:

Dr Hesham Y Elnazer is an experienced Neuropsychiatrist who has worked in various regional and national centres of excellence, including the National Centre for Brain Injury Rehabilitation, St. Andrew's Hospital, St. George's Hospital in London, and the University Hospital of Southampton. He is a holistic psychiatrist who utilizes biological, social, behavioural, and psychological models of therapy. Dr Elnazer holds numerous qualifications, including an MD from the University of Southampton, a Certificate of Clinical Psychopharmacology from the British Association for Psychopharmacology, and a Certificate of Completion of Training (CCT) from the General Medical Council. He is affiliated with the Royal College of Psychiatrists and the European Behavioural Pharmacology Society. Dr Elnazer has been actively involved in national and international projects and is a senior clinical lecturer at the Brighton and Sussex School of Medicine. He has authored a significant number of publications and reviews and has received several awards and recognitions for his work in developing the Royal College Membership Course, serving as a Royal College examiner and exam writer, and contributing to the development of the national training curriculum and the neuropsychiatry accreditation program.

Dr. Scharbach Hugues

M.D. PARIS's University, Neuro-Psychiatrist, Pedo-Psychiatrist ; Past Head of psychiatric Service in C.H.U.; past Teacher of Physiology then psychiatry in PARIS, NANCY, NANTES, RENNES and BUJUMBURA 's Universities; National Expert, France

Repeat arsonists and fire's addiction

Fire addiction is enough frequent. The attraction of making fire spring forth is multifaceted and can be found at all ages. We had even to realize a forensic expertise of a young boy, who was fascinated by lighters, by rubbing the knob for ignition, make the flame emerge and who set fire to papers in an office-hospital, where his parents were visiting a member of his family. I had also to take care of two young adolescents taken care of in a specialized center devoted to teenagers suffering of dysharmonic features of the personality's entangled with dissocial troubles, after they set fire to the director's car in retaliation. During social demonstrations, the number of cars burned is often impressive. Young squatters may set a fire before leaving the barn or the attic where they spent the night. It will be necessary to evoke the destructive impulse, of unconscious death.

Finally, there is the pathological people, often young men, the arsonists, of whom we have already presented their psychiatric clinical observations ( ). They are renowned to their tendency to recidivate. They are sometimes arrested near the places of the fire, near forest or moors notably. They remain often close to the fire's place, looking for the devoring flames. They may sometimes experience/feel sexual arousal. They could be also beginner firefighters, auxiliaries and even volunteers.

The smoking followers, in starting to smoke, rubbing the match or the lighter: the act of lighting a cigarette or a cigar or equivalent doesn't participate in part in an addictive repetition before and out, of course, the effects of nicotine.

But above all, the narcissitic fragility relating to the self, the identity vulnerability, the symbolic connotations of the one, who became famous by his incendiary act concerning the 3rd wonder of the world, ephese's temple! erostrate, which should not have been his first provoked fire reflects, drived, leaded by a postural complex showing an overcompensation in an addictive mode of appearance, against a background of lack of self-esteem, like the addictive followers of «like».

The «pyromane», by his intra-psychique structuration having preoedipal foundations, which we will develop in the psychodynamic, topical and economic approach relating to his personnality features.

He fits well with its repetitive tendency underlying the drive leveel within the framework of addicction; More: if we consider the terminology, firing «faire feu» a weapon can become -notably among certainformerly cowboys-, a pratice close to the psycchopathology considered.

Keywords: Ambivalence of Fire. A Factor of Life, of Confort And Notably of Progress/Versus Destructive, Devasting; the Perception of Fire According to Age, Impact of the Aesthetics of Flames and Emotional Aspects of Hearth, The Strong Recurring Tendency, The Addictive Psychopathological Dimension in the Arsonist.

Biography

Doctor Hugues Scharbach MD, PARIS's University Neuropsychiatrist, Doctor of Psychology LYON's University, served as the Head of General Psychiatry and Pedo-Psychiatry Services at the renowned University Hospital Center (C.H.U.) in Paris. Dr. Scharbach's expertise extends to multiple fields, including being the former Director of Clinical Teaching at Nantes's University and specializing in psychopharmacology at Nancy's University. Also served as a teacher in Physiology at both Buiumbura and Paris's University.

Dr. Scharbach Hugues

M.D. PARIS's University, Neuro-Psychiatrist, Pedo-Psychiatrist ; Past Head of psychiatric Service in C.H.U.; past Teacher of Physiology then psychiatry in PARIS, NANCY, NANTES, RENNES and BUJUMBURA 's Universities; National Expert, France

Munchhausen syndrome by proxy by children and teenagers growing, reaching adulthood with disharmonic features of personality, even psychic disturbances/trou-bles or mental disorders

Background: Munchausen's syndrome is described by dieulafoy in 1908 but, this factice troubles by proxy caused by people in charge of the young, usually mothers are more known only particularly since 2002, after the works of Meadows, Rosenberg, De Becker (1) in 2006. We will try to highlight his explicitation/ clarification in the changing society.

Methods: Working during 40 years in the frame of hospitals, in charge of different places of cares: As chief of adults then children and adolescents psychiatric services in C.H.U and also as counsellor in medico-psychologique institutional's places–we have had to receive mothers, by whom, we discerned, during our clinical approach, the reality of that morbid attitude to create factice deleterious disorders by the young ones inside their family or being close during educational times. That kind of comportment due to their imaginary may drive children or teenagers to psychic organizations or even disorders later. As pedo-psychiatrist, we have to discern such type of troubles and to help and take preventive care and therapeutical means and to meet such cases resulting of false interrelationships. As psychiatric expert of appeal's and also cassation's courts, we have had the opportunity to make expert examinations.

Results: All was depending of psychogenetic background of the child and more other, the type of disguised malevolence and of the deep intentionality and also, if a medical add had happen. The age where these factice troubles were suicidal and the duration and the resilience's capacities and of the level of ability of the young victims.

Biography

Doctor Hugues Scharbach MD, PARIS's University Neuropsychiatrist, Doctor of Psychology LYON's University, served as the Head of General Psychiatry and Pedo-Psychiatry Services at the renowned University Hospital Center (C.H.U.) in Paris. Dr. Scharbach's expertise extends to multiple fields, including being the former Director of Clinical Teaching at Nantes's University and specializing in psychopharmacology at Nancy's University. Have also served as a teacher in Physiology at both Buiumbura and Paris's University.

Irene Fasciani[1*], Francesco Petragnano[1], Clotilde Mannoury la Cour[2], Benjamin di Cara[2], Gabriella Aloisi[1], Marco Carli[3], Shivakumar Kolachalam[3], Mario Rossi[1], Francesco Marampon[4], Marco Scarselli[3], Mark J Millan[5], Roberto Maggio[6]

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Interaction of the preferential D3 agonist (+)PHNO with monoamine receptors: Relevance for pet imaging of the brain

(+)-4-Propyl-9-hydroxynaphthoxazine ((+)PHNO) is a high affinity agonist at dopamine D_3 and, less potently, D_2 receptors. In the nineteen eighties and nineties, this naphthoxazine compound was amongst the most promising, non-ergot derivatives in the pipeline for the treatment of Parkinson's disease. Preliminary clinical trials showed that it improved motor symptoms of parkinsonism, like tremor, rigidity and bradykinesia. Though it has not been successful as a therapeutic agent, its use was rescued as a radiotracer for Positron Emission Tomography (PET) studies; labeled with carbon-11, (+)PHNO has an excellent signal-to noise ratio and favorable kinetics for PET imaging in humans. In addition to hD_3 and hD_{2L} receptors, (+) PHNO revealed high affinity at $hD_{4.4}$, h_5-HT1A and h_5-HT_7. (+)PHNO behaved as a full agonist at $hD_{4.4}$ and h_5-HT1A receptors with potencies comparable to its actions at hD_3 and hD_2L receptors, and with less potency at 5-HT7 receptors. In binding assays with membranes derived from cells co-expressing hD_3 and hD_{2L} receptors and labeled with [3H]Nemonapride or [3H] Spiperone, the proportion of high affinity binding sites recognized by (+)PHNO was higher than an equivalent mixture of membranes from cells expressing hD_3or hD_{2L} receptors, suggesting that (+)PHNO promotes formation of hD_3-hD_{2L} heterodimers. Further, in cells co-expressing hD_3 and hD_{2L} receptors, (+)PHNO showed higher efficacy for inhibiting forskolin stimulated adenylyl cyclase and inducing adenylyl cyclase super-sensitization than in cells transfected with only hD_2L receptors. In conclusion, (+)PHNO is a potent agonist at $hD_{4.4}$, h_5-HT1A and h_5-HT_7 as well as hD_3 and hD_2L receptors, and it potently activates dopamine hD_3-hD_{2L} heterodimers. These interactions should be considered when interpreting PET studies with [11C](+)PHNO and may be relevant to its functional and potential clinical properties in Parkinson's disease and other disorders.

Audience Take Away Notes

- (+)PHNO is a radiotracer for Positron Emission Tomography (PET) studies imaging in humans. Our radioligand binding studies indicate that PHNO is a potent agonist at $hD_{4.4,}$ h_5-HT1A and h_5-HT_7 as well as hD_3 and hD_{2L} receptors, and it potently activates dopamine hD_3-hD_{2L} heterodimers
- PHNO also recognizes D2/D3 receptors in heterodimeric form as high affinity sites in addition to the D3 receptor

- Our data finally demonstrate that PHNO induces cAMP super sensitivity, a phenomenon linked to tolerance
- These results are particularly relevant for the interpretation of [11C](+)PHNO occupancy in PET studies and may be relevant to its functional and potential clinical properties in neurological disorders

Biography

Dr. Irene Fasciani studied Biology at University of L'Aquila, Italy and graduated in 2012 cum laude. Dr. Irene received PhD degree in 2016 on Neurobiology of neurodegenerative diseases, plasticity, and neural development. Dr. Irene currently is a researcher employed at University of L'Aquila and joins the group of Professor Roberto Maggio. The main research activity regards the neuropharmacology of neurodegenerative diseases. Dr. Irene published 25 articles in scientific journals.

Ishiaq Olayinka Omotosho*, I O and Akinade, A O

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Placental transfer of essential micronutrients and toxic metals in occupationally exposed pregnant women - Implications in the pathogenesis of autism spectrum disorders

Background: Incidence of Autism Spectrum Disorders (ASD) in children as a neurodevelopmental abnormality is growing. Compounded by equivocal deductions from several genetic and environmental studies aimed at establishing its aetiology, it is becoming a global medical challenge. This work investigated placental transfer of some micronutrients (Cu, Zn, Ca, Mg, Se) and toxic (Cd, Pb) metals in occupationally vulnerable pregnant mothers as possible basis of neurodevelopmental abnormalities in children with ASD.

Method: 105 third trimester pregnant women comprising 50 occupationally exposed (cases) (27.68±5.57 years) and 55 non-occupationally exposed age-matched pregnant women (28.84±5.37 years) (controls) were recruited by convenient sampling method for this study. Blood (including cord blood) was collected from all participants. Trace and toxic elements levels were determined in the blood samples using Induction-Coupled Plasma-Mass Spectroscopy; anthropometric and sociodemographic data of the women along with the developmental milestone indices of the baby at infancy were also recorded.

Results: Levels of trace elements were 328.02±109.99mg/L, 370.82±192.97umol/L, 8.61±0.89mg/dl, 1.52±0.26mg/dl and 10.17±1.22mg/L; 348.27±150.61mg/L, 416.80±276.73umol/L, 8.61±0.86mg/dl, 1.46±0.35mg/dl and 8.96±1.15 mg/L for Cu, Zn, Ca, Mg and Se in cases and controls respectively. The differences were not significant. Less than 10% of participants samples (maternal and cord blood) had detectable toxic metal levels. However, cord blood trace elements concentrations were 125.07±24.66mg/l, 525.38±45.86umol/L, 8.44±0.15mg/dl, 1.51±0.31mg/dl and 7.02±0.72mg/dl in cases and 91.05±13.27mg/l, 591.22±44.62umol/l, 1.63±0.15mg/dl and 8.19±0.78mg/L in control for Cu, Zn, Ca, Mg and Se respectively. Only cord blood Mg level was significantly different (p=0.013). Baby weight and head circumferences also correlated significantly with cord Zn and Cu levels (r=0.293, p=0.039), (r=0.478, p=0.010) respectively.

Discussion: The observed downregulation of Mg and Se may have initiated a prooxidant reaction of the upregulated Cu in the foetus overwhelming the protective effects of Zn in scavenging the ROS produced by the combined effects of Cu and the toxic metals to which the cases were occupationally exposed. Our hypothesis is that given the role of Se, Cu and Mg in neurodevelopment, this may be the basis of the abnormal developmental milestones characteristic of ASD.

Conclusion: The need to monitor environmental exposure in pregnancy may be an imperative step in stemming the growing incidence of neurodevelopmental disorders in this environment.

Keywords: Cord Blood, Pregnant Women, Occupational Exposure, Essential And Toxic Elements, Neurodevelopmental Disorders, Autism Spectrum Disorder.

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Neuroprotective strategies and cell-based biomarkers for manganese-induced toxicity in human neuroblastoma (SH-SY5Y) cells

Manganese (Mn) is an essential heavy metal in the human body, while excess Mn leads to neurotoxicity, as observed in this study, where 100 μM of Mn was administered to the human neuroblastoma (SH-SY5Y) cell model of dopaminergic neurons in neurodegenerative diseases. We quantitated pathway and gene changes in homeostatic cell-based adaptations to Mn exposure. Utiliz-ing the Gene Expression Omnibus, we accessed the GSE70845 dataset as a microarray of SH-SY5Y cells published by Gandhi et al. (2018) and applied statistical significance cutoffs at $p<0.05$. We report 74 pathway and 10 gene changes with statistical significance. ReactomeGSA analyses demonstrated upregulation of histones (5 out of 10 induced genes) and histone deacetylases as a neuroprotective response to remodel/mitigate Mn-induced DNA/chromatin damage. Neurodegenerative-associated pathway changes occurred. NF-κB signaled protective responses via Sirtuin-1 to reduce neuroinflam-mation. Critically, Mn activated three pathways implicating deficits in purine metabolism. Therefore, we validated that urate, a purine and antioxidant, mitigated Mn-losses of viability in SH-SY5Y cells. We discuss Mn as a hypoxia mimetic and trans-activator of HIF-1α, the central trans-activator of vascular hypoxic mitochondrial dysfunction. Mn induced a 3-fold increase in mRNA levels for antioxidant metallothionein-III, which was induced 100-fold by hypoxia mimetics deferoxamine and zinc.

Keywords: Manganese Neurotoxicity, Neuroprotection, Urate, Inflammation, Oxidative Stress, Untranslated Regions, Mrnas; Amyloid Precursor Protein (APP), Ferritin; Parkinsonism, Metallothionein-III.

Jane Wu[1]*, Javier de Lucas[3], Maria F. Bandres[2,3], Gerson M. Romero[2,3], Avery Twyman[2,3] , and Jacob G. McPherson, PhD[2-6]

Department of Biology[1], Biomedical Engineering Department[2], Washington University in St. Louis, St. Louis, MO;Program in Physical Therapy[3], Department of Anesthesiology[4], Washington University Pain Center[5], Program inNeurosciences[6], Washington University School of Medicine in St. Louis, St. Louis, MO. United States

Intraspinal microstimulation and serotonergic neurotransmission synergistically modulate nociceptive pathways after spinal cord injury

Background: Spinal cord injury (SCI) often results in motor impairments and neuropathic pain. Not only are theseconditions irreversible, they disrupt a crucial pathway for transmitting signals between the brain and therest of the body, affecting movement, sensation, and autonomic functions, such as limb function andbladder control. Intraspinalmicrostimulation (ISMS), or delivery of small amounts of electrical currentdirectly to enhance motor recovery in regions below SCI, can potentially reduce neural transmission inspinal pain pathways. Additionally, serotonin, a monoamine neurotransmitter, may have the unique abilityto simultaneously reduce transmission in spinal pain pathways while increasing transmission in spinalmotor pathways.

Methods: In Sprague-Dawley rats under urethane anesthesia, the SCI model consisted of an incomplete impactinjury at the T8 level. Microelectrode arrays were used for simultaneous extracellular recordings andsub-motor ventral horn stimulation (vISMS) via implantation in a spinal segment corresponding to the L5dermatome, which was mechanically stimulated by applying non-painful light touch every 10 seconds orpainful pinches every 30 seconds.A serotonin (5-HT) antagonist drug, WAY-100365, was pipetted onto thin tissue paper and placed to coverthe exposed cord under the electrode implantation site. Nociceptive stimulation was repeated with andwithout ISMS. Animals were sacrificed in terminal experiments and perfused. Spinal cord sections fromthe lumbar enlargement were collected and analyzed via immunofluorescence of the serotonin transporter(SERT) in injured rats and controls with and without ISMS.

Results: Based on a comparison of 5-HT transporter immunostaining in dorsal horn and intermediate zone oflumbar enlargement in sham vs SCI (n=5 rats), serotonin transporter levels (5-HT transporter, SERT) were drastically decreased in the injured cord. However, it is still unclear if ISMS has a consistent abilityto transiently rescue SERT expression to a significant extent.Following application of WAY-100635 in vivo, multi-unit neuron firing frequencies were depressed 96%and remained consistent within an established ~75 minute time frame in which drug potency was stableeven after saline washout, minimizing drug wear-off effects on subsequent experiments within thetimeframe.We established that one 30 minute session of sub-motor threshold ISMS intended to enhance recovery of movement also depresses and modulates spinal nociceptive transmission after SCI . In injured ratsexperiencing behavioral signs of chronic pain as well as neurologically intact rats, the percentage ofelectrodes with a depressed response compared to baseline pre-ISMS was significant compared to ratswith SCI without neuropathic pain. However, ISMS after application of WAY-100635 in neurologicallyintact animals (n=3) did not significantly recover nor further depress pre-drug firing frequencies inresponse to nociceptive stimuli. Additionally, firing frequencies elicited by non-nociceptive stimuli (lighttouch) were not significantly affected by the drug or vISMS, revealing unexpected modal specificity.

Conclusions: Working serotonin pathways are crucial in the ability of ISMS to mediate normal nociceptivetransmission. Pairing the effects of ISMS for motor rehabilitation with monoaminergic agonists my be aparticularly effective strategy for enhancing long-lasting neuroplastic changes and restoration of natural,
cohesive patterns of spinal sensorimotor transmission.

Audience Take Away Notes

- Multi-modal nociceptive mechanisms of neuropathic pain: the audience would gain a betterunderstanding of how pain signals are elicited and processed, specific neurotransmitterinteractions and circuits involved in pain processing, and neuron responsiveness to differentstimuli. This, combined with ISMS, can link long-term effects of therapeutic stimulation onspinal cord circuits with neural plasticity

- **Innovative:** suggests potential directions to develop novel therapeutic approaches for reducingpain in SCI patients, including avenues to expand existing epidural stimulation to combineelectrical stimulation and pharmacological treatments targeting serotonergic pathways. Thisdiscovery could lead to development of neuroprosthetic therapies that provide multimodal(sensory and movement) rehabilitation benefits after SCI

- **Experimental:** strengthens the efficacy of previous ISMS studies from an in-vivo pharmacology standpoint, introducing the role of serotonin and potential implications of antagonist or agonist manipulation on existing pathways in real time. The electrode system used, stimulation protocol, and immunostaining techniques used in experiments can be adapted, modified, and/or translated to researchers studying both sensory and motor recovery

Biography

Jane Wu is a third-year student studying Neuroscience and Global health at Washington University in St.Louis. She first conducted medicinal organic chemistry research with Dr. Edward Njoo in 2022 andpresented at the American Chemical Society conference. In 2023, she joined Dr. Jacob McPherson'sresearch group at the WashU School of Medicine, where her focus shifted to pain, plasticity, and recoveryof function through electrophysiology and monoamine neurotransmitters. After graduation, she hopes topursue an MD-PhD and continue investigating neural circuitry that combines molecular and systemsapproaches to sensation and perception.

Jelena Milic
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Long-term psychotherapeutic follow-up on patients with neurology and brain disorders: Exploring the impact on mental health and well-being

In my upcoming lecture, the audience will gain valuable insights into the intersection of neurology, brain disorders, and mental health, focusing specifically on the effectiveness of long-term psychotherapeutic follow-up for affected patients. Neurology and brain disorders present significant challenges to patients, impacting their mental health and overall well-being. This study investigates these challenges and explores how sustained psychotherapeutic interventions can make a difference.

The primary aim of the research is to assess the impact of long-term psychotherapy on patients diagnosed with various neurological and brain disorders. By examining their experiences, we seek to illuminate both the potential benefits and challenges associated with these therapeutic interventions. Our secondary goal is to mobilize the psychotherapist workforce to initiate research and track outcomes related to this topic, thereby enriching our understanding of the effectiveness of psychotherapy for conditions such as Alzheimer's disease, Parkinson's disease, multiple sclerosis, epilepsy, stroke (cerebrovascular accidents), traumatic brain injuries, Huntington's disease, Amyotrophic Lateral Sclerosis (ALS), migraines, and dementia (including vascular dementia and frontotemporal dementia).

To accomplish these objectives, the study employs a mixed-methods approach that integrates qualitative interviews and quantitative assessments. We will engage participants diagnosed with various neurological disorders who have undergone extended psychotherapeutic follow-up. Through qualitative interviews, we will explore patients' subjective experiences, capturing their perceived changes in mental health, coping strategies, and overall well-being. Additionally, validated quantitative measures will be utilized to assess changes in psychological symptoms, quality of life, and functional outcomes.

The findings of this research will provide significant insights into the long-term effects of psychotherapeutic interventions on patients with neurological disorders. Specifically, we aim to identify key factors associated with successful outcomes, as well as potential challenges faced during the follow-up process. This knowledge will serve as a guide for healthcare professionals and psychotherapists, enabling them to tailor interventions more effectively and optimize mental health support for this vulnerable population.

Moreover, the implications of this research extend beyond individual patient care to inform clinical practice and policy development. By understanding the impact of long-term psychotherapeutic follow-up on patients with neurological disorders, healthcare providers can develop more effective treatment plans and support systems. The study also contributes to the growing body of literature exploring the complex relationship between neurology, psychotherapy, and mental health, fostering a deeper understanding of the multifaceted needs of these patients.

In summary, attendees of the lecture will leave with a comprehensive understanding of how long-term psychotherapeutic follow-up can influence the mental health outcomes of patients with neurological disorders. They will also appreciate the necessity for further research in this area, paving the way for improved therapeutic practices and better patient outcomes. By fostering collaboration among mental health professionals, we can work towards a more informed and supportive approach to treating individuals facing the challenges of neurological disorders

Audience Take Away Notes

- Effectiveness of Long-Term Psychotherapy: The audience will learn about the positive impacts of long-term psychotherapeutic follow-up on mental health in patients with neurological disorders
- Patient Experiences: Insights into patients' subjective experiences will highlight coping strategies and perceived changes in well-being
- Key Factors for Successful Outcomes: The presentation will identify essential elements that contribute to successful therapeutic outcomes in this population
- Research Implications: The audience will understand the importance of mobilizing the psychotherapist workforce for ongoing research in this critical field
- **Challenges in Follow-Up:** The discussion will cover the potential challenges faced during psychotherapeutic follow-up and strategies to address them
- Audience members can apply the insights gained to enhance their clinical practices by integrating long-term psychotherapeutic follow-up into treatment plans for patients with neurological disorders. By understanding effective coping strategies shared by patients, they can better support their clients. Additionally, the knowledge of key factors for successful outcomes will enable healthcare providers to tailor interventions more effectively. The audience can also advocate for the importance of ongoing research in this field, ensuring that psychotherapists are equipped with the latest findings to inform their practice. Ultimately, these lessons will lead to improved patient care and outcomes
- This presentation will equip the audience with evidence-based insights to enhance their practice in treating patients with neurological disorders. By learning about the effectiveness of long-term psychotherapy, healthcare professionals can better support patients, improving treatment adherence and mental health outcomes. Knowledge of patient experiences will enable practitioners to develop more empathetic approaches. Additionally, understanding the key factors that contribute to successful outcomes will help in designing individualized treatment plans. This research encourages collaboration among mental health professionals, leading to shared knowledge and improved practices, ultimately enhancing their professional effectiveness and job satisfaction
- Absolutely. This research offers valuable findings that can serve as a foundation for other faculty members in both clinical and academic settings. Faculty can integrate the results into their curricula, teaching students about the significance of psychotherapeutic interventions in neurology. Additionally, this research opens avenues for further studies in related fields, such as mental health, rehabilitation, and psychology. By utilizing the data and insights shared, faculty can inspire students to engage in related research, fostering a new generation of professionals dedicated to understanding and improving mental health outcomes for patients with neurological disorders
- While primarily focused on healthcare, the insights can indirectly benefit healthcare system designers and administrators. Understanding the importance of long-term psychotherapeutic follow-up can inform the development of more effective mental health care programs and policies. By creating structures that support sustained therapy for patients, designers can streamline processes that enhance patient care. This research emphasizes the need for integrated care models that simplify patient access to therapy and ensure continuity of care, ultimately making the healthcare delivery system more efficient and responsive to patient needs

- Yes, the findings can significantly improve the accuracy of therapeutic interventions and program designs within healthcare settings. By identifying key factors that contribute to successful outcomes, this research provides actionable data that can inform the design of treatment programs tailored to patients with neurological disorders. Furthermore, understanding patients' subjective experiences can lead to more accurate assessments of their needs, ultimately enhancing the design of therapeutic interventions. This ensures that mental health services are not only effective but also responsive to the unique challenges faced by this patient population
- **Enhanced Patient Care:** Improved mental health outcomes through evidence-based therapeutic practices
- **Increased Awareness:** Raising awareness about the complexities of treating neurological disorders
- **Empowered Practitioners:** Equip healthcare providers with knowledge to advocate for their patients
- **Collaboration Opportunities:** Foster collaboration among healthcare professionals for ongoing research
- **Policy Influence:** Inform healthcare policies aimed at improving mental health support
- **Educational Growth:** Contribute to the academic literature and teaching methodologies in mental health and neurology
- **Patient Engagement:** Encourage patient involvement in their treatment plans, leading to better adherence and satisfaction

Biography

Dr. Jelena Milic graduated with an MD from the Faculty of Medicine at Belgrade University, Serbia, in 2004. She completed her MSc in Emergency and Urgent Medicine at La Sapienza University, Italy, and another MSc in Public Health in Belgrade. Dr. Milic specialized in Family Systemic Supportive Therapy, obtaining a psychotherapy license. Awarded an Erasmus Mundus grant, she joined the Epi-Psychiatry research group led by Prof. Henning Tiemeier and the ErasmusAGE group under Prof. Oscar Franco at Erasmus Medical Center, where she earned her PhD in 2018. After a postdoctoral fellowship, she returned to Serbia as a scientific consultant at the Institute of Public Health, with over 30 publications in SCI(E) journals.

Jessica Reichert[1*] MS, Jac Charlier[2] MPA, TASC's

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Law enforcement-led referrals to behavioral health treatment: An overview of U.S. defection programs

Substance use disorders and overdoses continue to be a prevailing U.S. problem. Since 2016, overdose deaths involving opioids (the vast majority synthetic opioids, such as fentanyl) have been the most common form of accidental death, exceeding other causes including vehicles or guns. Nearly 1 million Americans have died from drug overdoses since 1999, with more than 70% of these deaths tied to opioids. Those with substance use disorders and following drug overdoses may come to the attention of law enforcement. In 2022, police made nearly 1 million drug-related arrests often encountering the same individuals. To combat these issues, police departments and other first responders have employed deflection programs partnering with community agencies to refer individuals to behavioral health treatment without making arrests. This public health and public safety approach was developed to provide better outcomes for community members and reduce the burden on public safety. According to a 2020 national survey of police deflection, at that time, hundreds of police departments in 39 states operated such programs. According to one U.S. and one Canadian meta-analysis, these programs can reduce recidivism, lower substance use, improve health, and reduce social costs. We will describe deflection in the U.S., including evolution, prevalence, key characteristics, current research, and best practices. We will present findings from a multi-site U.S. deflection study, funded by the U.S. national institutes of justice, including interviews with deflection programs in six states on policies, procedures, and lessons learned. Further, we will share findings from an outcome evaluation of one program state examining the community outcomes of arrests; treatment admissions; and fatal/non-fatal overdoses. Finally, we will offer resources including related international and national professional associations, webinars, and e-courses. The presentation can offer information for individuals and communities interested in starting or improving community deflection programs.

Audience Take Away Notes

- Upon completion the participants will be able to
- Define law enforcement-led deflection, its evolution, and how programs operate in the United States
- Understand best practices for deflection in the community
- Appraise the efficacy and cost-benefit of law enforcement deflection programs
- Engage law enforcement in the development of deflection programs in their community to better improve public health and public safety outcomes

Biography

Jessica Reichert is a Senior Research Scientist and the Manager of the Center for Justice Research and Evaluation at the Illinois Criminal Justice Information Authority. Has conducted and is conducting, studies of police deflection programs, including a multi-state evaluation funded by the National Institute of Justice with RAND. Jessica was

awarded the annual National Publication Award for her work from the Justice Research and Statistics Association in 2010, 2021, and 2023. She earned her master's degree in criminal justice from the University of Wisconsin-Milwaukee and a bachelor's degree in criminal justice from Bradley University.

Jeya Anandakumar
Georgetown University School of Medicine, United States

Telehealth interventions for stroke management and rehabilitation in low-and middle-income countries: A scoping review

Introduction: The burden of stroke is higher in Low-and Middle-Income Countries (LMICs) than in high-income countries due to the lack of stroke care centers, stroke specialist, and rehabilitation access. One way to increase access to stroke care in LMICs is through the use of telehealth.

Material & Method: We performed a scoping review to summarize the evidence on telehealth in LMICs. We searched medline, scopus, and web of science through February 18th, 2022. Reviewers screened for studies reporting on health outcomes following telehealth interventions (imaging, thrombolysis, and rehabilitation) in LMICs. We included all study designs.

Results: Out of 259 studies, 10 studies met the eligibility criteria. Nine reported on functional or disability measures, 6 reported on cerebral infarction or intracerebral hemorrhage, 5 reported on door-to-needle time to thrombolysis, and 6 reported on mortality rate. Out of 9 studies, 8 reported that the use of telehealth for stroke management and rehabilitation in LMICs has led to a decrease in the degree of post-stroke disability. All 5 studies that measured administration of thrombolytic therapy in respective telehealth interventions were within the recommended 3-hour time window. Studies with a comparison arm found that there was no significant difference in mortality and cerebral infarction/intracerebral hemorrhage rates between telehealth and control.

Conclusion: Evidence from this review suggests that telehealth may improve post-stroke disability and help administer thrombolytic therapy within the 3- hour window. Further research using randomized trials are needed in LMICs to determine the overall effectiveness of telehealth intervention for stroke management and rehabilitation.

Biography

Jeya Anandakumar earned a Bachelor of Science from Portland State University and a Master of Public Health from Dartmouth. Currently, she is a third-year medical student at Georgetown University School of Medicine. Jeya has a strong research interest in stroke care and management, with a focus on improving outcomes for patients with acute ischemic stroke. She is also passionate about investigating other vasculopathy and exploring innovative approaches to cerebrovascular health.

Jill Harkavy-Friedman PhD
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Suicide prevention and substance use

Suicide, the eleventh leading cause of death in the U.S., is a complex public health problem and prevention involves efforts on every level, individual, family, community and population. Death by suicide occurs when a number of underlying contributors (e.g., mental health conditions, substance use, chronic health conditions, chronic pain, family history, trauma) converge in the context of stress (e.g., job loss, divorce, financial difficulties) and the person has access to lethal means. Approximately one- third of people who die by suicide have intoxicated levels of alcohol, 18-25% have alcohol use disorder and 24% have opioids in their blood. It can be difficult to determine cause of death, suicide or accidental overdose, some of the time. A review of factors associated with suicidal thoughts, behavior and death will be reviewed along with interventions and prevention opportunities that can save lives and bring hope to those affected by suicide.

Audience Take Away Notes

- The audience will be able to describe a model for suicide
- The audience will be able to list several contributors to suicide and warning signs for risk
- The audience will be able to describe how to have a conversation with someone who is showing signs of suicide risk or about whom they are worried

Biography
Jill Harkavy-Friedman, PhD is SVP of Research and leads the American Foundation for Suicide Prevention's research program. She has published over 100 peer-reviewed articles and has trained clinicians around the nation. Dr. Harkavy-Friedman earned her B.A. in Psychology at the University of Pennsylvania and her PhD. in Clinical Psychology at the University of Florida. She interned at Yale-New Haven Hospital. She joined Montefiore Medical Center/Albert Einstein College of Medicine, establishing the Adolescent Depression and Suicide Program. In 1989, she moved to Columbia University where she's an associate professor in the department of psychiatry. She joined the staff AFSP in 2011.

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Proteomic insights into the antidepressant effect of oridonin

Accumulative evidence has shown that immune inflammation, particularly inflammasome activity, plays an important role in the pathophysiology of MDD. We summarize the evidence on nuclear receptors (NRs), such as glucocorticoid receptor, vitamin D receptor, estrogen receptor, aryl-hydrocarbon receptor, and Peroxisome Proliferator-Activated Receptor (PPARs), in modulating the inflammasome activity and depression-associated behaviors. To develop novel medicine with this mechanism, we found that nuclear receptor Liver X receptor activator oridonin (ORI), a bioactive diterpenoid in Isodon rubescens, exhibits antidepressant efficacy in the chronic social defeat stress (CSDS) depression model using tail suspension, sucrose consumption, and forced swimming tests. Next, proteomic analysis of prefrontal cortex was performed in ORI-treated CSDS (ORI), imipramine-treated CSDS(IMI), CSDS and control (CON) mice. ANOVA analysis ($p<0.05$) identified 191 deferentially expressed proteins, with Gene Ontology (GO) analysis revealing categories related to synapse, mitochondrion and Endoplasmic Reticulum(ER). Protein-Protein Interaction (PPI) analysis highlighted interactions among ORI-treated deferentially expressed proteins associated with synapse, mitochondria and ER functions. Independent analysis using Parallel Reaction Monitoring (PRM) provided insights into specific proteins leading to resilience of ER/mitochondrial and synaptic functions, including ER proteins (Mrpl42, Ighm, Mrps30, et.al.); mitochondrial proteins (Cox7c, Cdv3, Naa30, Bnip, et.al); and synaptic proteins (Dcx, Rnf112, Hdac1, et.al.). Functionally, we found that the prefrontal samples of ORI-treated animals showed significant strengthening of excitatory synapse compared to inhibitory synapse. These findings offer insights into the specific and holistic molecular mechanisms underlying the pathophysiology and oridonin treatment of depression.

Biography:

Dr. Jing Du is a professor in Beijing Anding Hospital affiliated to Capital Medical University in Beijing, China. In Beijing Anding Hospital, she is engaged in the research of cellular and molecular pathophysiology and neuropsychopharmacology of mental diseases such as depression, anxiety, autism and schizophrenia. She was formerly a staff scientist at the National Institute of Mental Health of the National Institutes of Health(NIH) in USA. She has won many awards, including the NIH Performance Award in Recognition and Appreciation of Special Achievement issued by the National Institutes of Health. She is a Full member of the American College of Neuropsychopharmacology (ACNP). Dr. Jing has published 64 SCI articles in the field of neuropsychopharmacology. Her H index is 35. She is recognized nationally and internationally for her research contributions and achievements in psychopharmacology.

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Protein-based MRI signal as a biomarker for alzheimer's disease

A major hallmark of Alzheimer's disease (AD) is the gradual accumulation and aggregation of toxic soluble and insoluble Aβ species in the brain.Amide proton transfer (APT) imagingis a relatively new protein-based molecular MRI technique that is based on endogenous mobile proteins and peptides in tissue. It is known that both extracellular amyloid and intracellular tau first exist as solublemonomers and oligomers, which are APT-detectable.We hypothesize that early AD patients should show high APT signals across brain regions due to the abnormal accumulation of various mobile proteins, including solubleAβ species. Both animal AD models and human subjects were used. Animal MRI experiments were performed on a Bruker 11.7T MRI scanner. 20 miceat ~3 months old, including 5 APPswe/PSEN1dE9 and 5 wild-type, and5 Tau P301S and 5 wild-type, were used. Human MRI experiments were carried on a Phillips 3T MRI scanner. 5 MCI patients and 8 normal controls were scanned. The average APT$^{\#}$ signals were significantly higherin AD mice than in wild-type controls ($p< 0.05$). Compared to the normal controls, the MCI patients demonstrated higher APT$^{\#}$ signals across almost the whole brain.Our early results show that APT imaging can sensitively detect soluble amyloid and tau proteins in AD mice and MCI patients.

Audience Take Away Notes

- Learn the novel APT imaging technique
- Learn the novel application of APT imaging
- Researchers could expand their research and explore new applications

Biography
Dr. Jinyuan Zhou is an MRI physicist. His research focuses on developing new in vivo MRI methodologies to study brain function and diseases. Dr. Jinyuan is currently a Professor in the Department of Radiology and Radiological Science. Dr. Jinyuan has published more than 180 peer-reviewed papers, including two scientific papers, as the first author, in Nature Medicine. Dr. Jinyuan was awarded a fellow of ISMRM in 2022.

Jit Poddar[1*], Suresh B. Rangasamy[2], Kalipada Pahan[3]

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Therapeutic efficacy of cinnamein in controlled cortical impact mouse model of TBI

Traumatic Brain Injury (TBI) remains a major health concern which causes long-term neurological disability particularly in war veterans, athletes and young adults in United States. Despite of intense clinical and research investigations, there is no effective therapy to cease the pathogenesis of the disease. It is believed that axonal injury during TBI is potentiated by neuroinflammation and demyelination and/or failure to remyelination. This study highlights the use of naturally available cinnamein, also chemically known as benzyl cinnamate, in inhibiting neuroinflammation, promoting remyelination and combating the disease process of Controlled Cortical Impact (CCI)-induced TBI in mice. Oral delivery of cinnamein through gavage brought down the activation of microglia and astrocytes to decrease the expression of inducible Nitric Oxide Synthase (iNOS), Glial Fibrillary Acidic Protein (GFAP) and ionized calcium binding adaptor molecule 1 (Iba1) in hippocampus and cortex of TBI mice. Cinnamein treatment also stimulated remyelination in TBI mice as revealed by MBP and NG_2 double-labelling, Luxol Fast Blue (LFB) staining and axonal double-labeling for neurofilament and MBP. Furthermore, oral cinnamein reduced the size of lesion cavity in the brain, improved locomotor functions and restored memory and learning in TBI mice. These results suggest a new neuroprotective property of cinnamein that may be valuable in the treatment of TBI.

Audience Take Away Notes

- Cinnamein, an ester derivative of cinnamic acid and benzyl alcohol, is used as a flavoring agent and known for its antifungal and antibacterial properties. In this study, we have shown that cinnamein attenuates glial and astrocytic activation, protects loss of myelination in the cortex after TBI, reduces lesion cavity damage and also improves locomotor and memory functions in TBI mice after 21 days treatment. These results highlight an undiscovered property of cinnamein and indicate that this naturally-available compound may find its therapeutic use in neurodegenerative disorders as primary or adjunct therapy

Biography

Dr. Poddar studied Microbiology at Calcutta University, India and graduated as M.Sc in 2009. He then joined the laboratory of Prof. Sasanka Chakrabarti at the Institute of Post Graduate Medical Education and Research, Kolkata, in the Department of Biochemistry. He received his Ph.D degree in 2021 at the same institution and university. After that, he joined Pahan Lab at Rush University, Chicago, USA for his postdoctoral fellowship supervised by Professor Kalipada Pahan. He has published more than 11 research articles in SCI(E) journals.

João Victor Ribeiro[1]*, Isabella Luz[1]*, Laura Castilho Matos[1], Francisco José Luis de Sousa[2],Eduardo de Pádua Scarpellinii[1]

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Cavernous angioma of the cauda equina: A case report

Introduction: Cavernous angiomas are benign vascular malformations characterized by abnormally dilated vessels that lack interposing neural tissue. The presentation can occur in any region of the central nervous system, but most commonly, supratentorial. This report details a rare infratentorial presentation of a cavernous angioma originating from the cauda equina, a location with 20 documented cases in the literature. Due to its non-specific symptoms, such as low back pain, impotence, and paresthesia, which overlap with those of other conditions, diagnosis can be hampered. Accurate differential diagnosis is crucial for achieving more successful patient diagnoses and outcomes.

Case Report: A 60-year-old male with a history of radicular pain for 2 years in right L5 topography, impotence, and paresthesia.

Radiological findings: The diagnosis was made after clinical analyses and a T2-weighted MRI scan of the lumbosacral spine (Levels L1-L2) presenting a predominantly heterogeneous and hyperintense imaging finding (with an intra-axial heterogeneous hypointense halo).

Surgery: Microsurgical resection of the mass was conducted through an L1-L2 laminectomy at Municipal Dr. Mário Gatti's Hospital (Department of Neurosurgery), Campinas, São Paulo. A mass presented with a rough appearance, brownish color, and firm-elastic consistency measuring 0.4x0.3x0.2 cm was dissected carefully.

Histology and Immunohistochemical Evaluation: Immunohistochemical examination revealed positive staining for CD31 and CD34 markers in the endothelium, diffuse positivity for the S-100 protein marker, and positive staining for the D2-40 podoplanin marker, negative staining for the AE1/AE3, AML, and desmin markers. Histologic examination of the mass revealed the presence of dilated cavernous vessels. Association of immunohistochemical and pathological findings certified the diagnosis of a cavernous angioma.

Post Operation: Postoperative MRI images documented the complete resection of the cavernous hemangioma. The patient was followed for 6 months with neurological stabilization and reduced radicular pain sensation.

Discussion: Cavernous angioma is a mulberry-shaped vascular malformation created by anomalous vessels interposed by neural tissue. Characteristic MRI finding, hypointense signal ring around the lesion, is due to haemosiderin deposition and can be used as part of diagnosis. Its non-specific symptoms can overlap with other conditions with higher prevalence, remarking the importance of differential diagnoses. Microsurgical approach is one of the most appropriate techniques that allows complete resection of the tumor with minimal damage towards alongside structures.

Conclusion: Cavernous angiomas are rare benign malformations in the cauda equina that may present symptoms of radicular pain, impotence, and paresthesia; a combination of clinical evaluation, imaging, surgery, and immunohistochemical analysis is crucial for diagnosis and positive outcomes.

Keywords: Cavernous Angioma, Vascular Malformation, Central Nervous System, Neurosurgery.

Audience Take Away Notes

- Attendees will gain insights into the subtleties of clinical symptoms that often elude the diagnosis of an uncommon benign vascular tumor. The correlation between radiological imaging and clinical research contributes to a clearer view of the patient's condition alongside the immunohistochemical findings that substantiate the radiological observations. A potential solution for this type of medical condition will also be presented, highlighting its distinctive qualities

Biography

João Victor Ribeiro is a fifth-year undergraduate student of Medicine at São Leopoldo Mandic, Brazil. Joined the neurosurgical team of Dr. Mário Gatti's Hospital as part of an observership internship. João Victor is a researcher at the Laboratory of Pharmacology of UNICAMP. Currently, under the guidance of Dr. Gilberto De Nucci, João Victor is working on the evaluation of contraction and dilatation of aortic vessels of New Zealand rabbits with the presence of 6-Nitro Dopamine (6-ND) as part of greater analyses of the effects of 6-ND in the control of contraction and dilation of peripheric vessels alongside Dr. Gilberto De Nucci.

João Victor Ribeiro[1]*, Martin Pedrosa Marinho Maia[1], Eduardo de Pádua Scarpellinii[1], Francisco José Luis de Sousa[2]

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Dorsal dysraphism with lipoma (lipomyeloschisis): Case report

Introduction: Neural tube defects (NTDs) are secondary abnormalities during the embryogenic development of The Central Nervous System (CNS). Between the 17 th and the 28 th day after fertilization, neurulation happens in two moments: primary and secondary neurulation. Secondary neurulation connects the Anterior Neuropore (ANP) to the Posterior Neuropore (PNP) created in the previous moment. Spinal cord dysraphism is an infrequent presentation associated with intramedullary lipomas, with an incidence estimated between 0.45 to 0.6% of spinal cord dysraphism of the posterior herniation of the spinal cord towards the subcutaneous tissue (lipoma). This report details a rare presentation of Lipomyeloschisis in a nine-month-old boy with neurological and urinary symptoms. Accurate and differential diagnosis is crucial for achieving more successful patient diagnosis and outcomes when presented with lactate patients, who are under constant growth, and a lack of developmental changes can be critical.

Case report: A nine-month-old boy with a history of lumbar protuberance since birth, after 7 months, started to present paresthesia, neurological inability to move his lower limbs, and urinary incontinence.

Radiological findings: Pre-operation sagittal MRI evidenced a dorsal herniation of lipoma (heterogeneous and isointense imaging) and medular content (heterogeneous and hyperintense imaging) posterior to the vertebral canal and towards the dorsal region of the body, in between muscles and subcutaneous tissue.

Surgery: Microsurgical resection, with the support of neurophysiological monitoring as guidance, was conducted through an L1-L4 incision to avoid extracting medular content. The procedure was done in Municipal Dr. Mário Gatti's Hospital (Department of Neurosurgery), Campinas, São Paulo. A mass with a rough appearance, yellowish color, and firm-elastic consistency measuring 11,0x 7,0x 5,0 cm was dissected carefully. Inside this mass was found a piece of undeveloped lumbar bone.

Histology and Immunohistochemical Evaluation: Immunohistochemical examination revealed positive staining for S-100 protein, confirming undifferentiated lipose content without atypia. Microscopic analysis of multiple histological findings confirms the diagnosis of a lipoid lesion originating from intra and extra-sections of the dura. Post operation: Postoperative MRI images documented the complete resection of the cavernous hemangioma. The patient was followed for 6 months with neurological stabilization and reduced radicular pain sensation.

Discussion: Spinal cord dysraphism associated with a lipoma is a rare presentation of congenital malformations of the spine and spinal cord. Lipomyeloschisis is a subtype of closed. Embryologically, spinal lipomas result from early disjunction between neuroectoderm and cutaneous ectoderm; the surrounding mesenchyme creeps between and adheres to the primitive ependyma, transforming it into fat. Clinical evaluation of patients by the presence of abnormal masses on the dorsal region are early signals diagnosis. Other findings can vary between patients; some with paraparesis, sensory changes, urinary incontinence, and pain are frequently presenting complaints.

MRI findings of posterior herniation of lipoma, heterogeneous and isointense signaling associated with

medular content, and heterogeneous and hypertensive signaling are components for diagnosis. Early diagnosis is critical for this clinical condition since it is necessary for surgical correction. The sooner it is done, the less functional impact it can generate since, even if the child does not have, until the moment of diagnosis, neurological symptoms suggestive of low spinal dysfunction, this may happen over time. Successful approaches must be at an early stage of life to diminish a significant number of complications.

Conclusion: Lipomieloschysis is a congenital spine and spinal cord malformation created by a neural tube defect. Clinical symptoms are broad, ranging from neurological and urinary. MRI findings are an essential tool for diagnosis and surgical preparation. After diagnosis, surgical repair is necessary even in patients without symptoms since they may appear at any moment in the future.

Keywords: Lipomyeloschisis, Dorsal Dysraphism, Neural tube defect, Spine Surgery, Neurosurgery

Audience Take Away Notes

- Attendees will gain insights into the subtleties of clinical symptoms that often elude the diagnosis of an uncommon neural tube defect. The correlation between radiological imaging and clinical features contributes to the early diagnosis of patients. A potential solution for this medical condition will also be presented, a microsurgical approach, highlighting its distinctive qualities.

Biography

João Victor Ribeiro is a fifth-year undergraduate student of Medicine at São Leopoldo Mandic, Brazil. Joined the neurosurgical team of Dr. Mário Gatti's Hospital as part of an observership internship. João Victor is a researcher at the Laboratory of Pharmacology of UNICAMP. Currently, under the guidance of Dr. Gilberto De Nucci, João Victor is working on the evaluation of contraction and dilatation of aortic vessels of New Zealand rabbits with the presence of 6-Nitro Dopamine (6-ND) as part of greater analyses of the effects of 6-ND in the control of contraction and dilation of peripheric vessels alongside Dr. Gilberto De Nucci.

João Rafael Rocha da Silva[1]*, Mariana de Oliveira Rocha da Silva[2]

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How to evaluate and optimize motor control in individuals with chronic low back pain

Guidelines for treating chronic low back pain are directly related to changing habits and carrying out patient-centered exercise programs, using passive resources such as manual therapy, for example, to aid treatment.

In previous studies, it was possible to observe changes in motor control in individuals with chronic pain, which directly affect the performance of exercises, making treatment adherence difficult.

The professional capable of carrying out an adequate assessment of motor control in these individuals will have a greater range of resources and therapeutic strategies that are more specific to each individual's dysfunction.

We currently have a scientific basis for carrying out different exercise methods for the treatment of chronic low back pain, but we still do not know which method has the highest level of evidence, and we use the patient's preference when choosing the program to be carried out.

The use of an initial approach based on the assessment of the individual's motor control is based on metrics of the possible dysfunctions present in each individual, which helps in the evolution of each patient's dysfunctional diagnosis.

This treatment model will prioritize the clinical evolution of each individual's functional capacity, preventing the chronification of the injury, disability, and the development of cardiorespiratory dysfunctions.

Seeking global improvement for each individual, and enabling them to change habits and better manage their pain.

We are seeking to develop more specific and patient-centered rehabilitation programs, where treatment is carried out by a multidisciplinary team, and the basis of treatment is pain education, associated with an exercise prescription based on a careful assessment, using the manual therapy to help improve motor control and gain range of motion.

In clinical practice, this model is widely used, however, many professionals still do not have the necessary scientific basis to use the techniques effectively.

Audience Take Away Notes

- After the presentation, the audience will have a better understanding of the complexity and need for a better approach to evaluating and optimizing the improvement of motor control in patients with chronic low back pain
- Individuals with chronic low back pain are highly frequent clinical cases among several healthcare professionals around the world, understanding and improving the clinical management of these individuals is a great professional differentiator

Biography

Pt. João Rafael Rocha da Silva has been a clinical physiotherapist for over 15 years, with a postgraduate degree in rehabilitation applied to sport from the Department of Orthopedics and Traumatology at the Escola Paulista de Medicina CETE-UNIFESP, also having a postgraduate degree in Improvement in assessment and interdisciplinary treatment in Pain at the Hospital das Clínicas of the Faculty of Medicine of the University of São Paulo HC-FMUSP. He recently published five studies related to the treatment of Pain, which were presented at more than five international conferences and congresses. Scientific reviewer for international journals.

Dr. Joyce Mikal-Flynn Ed.D., RN, FNP, MSN

Professor, School of Nursing, Sacramento State University, Sacramento, CA, United States

Transforming life crises. Building resilience and promoting posttraumatic growth in addiction and dependence

Individuals experience crisis when their estimation of resources needed to successfully manage traumatic situations such as addiction and dependency is greater than their perception of resources available. Some recovery models are limited in their perspective on enhanced outcomes, including Posttraumatic Growth (PTG), failing to put the individual in a position of strength and on the path to a positive, more meaningful future. Rehabilitation can be too general, failing to incorporate personal experiences of trauma into the therapeutic plan.

Recovery models must address these insufficiencies and promote an individual's biological, epigenetic, psychological and spiritual abilities to transform and experience higher levels of functioning, including PTG, brought about by purposefully engaging with challenges, trauma and personal life crises such as addictions and dependencies. These conditions become vehicles, providing opportunities to build resilience, creatively restructure the self and find significant existential meaning.

A heuristic study revealed insights into advanced recovery. The results identified limitations of current rehabilitative models and informed the development of the unique recovery concept and process: metahabilitation. Research provides an overview and demonstrates the psychoeducational intervention as it applies to addiction and dependency.

Audience Take Away Notes

- Supportive science provides neurological, genetic/epigenetic and psychological content to support compassion, resilience, and PTG of individual and vicarious trauma survivors
- The presentation addresses specific issues associated with health care professionals and clinicians – those in high-risk careers as well as strategies and behaviors that support overall wellness and mental fitness
- This presentation introduces and describes a simple but effective psycho-educational program (metahabilitation/metahab) to be implemented/utilized in conjunction with existing interventions to facilitate collaboration with clients, concentrating on internal capacity, strengths and past successes to support care and PTG
- Use principles of self-efficacy to recognize resilience, individual strengths and PTG experiences helping to support and promote personal and professional wellness and mental fitness
- Acquire knowledge and personal awareness of HOW one builds resilience, a productive recovery and PTG
- Review a psycho-educational program that encourages individual, secondary and vicarious survivors

to recognize what challenges, adversity and trauma did to them but, more importantly, what they did for them

Biography

Dr. Joyce Mikal–Flynn earned a BSN from University of San Francisco, FNP from University of California, Davis, and a MSN at Sacramento State University. Joyce completed her doctorate from St. Mary's College (Moraga, CA) studying trauma, focusing on a unique clinical pathway, Metahabilitation, she named and developed, which utilizes personal strengths and capacity, guiding one toward Posttraumatic Growth (PTG). Metahab has been incorporated into several post-trauma programs including individuals suffering from addiction and dependence and clinicians who provide care. A professor at Sacramento State, Joyce authored several articles, books and created the course: Traumatology. An Introduction to Posttraumatic Growth.

Kananga Robert Mukuna
Department of Education foundations University of the Free State, Bloemfontein, Free State, South Africa

Mental and behavioural health needs of rural high school learners in the thabo mofutsanyana district: A relational wellbeing approach

Mental health disorders have been reported as severe problems globally and locally. The demand for heroin-related issues is high in rural communities. Up to 15% of South African youth resort to harmful use and binge drinking "therapy". More studies have reported on the increased drug use among youth and adolescents, with severe increases in opioid-related disorders. The rural communities have still been reported to be inadequately managing the issues around mental and behavioural health and the added consequences such as attempted suicide and actual suicide. The suicide rates among the youth in rural communities have been reported to be 9.5% of non-natural deaths. This study adopted a qualitative approach and phenological research design. It employed semi-structured interviews for data collection. Twenty-four adolescent learners were selected from rural high schools in the Thabo Mofutsanyana District, Free State province, South Africa. They voluntarily participated in the study based on their availability, willingness, curiosity, and openness. Data were analysed through thematic analysis. The results demonstrated that mental health challenges take forms such as depression, anxiety disorders, mood disorders, alcohol, and substance abuse disorders. This study reported social problems are related to health inequalities in rural communities in South Africa. It showed that high school learners who use suicide and substance abuse, such as alcohol and drugs, could be copying strategies that youth engage in to respond to their mental health issues. This study recommends that rural schools establish a supportive programme to assist young people in rural communities in adequately managing mental and behavioural health issues affecting their wellbeing

Audience Take Away Notes

- The audience will learn about the mental and behavioural health needs of rural high school learners in the Thabo Mofutsanyana District, South Africa
- This presentation will help my audience establish a research network and collaborate to develop joint research projects and write books and papers
- This research may open the door for other researchers to expand their research teaching and learning
- The outcomes of this research provide a practical solution to mental and behavioural health problems that young people experience in rural communities, and a support programme would be more efficient in helping the wellbeing of young people

Biography

Dr. Mukuna received Masters (2014) and PhD (2017) in Educational Psychology at the University of the Western Cape, South Africa. Dr. Mukuna is active in various research areas on psychological assessment, psychosocial factors, rural education, and multiculturalism. Dr. Mukuna produced several research papers and book chapters in peer-reviewed journals. Dr. Mukuna senior lecturer and subject Head of the Senior and FET phases, Department of Education Foundations, Faculty of Education, University of the Free State, South Africa. supervised honours, masters, and doctoral candidates. Dr. Mukuna is an editor-in-chief of the International Journal of Studies in Psychology.

Dr. Karen Obillo Calibuso

Department of Pediatrics, Armed Forces of the Philippines Victoriano Luna Medical Center, Philippines

A case report of full term newborn with large intracranial hemorrhage surviving complex interventions of craniectomy and acute peritoneal dialysis in the neonatal period

In the Philippine Pediatric Society registry, there were 27 cases of intracerebral with intraventricular hemorrhage and 8 cases of acute kidney injury with acute tubular necrosis under 28 days of age from 2006-2022 that were discharged. However, there were no data on procedures such as surgical intervention nor renal replacement therapy for such cases respectively. In our institution, this patient was the youngest newborn patient who underwent craniectomy and peritoneal dialysis but its use among newborns would require careful review of all clinical aspects and prognosis of the patients to arrive at a decision ensuring that the benefit would outweigh the risk. This is an interesting case of a full-term 38 weeks female newborn, 2950 grams, born with meconium-stained amniotic fluid indicative of intrauterine fetal distress which resulted in complex conditions requiring interventions rarely done in newborns in our set-up. Further, the patient presented with signs of respiratory distress which are not attributable to a pulmonary condition. Rather, these symptoms were referrable to anemia and metabolic acidosis from significant blood loss. Beyond hypoxic ischemic encephalopathy, the patient was diagnosed with intracranial hemorrhage (intracerebral intraparenchymal hemorrhage with subdural and subarachnoid extension, intraventricular hemorrhage grade IV) requiring craniectomy for evacuation of hematoma. This was further complicated post- operatively with acute kidney injury Stage 3 from acute tubular necrosis that warranted acute peritoneal dialysis. The patient was likewise detected by newborn screening and confirmed with laboratory assays for Congenital Hypothyroidism. Despite the very stormy course at the neonatal intensive care unit, the patient survived and was discharged on the 52nd day of life. Significant intracranial hemorrhage in newborn is a challenge but with prompt detection, careful stabilization and access to quality surgery, even a very invasive surgical intervention for a newborn such as craniectomy can be lifesaving. Craniectomy and peritoneal dialysis are rarely utilized invasive procedures for a newborn but can be done safely and be life-saving interventions as well as promote better quality of life for asphyxiated newborns complicated with intracranial hemorrhage and acute kidney injury.

Audience Take Away Notes

- This case presented how intrauterine asphyxiating events can lead to intracranial hemorrhage and progressive kidney injury as the multi-organ damage of significant hypoxia in the very fragile newborn compounds each other
- The interventions vary according to the severity and in this case, the management warranted extreme procedures such as craniectomy and renal replacement therapy at the age of <2weeks emphasizing the value of holistic evaluation for such newborns with stormy NICU course. As way ahead, this patient would require close surveillance of a multidisciplinary team of pediatrician, neonatologist, neurologist,

nephrologist, endocrinologist and neuro surgery service. Once again emphasizing the value of teamwork that paved the way for the survival of this patient

Biography

Dr. Karen Obillo Calibuso is a 32 year old Filipino from Victoriano Luna Medical Center. She is a Military Pediatrician serving the dependents of the men and women of the Armed Forces of the Philippines. She was the Chief Resident of Department of Pediatrics during her Residency training. She is dedicated, inquisitive and diligent in her profession, plans well and works diligently at being organized. She has proven herself to have the perseverance, initiative, and intellectual creativity providing high quality care for patients as she believes that the children of today are the future of tomorrow.

Karissa Chesky[1*], Marium Hull[2] MD, Jason Gill[2] MD, PhD, Sruthi Thomas[3] MD, PhD

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Clinical characteristics and management practices of pediatric status dystonicus

Objective: We present 20 cases of pediatric status dystonicus at a major pediatric center and describe their clinical course.

Background: Status Dystonicus (SD) is a rare, life-threatening neurological emergency characterized by continuous, severe episodes of generalized dystonic spasms. Etiology, pathogenesis, diagnosis, and treatment for SD are poorly understood.

Methods: Charts were reviewed retrospectively of 20 patients admitted to a single pediatric center for the diagnosis of SD (ICD9/10 codes) from 2015-2019.

Results: Majority of patients were male (60%, N=12). Dystonia age of onset ranged from 0-15 years and consisted of acquired (70%, N=14) and genetic (30%, N=6) etiologies. Most patients received medications for dystonia prior to admission, including benzodiazepines (75%, N=15) and/or antispasmodics (70%, N=14). Patients were an average of 8.7 years old at time of admission (range 3mo-20yr). Most patients (75%, N=15) were admitted to ICU and stayed an average of 19.7 days. Triggers for SD onset included infection (55%, N=11), medication withdrawal (20%, N=4), or none (20%, N=4). 3 patients (15%) diagnosed with SD met formal criteria of SD with metabolic decompensation while the rest were diagnosed as SD due to worsening and/or painful dystonia. All patients received IV and/or oral treatments, majority being benzodiazepines (95%, N=19) for both. 2 patients required neuromuscular blockade. Most patients required combination treatment (90%, N=18). Some patients required invasive treatments, including chemodenervation (15%, N=3) and intrathecal baclofen pump placement (5%, N=1). On average, any clinical improvement was noted after 0.8 days, while meaningful clinical improvement was seen on average 2.6 days after the definitive intervention. The definitive intervention along with treatment of underlying trigger was introduction/ increase of benzodiazepines (60%, N=12), antispasmodics (20%, N=4), alpha-2 agonists (25%, N=5), chemodenervation (5%, N=1), and intrathecal baclofen pump (5%, N=1).

Conclusion: This study describes the clinical course of 20 pediatric SD cases. History of generalized dystonia, often in the setting of infection and even with concurrent ongoing dystonia management, may serve as increased risk of SD. Most patients require multiple treatment modalities for management of this complex condition; benzodiazepines seem to be the most definitive intervention within this cohort, representing a reasonable first line approach.

Audience Take Away Notes

- Audience members of all backgrounds and training levels will benefit from the education provided in this presentation. Given the rarity and poorly understood nature of Status Dystonicus (SD), especially in pediatric populations, any level of awareness to this disease state may improve patient care

- Through increased exposure to pediatric SD, provided by our novel patient cohort at a major children's hospital, students, trainees and providers will be better equipped to recognize pediatric SD, and utilize our clinical findings that demonstrate disease patterns, diagnosis and successful treatment
- This research could certainly empower other faculty to expand their research and/or teaching on SD. While still considered a uncommon condition, further research on the clinical course of pediatric SD is warranted and encouraged to contribute to the medical community's understanding

Biography

Karissa Chesky is originally from Denton, Texas. She studied Human Biology at the University of Texas at Austin, graduating in 2021 with a Bachelor of Science degree. She then took a gap year conducting Asian global health research in the non-profit sector before enrolling in Baylor College of Medicine to pursue her Doctorate of Medicine. She has since been fulling research endeavors in child neurology, global health, and other pediatric sub-specialty fields in hopes to peruse a career in child neurology.

Kasuni Ranawaka
Geisel School of Medicine, United States

Identifying risk factors for post-operative seizure in patients undergoing chronic subdural hematoma treatment with craniotomy, burr hole evacuation or middle meningeal artery embolization.

Objective: Post-operative seizures can occur in 2.6% to 23% of patients with chronic Subdural Hematomas (cSDH). Hematoma size, midline shift, worse clinical status at admission, and craniotomy with membranectomy have been described as risk factors for its development; however, the impact of Middle Meningeal Artery embolization (MMAe) remains unexplored. This retrospective study aims to determine post-operative seizure rates in cSDH patients treated with MMAe and compare them with those undergoing craniotomy and burr hole evacuation.

Methods: A bi-institutional retrospective review of 592 cSDH treated surgically and endovascularly from 2017 to 2021 was conducted. Patient, hematoma, and procedural characteristics were compared among interventions using Fisher exact tests, t-tests, and ANOVA. Multivariate logistic regression was employed to compare the relationship of post-operative seizures with the type of treatment, adjusting for sex, age, subdural SDH thickness, midline shift, pre-operative GCS score, and prophylactic AED use. Secondary outcomes evaluated included complications, additional drainage, and length of hospitalization.

Results: Post-operative seizure rates were 3.1% for burr hole evacuation, 2.6% for burr hole evacuation with MMAe, 15.3% for craniotomy, 11.1% for craniotomy with MMAe, and 6.7% for MMAe alone. Multivariate logistic regression revealed lower seizure rates in patients undergoing burr hole evacuation with or without MMAe compared to those with MMAe alone (p=0.007, OR 0.18, 95% CI 0.05-0.62). Craniotomy with or without subsequent MMAe had a higher risk of post-operative seizure compared to burr hole drainage with or without MMAe (p=0.0002, OR 5.66, 95% CI 2.28-14.04). Overall post-operative complications were lower in MMAe alone compared to burr hole drainage alone (P=0.01, OR 0.35, 95% CI 0.15-0.79).

Conclusion: Burr hole evacuation demonstrated the lowest post-operative seizure rates in cSDH patients, followed by MMAe alone and then craniotomy, and this association was significant after controlling for confounders.

Biography:

Kasuni Ranawaka obtained her Bachelor of Science degree in Biological Sciences from the University of California Irvine. She is presently advancing her studies as a medical student at the Geisel School of Medicine at Dartmouth. Over the years, her research has been centered on areas such as traumatic brain injury, stem cell therapy, and the effectiveness of treatments for chronic subdural hematomas. In addition to her scholarly and research activities, Kasuni is deeply committed to merging scientific inquiry with creative expression, which she explores through poetry, painting, and other artistic endeavors.

Timothy John Agulto[1] , Shaira Bello[2], Katrien D. Belen[3]*, Earl Joy Lopina[4], Maria Regina Hechanova-Alampay[5]*, PhD, RPsy, Camille Therese C. Yusay[6], MA, RPsy, RPm

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Ka'damayan tungo sa pagbabago: A behavioral design intervention for community-based drug rehabilitation treatment adherence

In this presentation, we will share the outcomes of a project that aimed to improve treatment adherence among People Who Use Drugs (PWUDs) in a Community-Based Drug Rehabilitation (CBDR) program in the Philippines. This project primarily focused on identifying critical behavioral insights that influence treatment adherence, particularly the role of social support among PWUDs. Moreover, complementary behavioral solutions were implemented to address the critical challenge of treatment completion, building on the Social and Behavioral Change Communication (SBCC) efforts of the USAID - RenewHealth program.

Insights revealed that sociological factors significantly influence clients, particularly the support they receive from fellow clients attending the same treatment sessions. Leveraging these insights, we co-created and tested behavioral prototypes with relevant stakeholders and select community members. These behavioral prototypes were collectively known as the "Ka'Damayan" (a Filipino word that roughly pertains to a sense of belongingness) Toolkit. This included three main components: the Ka'Damayan Progress Map, Ka'Damayan ID and Stickers, and Ka'Damayan Card, designed to strengthen social identity and reduce risk aversion in-treatment participation.

Results showed that increased exposure to the Ka'Damayan Tools enhanced felt benefits through belongingness and mutual assistance, which encouraged continued participation in the treatment program. PWUDs eventually regarded their co-PWUDs as "Ka'Damay" as they celebrated their journey, as manifested in the increase in their attitude, social norms, control, and intention to celebrate with their batch. Overall, the Ka'Damayan tools have contributed to a significant increase in adherence among PWUDs following the implementation. These promising results can provide helpful information for those studying or working in rehabilitation and offer practical ideas to make treatment programs more effective and accurate, leading to betteroutcomes for clients and communities.

Audience Take Away Notes

- This presentation will demonstrate the importance of identifying high-impact behaviors that can nudge treatment completion in CBDR programs while also showcasing how to co-create and test behavioral solutions with stakeholders to ensure relevance and effectiveness
- The audience will learn how to apply Behavioral Design principles to their CBDR initiatives, improving treatment adherence and overall program success. The tools and strategies shared can be adapted to various contexts, offering practical solutions that simplify program design and enhance client engagement
- This presentation offers valuable insights for researchers and practitioners seeking to expand their understanding of treatment adherence in rehabilitation settings. It provides practical solutions that can improve the efficiency and accuracy of program designs, ultimately leading to better outcomes for clients and communities

Biography:

Katrien Belen holds a BS in Psychology from Miriam College and an MA in Education from the University of the Philippines, which she completed in 2016. She is currently pursuing a PhD in Psychology at Ateneo de Manila University. Presently, she is a Senior Behavioral Insights and Innovations Associate at AHA! Behavioral Design.

Katrina Hayes[1]* MD/MPH, Dr. Edward Suarez[2] (Psy.D)

[1]University of Miami Miller School of Medicine, Miami, FL, USA

[2]Department of Psychiatry and Behavioral Sciences, University of Miami, FL, USA

The lived experience of navigating alcohol use disorder rehabilitation a: A qualitative study investigating barriers, facilitators, and attitudes among the unsheltered population that influence engagement towards rehabilitation

Introduction: Alcohol Use Disorder (AUD) is highly prevalent among the unhoused population and an estimated 29%-63% of homeless individuals are personally impacted by this disease. 2 As the effects of alcohol further perpetuate cycles of homelessness, alcohol rehabilitation in this population is an important area of research. Although treatment centers and services exist, many unhoused individuals are not utilizing or engaging with these programs. To date, little data exists on the lived experiences of alcohol abuse and what navigation of rehabilitation looks like from the perspective of unhoused individuals. Due to this gap in knowledge on structural and behavioral factors that guide engagement with alcohol treatment systems, a patient-centered understanding through the lens of individuals with lived experience may help various layers of the healthcare rehabilitation network to better engage and care for these patients.

Methods: People experiencing homelessness with AUD currently enrolled in a residential substance-use rehabilitation program (N=19) participated in a detailed semi-structured interview to understand their perspectives regarding the intricacies of navigating rehabilitation, facilitators and barriers to their engagement in AUD recovery, personal lived experiences contributing to their AUD, and their attitudes that guide their interaction with various layers of the healthcare recovery system. Interview transcripts were analyzed using Nvivo software, and an open-codebook was created using reflexive thematic analysis.

Results: Frequently described barriers to AUD treatment initiation, navigation, and maintenance were compiled into themes such as, “alcohol as a method of escapism”, “burden of navigation lies on the participant”, “gaps in knowledge and function of community resources”, and “low knowledge on AUD medications”. Facilitators to AUD treatment engagement included themes such as, “need for housing”, “linkage by good samaritan”, “requirement and enforcement from the legal system”, “social connection”, “internal faith”, “being a role model and productive citizen”, and “family perception”. Attitudes that influenced engagement within the rehabilitation network included “self-efficacy”, “recognition of AUD risks”, “effectiveness of rehabilitation”, “medical mistrust”, and “stance on medication-assisted treatment for AUD”. Prominent social determinants among participants included themes such as, “alcohol in the household seen as normative behavior”, “intergenerational history of substance abuse”, “childhood trauma”, “peer pressure”, and “mental health comorbidities”.

Conclusions: This study unveiled the perceived structural and cognitive barriers and facilitators that guide AUD treatment initiation, navigation, and maintenance, as well as common attitudes that facilitate various levels of engagement within the rehabilitation network among people with lived experience of homelessness and AUDs. Through the generosity of participants in sharing their stories, this study can aid in informing the development of more effective alcohol-use prevention, community resource engagement, rehabilitation recruitment, and recovery adherence.

Audience Take Away Notes

- Discover the perceived barriers and facilitators members of the unhoused community of Miami, FL feel in regards to initiating, navigating, and maintaining treatment for alcohol use disorder
- Highlight the benefits of community consultation through qualitative investigation
- To share with peers how medical students can shape their research explorations and create their own research projects from the ground up

Biography

Katrina Hayes is a 3rd year MD/MPH student at the University of Miami Miller School of Medicine with plans of applying to psychiatry residency programs this fall. Katrina received her Bachelor of Science at the University of Richmond, VA and her Masters in Biotechnology at Johns Hopkins University. In medical school, Katrina is currently a behavioral research coordinator for a Miami Street Medicine student group, a community liaison for mobile needle exchange clinic, and co-president of a reproductive health advocacy group. Along with coaching gymnastics, Katrina enjoys playing pickleball and seeing live music.

Kineret Sharfi[1,2]*, Sara Rosenblum[1]

[1]Occupational Therapy Department, Haifa University, Haifa, Israel
[2]Occupational Therapy Department, Ben-Gurion University, Beer-Sheva, Israel

Relationships between sensory patterns, executive functions, and decreased time organization abilities among adults with specific learning disabilities

The literature describes a close relationship between cognitive executive functions and daily activity. Adults with Specific Learning Disabilities (SLDs) (e.g., dyslexia, dysgraphia, and dyscalculia) reveal limitations in daily activity in various life domains including decreased time organization which is an important ability in a society that requires efficiency. Time organization relates to the pace and performance of daily activities during the day, as well as to the emotional responses following unsuccessful organization of time. Following previous findings regarding unique sensory patterns and decreased executive functions of adults with SLDs, as well as relationships between their sensory patterns and executive functions, this study examined the relationship between the sensory patterns, executive functions, and time organization abilities of adults with SLDs.

Participants included 55 adults with SLDs and 55 controls matched by age, gender, socioeconomic status, and education. They completed a sociodemographic questionnaire, the Adolescent/Adult Sensory Profile (AASP), the Behavioral Rating Inventory of Executive Functions (BRIEFA) and the Time Organization and Participation (TOPS) questionnaires.

Results indicated significant relationships between a specific sensory pattern entitled low registration, specific executive functions of the participants and their decreased time organization abilities. Low registration refers to a sensory pattern of a high threshold and a passive self-regulation strategy. Low registration (AASP) and task monitoring (BRIEF-A) accounted for 32.4% of the variance of the pace of organization across time (TOPS-A score). Task monitoring (BRIEF-A) accounted for 22.9% of the variance of the performance of organization across time (TOPS-B score). Emotional control (BRIEF-A) accounted for 40.3% of the variance of negative emotional responses following unsuccessful time organization (TOPS-C score). These findings add to previous findings about the relationships between unique sensory patterns and deficient executive functions of adults with SLDs and their limitations in daily activity. The results emphasize the role of sensory patterns for their daily activity and participation. They indicate a clinical need to relate to both sensory patterns and executive functions in evaluation and clinical programs that are addressed to optimize daily functioning of adults with SLDs.

Audience Take Away Notes

- The audience will have a better understanding of sensory patterns, executive functions, and time organization abilities of adults with SLDs
- The audience will learn about the relationship between unique sensory patterns and executive functions and the daily activity and participation of adults with SLDs
- The audience can use this knowledge in their jobs by adding an evaluation of sensory and executive functions to their clinical work with adults with SLDs

- This presentation may improve the accuracy of intervention programs addressed to improve daily function of adults with SLDs

Biography

Dr. Sharfi earned a BOT at Tel-Aviv University, Israel, in 2002 and has worked as a clinician ever since. Dr. Sharfi completed an MSc. studies in Occupational Therapy at Hebrew University of Jerusalem in 2008 and joined Prof. Sara Rosenblum's laboratory at Haifa University. In 2016 Dr. Sharfi completed PhD research titled: "Examining Health Conditions, Body Functions, Activity and Participation, and Quality of Life among Adults with Learning Disabilities–Towards a Theoretical Model". Dr. Sharfi Published five research articles based on PhD research and continues to research and teach about daily functioning of persons with neurodevelopmental disabilities.

Laura Ion Ph.D.
Member within APA, Member within BPS Ploiesti, Romania

The effectiveness of neuro-linguistic programming methods and techniques in the process of facilitating change and symptom relief in trauma and addiction

Neuro-Linguistic Programming, in the field of psychology and psychotherapy, is a topic of much debate, nowadays. The purpose of this present study was to examine how Neuro-Linguistic Programming can be effective in facilitating change and symptom relief in trauma and addiction Trauma is stored in the body as implicit memory, one of the two main types of memory. The key point to remember is that as long as trauma is stored in the body, it can be easily triggered, by different events and external stimuli, completely detached from rational thinking.

When people are triggered, fragments of memory are returning along with very strong and uncontrollable feelings, like intense fear or any other sensations which have been stored during the original trauma and now, being triggered, they are experienced again in the present moment as being real. Through its methods and techniques (Meta Model, Reframing, Association/Disassociation and others) Neuro-Linguistic Programming offers a very lucrative and on target support to individuals to challenge the implicit memory of trauma and its limitations, turning it into explicit memory, moving from "trauma stored in the body at an unconscious level" to "trauma stored in the brain at a conscious level", explicit memory being, therefore, under the control of conscious mind, the place where positive changes can be settled consciously, on purpose.

Addiction is defined as the compulsion to continually engage in an activity or behaviour, no matter the negative impact on the person's ability to remain functional and in control with the self, in the home as well as in the community. Neuro-Linguistic Programming has the answers to the Why a transition from recreational drug or alcohol use, for example, to compulsive drug-taking, and to the How to move from compulsiveness to step by step awareness, acknowledgment and control, leading to positive changes.

Neuro-Linguistic Programming, essentially is concerned with how we filter, perceive, acknowledge and give meaning to the world, and the way that different conscious or unconscious bias influences our outcomes. The main theory behind Neuro-Linguistic Programming is that the moment we bring our conscious awareness to cognitive and sensorial filters and biases, we can begin to make choices, consciously, that resulting in positive changes.

Critical appraisal of evidence-based research in this particular area, to indicate the benefits of the Neuro-Linguistic Programming in treating trauma and PTSD, is highly needed along with increasing randomized controlled clinical trials. As soon as its effectiveness is demonstrated, the necessity for Neuro-Linguistic Programming to be accepted, worldwide as a top form of psychotherapy, becomes an irrefutable necessity.

Audience Take Away Notes

- The audience will be able to understand the difference between implicit memory in trauma and explicit memory after trauma and how Neuro-Linguistic Programming offers scientific base and educational support to individuals to move from “trauma stored in the body at an unconscious level” to “trauma stored in the brain at a conscious level” and work on specific characteristics of it so as to facilitate acknowledgment and control of the individuals over their minds that experienced traumatic events
- They will get specific methods and techniques to address and challenge implicit memory limitations and the necessity of turning it into an explicit memory, at a conscious level so as to be properly addressed and solved. Psychologists and psychotherapist will gain specific tools to approach implicit memory in trauma and making it explicit, that type of memory that is workable and adjustable
- This present study can be used by others to expand their research in the field of psychotherapy involving Neuro Linguistic Programming but not limited to it

Biography

Laura Ion holds a Ph.D. in Psychology at Selinus University of Sciences and Literature in Italy. She is an Associate Member within the American Psychological Association, a Graduate Member within the British Psychological Society and a Certified NLP Trainer being trained by Dr. Richard Bandler, the co-creator of NLP, and his team. Laura has a strong publication record, contributing articles to reputable Journals such as Scientific Research-Psychology Journal, Journal of Communication and Behavioral Sciences, and SAERA's blog (School of Advanced Studies, Research, and Accreditation, Spain). Furthermore, she has actively participated in various Psychology and Neuroscience conferences, where she has been honored with invitations to serve as a keynote speaker.

Lianlian Yang, Shuai Wang, Xiaoshan Gao, Zhenru Guo, Zimo Zhou, Yuanyuan Yang, Yu Xia, Lin Tian*

The Affiliated Mental Health Center of Jiangnan University, Wuxi, Jiangsu, 214151, China

Altered local gyrification index and corresponding functional connectivity in depressed adolescents with suicide attempt and non-suicidal self-injury

Background: Suicide Attempt (SA) and Non-Suicidal Self-Injury (NSSI) are serious public health problems in adolescent patients with Major Depressive Disorder (MDD). Research evidence on the neurostructural and neurofunctional implications of these behaviors remains insufficient, and the underlying mechanisms regarding the differential presentation of SA and NSSI is poorly understood. Here, we sought to determine whether patients show brain structure and function by Local Gyrification Index (LGI) and Resting-State Functional Connectivity (RS-FC).

Methods: We compared scale score and multimodal magnetic resonance signals among three groups of female adolescents: MDD with NSSI plus SA (SA+NSSI group, n=45), MDD with NSSI alone (NSSI group, n=31), and Healthy Control (HC group, n=28). Surface-Based Morphometry (SBM) analysis and corresponding seed-based RS-FC analysis were performed for assessing LGI and RS-FC. Partial correlation analysis was applied for potential associations with SA+NSSI group and NSSI group symptom severity.

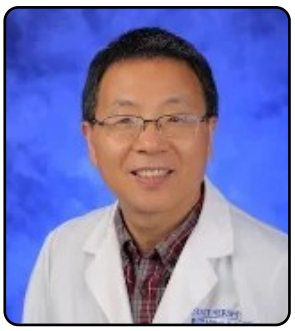
Results: Compared with the HC group, both the SA+NSSI group and the NSSI group had significantly lower LGI in the prefrontal gyrus, mainly distributed in the rostral middle frontal gyrus, caudal middle frontal gyrus, precentral gyrus, and postcentral gyrus (post-CG_R) on the right side of the brain, as well as the rostral middle frontal gyrus (rostral MFG_L), precentral gyrus, and opercular part of the inferior frontal gyrus on the left side of the brain (cluster $p<0.05$, FDR corrected). Furthermore, there were alterations of RS-FC in post-CG_R and the rostral MFG_L, regions which exhibited decreased LGI (cluster $p<0.05$, FDR corrected). Moreover, decreased LGI in the rostral MFG_L and surrounding cortex was negatively correlated with the score of emotional abuse in childhood.

Conclusions: Our results provide evidence about the potential relationship between alterations in brain structure and function in depressed adolescents with SA and NSSI. Additionally, our study findings may provide clues to identify differential neurostructural and neurofunctional mechanisms in SA+NSSI and NSSI.

Keywords: Adolescents, Depression, NSSI, Suicide Attempt, Local Gyrification Index, Resting-State Functional Connectivity.

Biography

Tian Lin M.D. is the Head of Department of General Psychiatry, Wuxi Mental Health Center, Nanjing Medical University, China; Dr. Tian's areas of interest are applications of MR Imaging techniques to support the understanding of complex mental disorders, especially, schizophrenia, obsessive-compulsive disorder and addiction.



Manish Shukla*, Jiwen Du, Dong An, Jervis Li, Rong Jin, Guohong Li*

Department of Neurosurgery, Penn state College of Medicine, Hershey, PA 17033, United States

Therapeutic inhibition of pi3kγ attenuates neuronal endoplasmic reticulum stress improves functional recovery after traumatic brain injury in mice

Traumatic Brain Injury (TBI) is a major cause of death and disability, often leading to persistent motor and cognitive deficits. Phosphoinositide 3-kinase γ (PI3Kγ), primarily expressed in immune cells, has been implicated in neuroinflammation in various neuropathological conditions. Our previous study demonstrated that genetic deletion of PI3Kγ reduced secondary brain tissue loss and mitigated long-term white matter injury following TBI in mice, leading to significant functional improvements, including motor and cognitive functions. However, the therapeutic potential of targeting PI3Kγ for TBI treatment remains to be determined.

In this study, we utilized Controlled Cortical Impact (CCI) to produce moderate to severe TBI in young mice. AS605240, a selective PI3Kγ inhibitor, was administered orally two hours after TBI. Functionally, AS605240 treatment dose & time dependently (1 to 50 mg/kg) improved motor functions (Day 3, 7, 14, 21, 28), as assessed by the beam-walking test, rotarod test, and grip test, as well as cognitive functions, as measured by the Open Field Test (OFT) (Day 28), Barnes maze test (from day 29 to 34) and Novel Object Recognition (NOR) test (day 35) at various time points post-TBI. We identified 30 mg/kg as an optimal dose for improving behavioral functions. Mechanistically, AS605240 treatment (30 mg/kg) attenuated TBI-induced microglia and astrocyte activation, decreased ER stress pathways (including p-eIF2α, ATF-4, CHOP, p-PERK), and reduced neuronal cell death three days post-TBI. Overall, our results suggest that therapeutic inhibition of PI3Kγ with its selective inhibitor represents a promising therapeutic intervention for the treatment of TBI.

Keyword: Traumatic Brain Injury TBI, ER Stress, Cognitive Function.

Biography

Dr. Li is a tenured professor in department of neurosurgery at the Penn State College of Medicine. Before joining Penn State, Dr. Li held the positions of tenured Associate Professor and Schumpert Endowed Chair in Neurobiology at Louisiana Health Science Center-Shreveport. Based at Penn State Neurosurgery and Neuroscience Institute, Dr. Li's laboratory focus on preclinical and translational neuroscience research, with a current focus a novel mechanism and innovative therapeutic approaches for ischemic stroke and traumatic brain injury.

Dr. Maria Borrell

Institut de RecercaSant Pau (IR-Sant Pau), Barcelona, Spain ; CIBER-CV, Instituto de Salud Carlos III, Spain

Brain cholesterol regulation by lipoprotein receptors

Although the regulation of cholesterol homeostasis in the body has been extensively studied, there is little information on how this regulation takes place in the brain. Cholesterol does not cross the blood-brain barrier; therefore cholesterol metabolism in the brain is independent from that in peripheral tissues. Lipoprotein receptors from the LDL receptor family (LRPs) have key roles in lipid particle accumulation in the bloodstream. For example, activation of a specific LRP induces lipid uptake in several cells, tissues and organisms both in vitro and in vivo. However whether LRPs are involved in the regulation of cholesterol levels in the brain is still not known. To determine the role of lipoprotein receptors in the brain we analyzed the expression of different LRPs and components and targets of their downstream signaling pathways in brains of Wt and Lrp-/- mice and in a neuroblastoma cell line. Although several LRPs expression are increased in a time dependent and dose dependent manner in lipid loaded neurons, specific LRPs do not participate in lipid uptake as neurons without lipoprotein receptors accumulate intracellular lipids in a similar way as control cells. Because the activation of the canonical WNT signaling pathway induces survival processes we tested whether lipoprotein receptors were involved in apoptotic and/or autophagic processes and found that LRP has both, anti- apoptotic and anti-autophagic functions indicating a role for this receptor in neuronal survival. Furthermore, we show that LRP is indispensable for life as brains of Lrp-/- mice show low but quantifiable LRP gene expression. Taken together, our results support a prosurvival role for LRP in brain.

Biography

Dr. Borrell is a senior investigator in the Cardiovascular Program at the Hospital de la Santa Creu i Sant Pau, Barcelona. Prior appointments include a postdoctoral position in the Neurology Department of the Curie Institut, Paris, France studying Huntington's disease. She leads a project based in the role of different lipoprotein receptors in cholesterol metabolism in the vascular system. The results have been published in different journals including EHJ, BRIC or CVR and lead to the concession of projects financed by both, the government and the industry

Marie Stella Marehin
Omar Bongo University, Gabon

What about care for addict patients in Gabon?

Gabon has a mental health policy and strategic plan, which have not been implemented to any great extent. It has ratified the WHO framework convention on tobacco control and the protocol to eliminate illicit trade in tobacco products. An anti-smoking law was enacted in September 2013. However, it has to be said that initiatives to provide care for addicted patients are virtually non-existent in the country. The scarcity of addiction and alcohol treatment facilities with qualified staff is a serious problem. Until now, the treatment of addicts has been essentially psychiatric. This is justified by the lack of appropriate products for the treatment of addictions, including alcohol, tobacco and opiates. This observation would justify the many failures observed in treatment and the recourse to various therapeutic itineraries (nganga called sorcerer, priest exorcist or pastor).

Furthermore, while the statistics of the Office Central de Lutte Antidrogue (OCLAD) on seizures of illicit products are on the rise, we deplore the absence of a national epidemiological survey on addictions. We deplore the lack of a national epidemiological survey on addictions. With a view to providing comprehensive and efficient care, it is vital to map out the products consumed, as well as their prevalence in the population. The ESPOIR clinical psychology practice, set up in 2022 and specialising in the care of addicts and patients with psychiatric disorders, is attempting to meet these needs.

Audience Take Away Notes

- To provide an overview of mental health in Gabon and the management of addictive patients
- To present the sociodemographic, addictive and psychiatric characteristics of patients followed over a two-year period (January 2022 to January 2024)
- Highlight the difficulties encountered in the day-to-day care of users
- To recommend and emphasise the urgent need for comprehensive care (medical, psychological and social)
- Demonstrate how the use of remote medicine can help to train addictology carers

Biography

Marie Stella Marehin is a CAMES Assistant Professor in the Department of Psychology at the Omar Bongo University in Libreville, Gabon. Marie Stella holds a doctorate in psychology from the Université Paul-Valery de Montpellier 3. Marie Stella is a clinical psychologist with a degree from the Institute of Applied Psychology and Sociology (IPSA) at the Université Catholique de l'Ouest, Angers, France. Passionate about addictions, and currently training in addictology at the University of Montpellier. A recipient of a study grant from the Agence Universitaire de la Francophonie (AUF), Marie Stella is currently enrolled on a Master 1 in Public Health with an Epidemiology option at the Université des Montagnes (UDM) under the auspices of the AUF and the University of N'Gaoundéré, Bangangté-Cameroon. On return

to Gabon, Marie Stella set up the ESPOIR clinical psychology practice in 2022, recognised by the Ministry of Health authorities, which takes care of people suffering from addictions, as well as their families and friends. In 2023, it set up the NGO Entraid'Dépendances to carry out prevention and awareness-raising campaigns on the dangers of drug use. Particular emphasis is placed on the day of 9 September, which is dedicated to Foetal Alcohol Syndrome (FAS) in pregnant women. Depression, financial difficulties, abandonment and a lack of knowledge about the harmful effects of alcohol on the foetus are all factors in this behaviour. Since its inception, actions have been carried out on 10 October, World Mental Health Day. Since addiction is a "mental disorder", the aim is to educate the public so as to avoid the stigmatisation and exclusion of addicts, who are most in need of help. Dr. Marie Stella Marehin takes part in awareness-raising days for young people, and training sessions with NGOs, associations and foundations. Addiction is a major focus of work as a researcher: predictive factors for drug use, the psychological processes involved in addiction in pregnant women, La Covid-19, psychotic and addictive disorders, addiction and return to work, stigmatisation of addicts in the workplace, and so on.

Dr. Mark Knights
Great Western Hospital, Swindon, United Kingdom

Characteristic features of stem cells in glioblastomas: From cellular biology to genetics

Glioblastoma's are the most common type of primary brain tumour in adults and are the most lethal and least successfully treated solid tumours. Recently, research into the area of stem cells in brain tumour development has gained moment. However, due to the relatively new and novel hypothesis that a subpopulation of cancer cells in each malignancy has the potential for tumour initiation and repopulation the data in this area of this research is still in its infancy.

This review presentation is aimed at attempting to bring together research in this field carried out so far in order to build an understanding of glioblastoma stem cells. This is important for two mains reasons. Firstly, interest in this area of oncology has increased dramatically in recent years. This is evident from the amount of research being produced and published on this topic. A simple keyword search of 'glioblastoma stem cells' in Science Direct produced over 27,000 results. Secondly, as previously mentioned glioblastomas are the most common type of primary brain tumour and one of the most lethal solid tumours but least successfully treated solid tumours with a median survival time of only 12 months. Compared with the advances in the treatment of other types of tumours, the poor prognosis for glioblastoma patients has improved minimally over decades, underscoring the challenges and difficulties in effectively treating these fatal cancers.

Initially, we consider glioblastoma stem cells at a morphological and cellular level including that neuronal stem cells differ according to the region of the brain in which they are located and therefore depending on the where a glioblastoma originates means glioblastoma stem cells may have specific mutations unique to the location of origin. Important cell markers for these stem cells are also discussed including CD133, SOX-2, CXCR4, and L1CAM. Being able to identify reliable and specific markers for glioblastomas has obvious benefit in both providing opportunities for tagging these cells so that the microscopic tumour burden can be located and providing targets for pharmaceutical therapies. The presentation also covers signalling pathways and genetic mutations which are involved in the development of glioblastomas stem cells. Understanding these changes leads to greater insight into how normal stem cells develop into carcinogenic cells and what changes are required in order for this process to occur.

Biography

Dr Mark Knights studied medicine at the University of Leeds in the United Kingdom and graduated with honors in 2014. During this time, Dr Mark also undertook an internship in the Tissue Engineering Department at the School of Molecular and Cellular Biology also at the University of Leeds. Dr Mark has published a number of times on Glioblastoma stem cells including a book chapter in the Stem Cell and Cancer Stem Cell book series edited by Prof Hayat.

Mia W. McNary*, Robin Simkins
Artist and Visual Storyteller, "Picture Recovery", United States

Visual cues trigger emotions

Picture Recovery is a visual roadmap through the journey of alcohol recovery. It's much easier to remember a picture than words, and with 65 percent of the population identifying as a visual learner, this is the only book of its kind in the alcoholism recovery category. This visual aid (relatable images!) is intended to help people stay on the recovery path. It's a great companion to attending meetings, other literature and connecting with people doing well in the program. Mia's readers should be confident that this is a necessary companion to attending meetings because she used it herself and is now close to three decades sober! It is difficult to recall what is said in meetings, especially at the beginning of the journey, and this was the recall tool she relied on, especially in difficult times.

Created from over 30 years of mia's sobriety journey attending meetings, picture recovery is a reminder to slow down, and find more self compassion. Mia's goal is to help others like herself who need visuals to retain the suggestions of the program. This book was created to help people recall the incredible suggestions heard in recovery rooms. These images are a reminder to all suffering that each day is an opportunity to discover an amazing potential. Picture recovery's goal is to have the reader spot their true super sober self. Together with her editor, the books' mission is to help save one life.

Audience Take Away Notes

- Picture recovery will help those struggling with addiction to have visual tools to retain these new suggestions heard in meetings, and to be able to recall later when needed. Especially in a crisis moment, it's much easier to remember a picture than words, and the idea is so simple-it's bite-sized graphics depicting recurring themes heard in meetings. Today's reader needs and wants to digest visually, with updated graphics for today's evolving language, intended to be understood at a glance
- Picture recovery is an integrated approach to help the visual learner who needs to understand and learn how to live the big picture of the recovery process. By using visually engaging, bite-size images to demonstrate the steps of recovery, there's an opportunity to go at the reader's pace, visually digesting actions that take place at each stage. It's imperative to think about the journey and the visual aids necessary, in a manner that supports the learning path of 65 percent of the population
- This book contains images, selected from literally thousands of mia's sketches over her 30 years in alcoholic anonymous 12-step recovery program. The audience can begin to think about how to translate the written word and create complementary graphics to ensure broader learning. Our goal is to help one person with this book and to show the world that visual process is key to the majority of the population, especially in the area of mental health
- These visual learners are in crisis so how complex information is delivered to them is key to their lifelong success. Why is this important? relapse is common for anyone fighting an addiction so it's

imperative to introduce visuals into the recovery process. If someone has a hearing challenge, we teach sign language or otherwise modify how information is delivered

- Alcoholism is a lifelong disease and the information a person learns in rehabilitation centers should be easy to process and retained long-term. The question is how best to deliver critical information to maximize learning has been answered: multiple methods of delivery including visual aids!
- Research has shown that visualization of complex content can bolster communication for changing attitudes and behavior

Biography

Mia W. McNary educated at Carnegie Mellon University and at Studio Art Center International in Florence, Italy, is the owner of Masters In Art Studio Chicago, IL. McNary worked in the advertising industry for years. McNary is married with three adult kids, is the published author of "Picture Recovery". Mia is an advocate for autism and always sketching her life journey. Mia has been sober since January 3, 1995.

Nabin Prasad Joshi
Faculty of MCP, Tribhuvan University, Kritipur, Kathmandu, Nepal

Relation between socio-economic status and mental health of returnee labor migrants from the golf countries in Nepal

This study aims to document the socio-economic and mental health status of migrants returning from Gulf countries, utilizing a quantitative research design to explore the relationship between mental health and socio-economic factors. Standardized tools are employed for measurement, with a focus on structured quantitative questions and mental health assessments, aligning with an exploratory design. Quantitative data analysis is conducted using correlation and Z-tests. Findings are tabulated and compared, with statistical tools applied to analyze the relationship between socio-economic status and mental health. Research indicates varying levels of mental health issues among returnee migrants, with 8.3% prevalence among Nepalese females and 23% among labor migrants to Malaysia, Qatar, and Saudi Arabia. Factors such as perceived health risk and employment type contribute to stress levels. A paradoxical finding shows a positive correlation between perceived quality of life and depressive symptoms. Additionally, suicide rates among Nepalese migrants are notable. The study assesses depression, anxiety, and stress levels among returnees, with a majority experiencing mild depression and moderate anxiety. Stress levels vary based on education level and country of return, with higher education correlating with higher stress. Family support also influences mental health outcomes. Findings suggest a direct relationship between education level and stress, with higher education associated with higher stress levels. Returnees from Saudi Arabia exhibit higher stress levels, while family support correlates with lower stress. Overall, this study underscores the complex interplay between socio-economic factors and mental health outcomes among returnee migrants from Gulf countries.

Keywords: Returnee-Migrants, Labor, Anxiety, Socioeconomic Status, Mental Health.'

Audience Take Away Notes

- The session will provide a scenario of returnee migrants from golf countries in Nepal
- The audience will have a few case stories of Nepalese-educated people who are seeking foreign employment
- Researchers may use this data as a pilot survey for further investigation
- This finding has helped to implement the strategies to provide basic psychosocial support to returnees

Biography

Nabin Prasad Joshi is the founder and CEO of PICS NEPAL and a lecturer at MCP, Tribhuvan University. Professionally, Nabin is a Counseling Psychologist, holds a master's degree in Counseling Psychology from Tribhuvan University with a batch topper. It's been 6 years that Nabin has been working as a mental health Counselor at PICS NEPAL. Despite being the founder and mental health counselor, also a lecturer at Tribhuvan University. Joshi also teaches the foundation of counseling psychology-CPSY 501 and Person-Centered Therapy-CPSY 509. Also, to complete introduction, Joshi need to talk about research interests. Joshi keenly interested in mental health research and publication. Joshi love to explore knowledge, culture, and experiences and has visited Japan, Australia, and India to share research papers. Learned more about counseling skills and mental health scenarios in particular countries during the program attended. Joshi research is ongoing and has not published yet.

Dr. Najla Alqawasmeh*, Dr. Ching Yee Suen
Computer science and software engineering, Concordia University, Montreal, QC, Canada

Unveiling signs of alzheimer through handwriting analysis

Neurodegenerative diseases, such as Alzheimer's and Parkinson's, are distinguished by the progressive loss of motor capabilities, cognitive abilities, or both. The specific origins of neurodegenerative disorders are often unclear; however, they can include genetic, environmental, and lifestyle factors, and are scientifically interpreted as a breakdown of brain and spinal cord functioning. Treatment often focuses on symptom management, as there is presently no cure for these disorders, only treatments to delay disease progression and improve patients' quality of life. Alzheimer's (AD) and Parkinson's (PD) are common Neurodegenerative Diseases (NDs) that arise for unknown reasons and advance slowly and uncompromisingly. Age that cannot be reversed is one of the most important risk factors for these conditions. Motor deficiencies in PD are driven due to a decline in the basal ganglia's dopaminergic nigrostriatal neurons. On the other hand, AD can be classified as short-term memory loss in its early stages, but as the illness worsens, cognitive and behavioural abilities decline. These critical signs make diseases increasingly serious health and social problems. Although there is no known treatment for brain degeneration, the slow deterioration can be controlled while the disease is still in its early stages. Studies reveal that they significantly impact millions and will sharply rise in the coming decades. Due to the increased risk of dementia, particularly the Alzheimer's type, among patients with Mild Cognitive Impairment (MCI), enhancing the approaches currently used for detecting MCI symptoms is essential. The traditional clinical techniques for detecting degenerative disorders include lumbar puncture, blood testing, and imaging. Additionally, the patient's medical history is beneficial in the early detection of such diseases. Unfortunately, the traditional approaches have many drawbacks, including requiring ongoing sign monitoring and months to obtain a precise diagnosis. The technician's experience is another important factor in the evaluation procedure. For many patients, receiving the proper assistance and care is challenging due to the low diagnosis coverage. Hence, an early diagnosis is crucial to initiate treatment promptly, as significant and irreversible damage may already have occurred once symptoms manifest. One of the first skills affected by cognitive issues is handwriting, which is based on a combination of kinaesthetic and motor perceptual abilities. Therefore, many researchers studied the possibility of using a patient's handwriting to detect early Alzheimer's disease symptoms automatically as it has numerous advantages, including being inexpensive, non-invasive, and non-intrusive. Significant progress has been achieved in this field, beginning with establishing various handwriting protocols that outline the specific writing or drawing tests to be conducted. Nevertheless, it's crucial to emphasise that opinions on the number and kind of tasks that should be used vary widely. However, the majority of studies concurred that some aspects of handwriting, such as writing curves, pen pressure, and speed, can assist in identifying Alzheimer's disease in its early stages. Additionally, there is a scarcity of standardized databases that gather this kind of data, which typically only refers to a relatively small number of participants. This aspect adds another layer of complexity in the realm of machine learning techniques, which typically demand substantial volumes of data. In addition, there is a lack of consensus on the specific characteristics that researchers should prioritize. Indeed, the challenge of identifying effective features that enable the system to differentiate between regular age-related handwriting changes and those induced by neurodegenerative

disorders remains unresolved. Finally, researchers must focus on health monitoring related to behavioural traits, such as speech, eye movements, and handwriting, as it will significantly enhance diagnosis coverage and aid in early AD detection.

Many scientists are working to find new ways to identify Alzheimer's from handwriting. Here are some current findings in this area:

Azzali I. et al. present a unique method for utilising Vectorial Genetic Programming (VE_GP) to analyse handwriting in order to diagnose Alzheimer's Disease (AD). Comprehensive and automated feature extraction is made possible by VE_GP, which analyses raw time series handwriting data without the need for predetermined feature sets. Using a graphic tablet, participants' handwriting was recorded for the study, and pressure and X and Y coordinates were examined. It was discovered that VE_GP achieved better classification performance than both deep learning and conventional feature engineering approaches. It produced models that were easier to understand and more successful in differentiating handwriting patterns linked to AD. The findings illustrated VE_GP's significant advantages over current techniques and showed its potential as a reliable and understandable tool for early AD diagnosis.

Cilia N. et al. investigate a novel method for early diagnosis of Alzheimer's Disease (AD) by analyzing handwriting. The study highlights that handwriting is often one of the first skills affected by AD. To improve diagnostic accuracy, the researchers combined shape and dynamic features from handwriting samples. They generated synthetic color images from online handwriting data, encoding dynamic information such as velocity, jerk, and pressure into the RGB channels. A Convolutional Neural Network (CNN) was then employed to automatically extract features from these images. The study demonstrated that the inclusion of dynamic information significantly enhanced the performance of the diagnostic system compared to using binary images that only contained shape information. The findings indicate that this deep transfer learning approach, which leverages both shape and dynamic features, offers a promising tool for early detection of Alzheimer's Disease. The study found that combining shape and dynamic features in handwriting analysis significantly improves the early diagnosis of Alzheimer's Disease (AD). By creating synthetic color images from online handwriting data, encoding dynamic information such as velocity, jerk, and pressure into the RGB channels, and employing a Convolutional Neural Network (CNN) to extract features, the researchers demonstrated that dynamic features are crucial in distinguishing AD patients from healthy controls. The synthetic images containing both shape and dynamic information outperformed binary images with only shape information, highlighting the potential of this deep transfer learning approach as an effective tool for early AD detection.

Cilia N. et al. investigate the influence of word semantics and phonology on the handwriting of Alzheimer's patients. Using data from six handwriting tasks involving regular words, non-regular words, and non-words, the study employs four machine learning classifiers to analyze kinematic properties of handwriting. The results reveal that non-regular words require more features for effective classification, achieving the highest accuracy of nearly 90%. Feature selection techniques further improved classification performance, with the study demonstrating that handwriting analysis, particularly of non-regular words, can serve as a valuable tool in diagnosing Alzheimer's disease.

Miltra and Rahman employ ensemble machine learning techniques to analyze handwriting kinetics for early diagnosis of Alzheimer's. Utilizing the Darwin dataset, which includes handwriting samples from 174 individuals, the researchers develop a stacking ensemble model integrating multiple base-level classifiers. The model achieves remarkable performance metrics: 97.14% Accuracy, 95% Sensitivity, 100% Specificity, 100% Precision, 97.44% F1-score, 94.37% Matthews Correlation Coefficient (MCC), 94.21% Cohen Kappa, and 97.5% AUC-ROC. This study underscores the potential of machine learning in providing highly accurate and non-invasive diagnostic tools for Alzheimer's disease through handwriting analysis.

In conclusion, machine learning-powered handwriting analysis presents a viable non-invasive and affordable approach to Alzheimer's disease early diagnosis. Important insights into neurodegenerative alterations can be gained by studying the fine motor control needed for handwriting. High accuracy and reliability have been shown in differentiating between healthy persons and those suffering from Alzheimer's disease using advanced machine learning models, such as ensemble classifiers. This method may enhance the quality of life for those who are impacted by it by facilitating early diagnosis and prompt care. The effectiveness of these methods indicates how well they might be incorporated into clinical settings, becoming a useful instrument in the battle against Alzheimer's.

Audience Take Away Notes

- The cause of neurodegenerative disease
- The risk factors of Alzheimer disease
- The current treatment of such disease
- The drawbacks of current treatment of such disease
- The important of handwriting analysis to help in revealing the early symptoms of Alzheimer
- The most important handwriting features used to detect Alzheimer

Biography

Dr. Najla Alqawasmeh earned her B.Sc. degree in Computer Science from Hashemite University in Jordan. She then obtained her M.Sc. degree from Al-Balqa Applied University. She completed her Ph.D. at Concordia University in Canada, where she is currently working as a research associate in the CENPARMI lab. Her research interests encompass Machine Learning, Data Science, and Deep Learning.

Nandana Jayakumari*, Ashalatha Radhakrishnan

R. Madhavan Nayar Center for Comprehensive Epilepsy Care, Department of Neurology, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum, Kerala, India-695011

Dental health in persons with epilepsy: A neglected crisis

Background: Persons with epilepsy are in general considered to have poor dental hygiene which can be contributed by severity of epilepsy, ignoring oral health issues or the medications used. A continuing need exists for better understanding the effects of antiepileptic medication on oral health. Several studies have shown the effects of older antiepileptic, especially Phenytoin, on oral health. But studies exploring oral side effects of newer AEDs are lacking.

Methods: A cross-section study was done in which 69 persons with epilepsy on treatment were compared with 33 controls. A structured questionnaire was used to collect data on demographics, dental and oral hygiene practices, and detailed medication history including older and newer antiepileptic drugs. A routine dental examination along with plaque, gingival, DMFT and DMFS indices were assessed, and the data was statistically analyzed.

Results: Patients on polytherapy as well as on older AEDs were more prone to oral side effects with significantly higher gingival index, plaque index and calculus, as compared to patients on monotherapy and newer AEDs. Gingival hyperplasia was common in patients taking PHT alone as compared to patients taking folic acid along with PHT ($p<0.05$). Gingival hyperplasia was also seen in patients on VPA, but no significance was found (p-1.28).

Conclusion: Older AEDs especially PHT and VPA, can be associated with significant oral side effects. But newer AEDs can be considered safe in relation to the oral health.

Audience Take Away Notes

- Persons with epilepsy have a compromised oral health, the etiology of which is multifactorial
- This study provides information on oral health status of persons with epilepsy and the effect of antiseizure medications on oral health
- Data regarding oral side effects of newer ASMs are lacking
- This study highlights the effect of older as well as newer ASMs on oral health

Biography

Dr. Nandana Jayakumari studied Neurology at Sree Chitra Tirunal Institute for Medical Sciences and Technology, India and graduated DM in 2023. Dr. Nandana then joined one-year postdoctoral fellowship in Epileptology supervised by Dr. Ashalatha Radhakrishnan at R. Madhavan Nayar Center for Comprehensive Epilepsy Care, Sree Chitra Tirunal Institute for Medical Sciences and Technology, India. Dr. Nandana is interest in research related to epilepsy and electroencephalography and has more than 10 publications in this field.

Dr. Nicola McDowell
Institute of Education, Massey University, Auckland, New Zealand

Screening for brain based/Cerebral Visual Impairment (CVI) in children

Cerebral Visual Impairment (CVI) has been defined as a verifiable visual dysfunction which cannot be attributed to disorders of the anterior visual pathways or any potentially co-occurring ocular visual issue. Recent research has indicated that as many as one child in every mainstream classroom (approximately 3.4%) have CVI related visual issues. Many of these children have normal or near normal visual acuity but have significant issues with visual perceptual processing (visual perceptual difficulties). Different studies have found the majority of these children have learning difficulties (80%), struggle with friendships and social interactions (90%), and experience high levels of anxiety requiring emotional regulation support (100%). In mainstream schools, CVI is mostly unheard of, thus these difficulties are often misdiagnosed as developmental conditions such as dyslexia, ADHD and autism or the children are simply labelled as having learning and behaviour difficulties.

To help identify these children, a screening app (for use on iPad or iPhone), the Austin Assessment, has been developed and validated for use by parents, educators, clinicians and researchers as a quick and easy way to screen children aged 5-18 for CVI related visual issues. The app measures four variables while the children are doing the assessment that correspond with the key indicators of visual perceptual difficulties. These include, darting eye movements, slow processing of the visual scene as the complexity increases, worsening performance with increased task demand and slower response time to visual stimuli. Extensive research and development has been conducted on the Austin Assessment over a period of six years, including an initial pilot study, user testing, creating a normative range database, assessing the effectiveness of the app as a screening app, specific validation research and user experience interviews.

With such a high prevalence rate, it is important that screening for this complex condition is conducted. When CVI related visual issues are identified, understood and supported, these children are able to overcome many of their challenges and flourish.

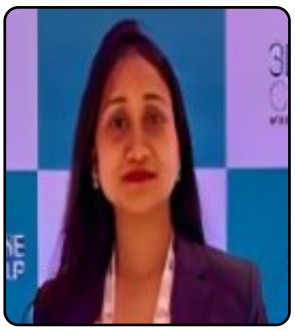
Audience Take Away Notes

- The audience will be able to further develop their understanding of CVI, how it manifests in children and the impact it has on a day to day basis and
- The audience will be able to more easily identify children with CVI related visual issues/visual perceptual difficulties by using the screening tool introduced in the presentation
- This will help those working with children, especially in the diagnostic and learning support space, as it will ensure the children who are identified as having CVI related visual issues receive the appropriate support

Biography

Dr. Nicola McDowell is the founder and creator of the Austin Assessment, a screening app for cerebral visual impairment related visual issues, and a Senior Lecturer and researcher in the Institute of Education, Massey University, New

Zealand. Nicola teaches into the Post Graduate Diploma and Masters in Specialist Teaching programs, which focus on training educators to work in the learning support space in Aotearoa, New Zealand. Dr. Nicola research interests include understanding and supporting children and young people who have cerebral visual impairment, empowerment of children and their parents/caregivers and equity in education.



Nidhi Gupta[1,2,3*], Surinder P. Singh[1,2,3], Pallavi Kushwaha[1,2,3], Ritu Verma[1,2], Anu T. Singh1, Manu Jaggi[1]

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In vitro efficacy studies of bacopa monnieri and rosemarinus officinalis to evaluate their neuroprotective and neurotrophic properties in the management of alzheimers disease

Background: Alzheimer's Disease (AD) treatment modalities address symptoms aleviation through neurotransmitter modulation. Ayurveda, utilizing plant-derived compounds with neuroprotective properties, offers a promising avenue. This study explores integrating Ayurvedic formulations, specifically "Medhya Rasayana"(Brain tonics), into AD treatment. While Ayurvedic literature suggest the cognitive enhancement potentials of herbs like Brahmi (Bacopa monnieri) and Rosemary(Rosemarinus officinalis), their scientific evidence in AD treatment remains limited. We have carried out a series of in vitro efficacy studies to determine neuroprotective and neurotrophic activities of Brahmi and Rosemary extracts on MPP+iodide (neurotoxin) induced Human neuroblastoma cells (SH-SY5Y) that serve as in- vitro AD model.

Methods: We aimed to evaluate the percentage of cell restoration by Brahmi and Rosemary extracts in various concentrations and combination in 24 hours, after inducing damage by MPP+iodide in human neuroblastoma cells (SH-SY5Y). Anti-apoptotic effects were determined via the JC-1 method. The anti-inflammatory property was assessed by analyzing IL-6 levels in rh-TNF-α stimulated U251MG glioblastoma cells. Extensive neurite outgrowth was evaluated in differentiated SH-SY-5Y cell line against MPP+iodide (neurotoxin) induced damage mimicking AD.

Results: Brahmi exhibited 97.2% cell restoration at 100µg/ml, thus suggesting it to be a potential natural compound in AD therapeutics. At 10µg/ml concentration, 1: 1 combination of Brahmi and Rosemary demonstrated 67.73% restoration, which was significantly double that of individual treatment. Furthermore, the combination at 10µg/ml, reduced IL-6 levels by 129.5% in TNF-α stimulated U251MG glioblastoma cells. In neurotrophic potential evaluation, the herbal extracts promoted extensive neurite outgrowth in damaged SH-SY5Y cells, with Brahmi (100µg/ml) and Rosemary (10µg/ml) surpassing the reference control.

Conclusion: Results indicate that the chosen herbal extracts exhibited neuroprotective and neurotrophic effects. The findings clearly indicates the therapeutic potentials of Brahmi and Rosemary in the treatment of AD. At 10ug/ml, the formulation enhaces mitochondrial membrane potential, inhibits apoptosis, and promotes neurite outgrowth, indicating a promising accomplishment in Ayurvedic treatment for AD.

Audience Take Away Notes

- Understand the evidences from in vitro efficacy studies to determine suitability for conducting in vivo confirmation trials for herbal drug development towards management of Alzhimer Disease
- **Integration into Clinical Practice:** Healthcare professionals can incorporate Brahmi and Rosemary into AD treatment plans, offering a natural, effective alternative that enhances patient outcomes through neuroprotective and neurotrophic benefits
- **Research Expansion:** Researchers can use these findings to conduct more extensive studies on

plant-derived neuroprotective compounds, potentially leading to new, innovative treatments for neurodegenerative diseases

- **Educational Enhancement:** Educators can incorporate this research into their curricula to teach students about the benefits of integrating traditional Ayurvedic medicine with modern medical practices, providing a well-rounded understanding of AD treatments
- **Practical Solutions for Treatment Design:** The research offers practical solutions for designing more effective and streamlined AD treatment protocols, reducing reliance on synthetic drugs and potentially lowering treatment costs and side effects
- **Improved Treatment Accuracy and New Insights:** The study provides precise data on the effective concentrations and mechanisms of Brahmi and Rosemary, enhancing the accuracy of treatment designs and offering new insights into their anti-apoptotic and anti- inflammatory properties

Biography

Nidhi Gupta is pursuing a PhD in Chemical Science at CSIR-National Physical Laboratory and heads the Department of Cell Biology at Biotenic Pharma Pvt. Ltd., a Contract Research Organization in Greater Noida, India. Nidhi specializes in Cell Biology, Genetic Toxicology, and Neuroscience, focusing on Alzheimer's Disease therapeutics. With over 8 years of R&D experience, proficient in Good Laboratory Practices and holds a GLP certification. In 2022, received a Research Excellence award for Nidhi work on Alzheimer's management.

Omar Reda MD
Psychiatrist, University of Colorado, United States

Numbing our moral injuries

Many caregivers struggle with deep moral injuries like compassion fatigue, vicarious trauma, survivor guilt, and burnout. Unfortunately, some cope with these challenges through self-destructive habits including shutting down, lashing out, using substance, or even suicide.

This session is designed to introduce the topic with the intention of shattering stigma, breaking silence, and offering hope.

Caregivers are wounded healers. We will introduce a toolkit to help them heal their invisible wounds.

Audience Take Away Notes

- Audience will be educated on otherwise taboo topics like addiction and suicide
- Audience will realize the impacts of their invisible wounds on their families and beyond
- Audience will walk away with a toolkit of tangible items to help them heal

Biography

Dr. Omar Reda is a board-certified psychiatrist, Harvard-trained trauma expert, a family advocate, and the author of eight books including Untangled and The Wounded Healer. Reda is the founder of Healing Trauma Institute. Omar expertise includes, but not limited to, refugee trauma, family bonding, caring for the caregiver, and faith-based healing. Omar Lives with his wife and three children in Colorado, USA.

Osamah Al-Ramahi*, Mo'men Shabib, Mohammad Al-Khrissat, Mohammad Al-Sharrab, Hiba Al-Masad, Rawan Al-Ahmad, Ahmad Al-Karasneh

Faculty of Medicine, Yarmouk University, IRBID, Jordan

Effectiveness of dextroscope in sellar tumor surgery: A systematic review and meta analysis

Background: The Dextroscope is a VR workstation that can provide 3-dimensional information to choose a surgical approach. The dextroscope technique as an intervention has emerged as a promising tool in transsphenoidal surgery for sellar tumors, potentially offering improved visualization and maneuverability.

Methods: We systematically searched electronic databases, including MEDLINE, Scopus, Web of Science, oxford, sage journals and Embase, spanning from each database's inception to May 9, 2024. Following guidelines specified in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA).

Results: Two studies has been included in this systemic review with a total 144 patients exploring the influence and effectiveness of dextroscope-assisted surgery which showed positive results regarding surgical time, blood loss and post surgical complications.

Conclusion: This meta-analysis shows dextroscope use reduces surgical time and blood loss in basal sellar tumor surgeries. It's recommended for patients challenging tumors as it provides different approaches and valuable pre-surgical information, but more research is needed to confirm its various benefits as a new innovation.

Audience Take Away Notes

- Audience wil be cabable of knowing how new technology could aid in neurosurgical approaches
- The dextroscope assited intervention provide a better clinical outcomes on patients by various aspects including hospital stay time
- Dextroscope intervention can be a major topic to be discussed as further evaluation must be needed
- Dextroscope intervention has provided less surgical complications as well as reduced surgical time duration and overall improvement post surgical outcomes
- Its may shed the light of the major role of using technologies in new surgical approaches

Biography

Osamah Alramahi, MD, is a medical student at Yarmouk University Faculty of Medicine in Irbid, Jordan, expected to graduate in 2025. Osamah studies and research primarily focus on Neurology and Neurosurgical Interventions, with projects on neuropathic pain indicators in diabetic patients, outcomes of intrathecal baclofen vs. dorsal rhizotomy for spasticity in spinal injury patients, as well as multiple literature reviews on rare cognitive disorders. Osamah is actively involved in professional organizations such as Negida Research Group, IFMSA-Jo, and the Ministry of Health in Jordan. Osamah involvement includes participating in awareness campaigns and other community health initiatives. Osamah is also the founder and current president of the Neurology Research Club at Yarmouk University, Jordan.

Peter Y Wui
University of Arkansas, United States

Understanding the complex dynamics of cigarette smoking and its impact on substance use in the USA: Insights from longitudinal data analysis

This study investigates the complex nexus between addiction, economic factors, and public health outcomes, with a particular emphasis on the consumption patterns of cigarettes and the implications of marijuana legalization. Grounded in established economic frameworks proposed by boyer (1978, 1983), becker (1994), and chaloupka (1991), we construct a comprehensive utility function to unravel the behavioral dynamics of addictive consumption. By leveraging longitudinal data from the National Survey on Drug Use and Health (NSDUH) spanning the years 2014 to 2021, augmented by supplementary datasets from the Centers for Disease Control and Prevention (CDC), state-level repositories, and annual volumes of the tax burden on tobacco (Orzechowski and Walker, 2023), we develop a nuanced model to dissect addiction trajectories and their societal ramifications.

Our model conceptualizes cigarette consumption as a stock variable, intricately intertwined with addiction levels, market prices, regulatory interventions, marijuana usage trends, and a myriad of other life cycle variables. Utilizing a quadratic utility function, we derive demand equations that optimize consumption choices in the presence of addiction dynamics, shedding light on the intricate interplay between substance use behaviors and economic incentives.

Key findings from our analysis illuminate the multifaceted impacts of marijuana legalization on cigarette consumption patterns. Through the estimation of demand equations and the meticulous examination of coefficient effects, we uncover significant relationships between cigarette consumption, marijuana use prevalence, pricing mechanisms, tobacco control program expenditures, and various socio-economic determinants. Our empirical insights offer valuable guidance for policymakers and public health officials seeking evidence-based strategies to mitigate substance abuse and its associated harms.

Furthermore, we anticipate enriching our analytical framework by incorporating additional life cycle variables, such as unemployment rates and state-specific contextual factors, to provide a more comprehensive understanding of addiction dynamics and inform targeted intervention strategies. This iterative approach underscores our commitment to rigorously examining the complexities of addiction within the broader socio-economic landscape, with the ultimate aim of fostering healthier communities and promoting evidence-informed policy responses.

Biography

Dr. Peter Y. Wui is currently the Professor and Chair/ Director of MBA of the Department of Business Administration and Economics at the University of Arkansas at Pine Bluff. Dr. Wui recently published an article entitled: An Empirical Analysis of Master Settlement Agreement Impacts on Cigarette Consumptions in the USA, Journal of Economics. Dr. Wui holds a PhD in Economics from Texas A&M University, both a Master of Arts and Bachelor of Science in Economics from Seoul National University, Seoul, Korea, respectively.

Prathyek Poojary
[1]Cambridge Academy, Cambridge Centre for International Research, Huntersville, North Carolina, United States

Novelstress detection leveraging deep learning and multi-domain features on EEG

Stress is a very special state of being in that it can influence almost every bodily function andsystem in the most negative way, contributing to a wide range of health issues, from sychological disorders such as depression to physiological problems like indigestion. It has been identified as a major factor in many of the leading causes of death worldwide, including cardiovascular disease and cancer. This underscores the urgent need for real-time, accurate stress detection to enable timely intervention and management. While numerous studies have attempted to address this need, they often fall short due to their reliance on subjective measures, inconsistency in results, low accuracy, and generalization issues. Furthermore, overfitting remains a common challenge in many stress detection models, limiting their effectiveness in real-world applications.

This study proposes a novel stress detection method that leverages Electroencephalogram (EEG) signals as an objective measure of brain activity, paired with mental arithmetic tasks to induce measurable stress responses. The use of EEG signals addresses many of the limitations found in prior studies by providing a direct and objective metric for stress detection. To ensure the reliability of the data, extensive preprocessing techniques were employed, including advanced signal filtering, artifact removal, and data cleansing. This meticulous approach ensures that only the most relevant and high-quality data were used to train the machine learning models.

Central to this study is a six-layer Deep Neural Network (DNN) that was optimized through rigorous hyperparameter tuning and trained on a comprehensive feature set extracted from multiple domains. These domains include time-domain features such as power spectral density, frequency-domain features derived from various EEG bands, and complex non-linear features, which collectively capture the intricate dynamics of brain activity during stress with a total of 72 features. The neural network architecture also incorporates multiple techniques to prevent overfitting and optimize performance.

The results demonstrate that the proposed model achieves a remarkable accuracy of 89.08%, significantly outperforming traditional machine learning models such as K-Nearest Neighbors, Support Vector Machine, Logistic Regression, and Random Forest, all of which were tested as control models in this research. These models, commonly used in past studies, have struggled with generalizability and performance when applied to complex, real-world data. The deep neural network algorithm presented in this study sets a new benchmark for stress detection, offering an innovative, non-invasive, and highly accurate method that can be effectively used in clinical settings. Furthermore, this study emphasizes the potential for practical applications of this model in real-world stress management and healthcare. By integrating EEG-based stressdetection into wearable devices, individuals could receive real-time feedback on their stress levels, allowing for timely

intervention and self-regulation strategies. By setting a new standard in the field, this study broadens the domain of stress research and interventionstrategies, opening the door for advancements in mental health monitoring and treatment. It is a valuable tool for both clinicians and individuals seeking to manage stress effectively in their daily lives.

Audience Take Away Notes

- Understand how real-time EEG-based stress detection can be integrated into predictivehealthcare, offering potential for continuous, non-invasive stress tracking in clinical andpersonal health applications, along with potential integration with wearable devices andneuroadaptive feedback systems
- **Advanced EEG signal processing:** Explore cutting-edge techniques in EEG signal preprocessing, including adaptive filtering, Independent Component Analysis (ICA) forartifact rejection, and wavelet-based feature extraction to isolate stress-related brainwavepatterns with precision
- **High-Dimensional Multi-Domain Feature Space Analysis:** Learn about the integration ofnon-linear features, including entropy measures and fractal dimensions, alongside traditionaltime-frequency domain features, their correlations and importance in classifying stressthrough EEG signals
- **Deep Neural Networks for Stress Detection:** Understand six-layer deep neural networkarchitecture and how specialized techniques along with optimization with hyperparametertuning enhance model performance
- **Model Generalization:** Discover methods to enhance model generalizability, reduceoverfitting, improve performance over traditional models like KNN, SVM, Random Forest
- **Ablation Study Insights:** Ablation studies help identify the most critical EEG frequencybands and neural network layers, providing insights into how specific data inputs contributeto model performance, leading to optimized computational efficiency

Biography:

Prathyek Poojary is a passionate researcher focused on leveraging computational and machine learningtechniques to advance biomedical science. At the top of his 11th-grade class at North Mecklenburg HighSchool, Prathyek leads the Computer Science, Math, and DECA clubs as President and Founder, earning sevenawards in DECA competitions. Under mentorship from Oxford and Harvard Medical School researchers, Prathyekconducted extensive research on stress diagnosis using physiological signals and on inflammatory boweldisease, both in submission to conferences and journals. Ultimately, Prathyek aims to innovate healthcareby developing multimodal diagnostic and treatment algorithms in neuroscience and gastrointestinalmedicine.

Dr. Priyanka Gupta
University of Delhi, India, Residing in Seattle, Washington, USA

Shuten-dōji: The Japanese mythic unveiling of the psycho-socio-cultural consequences of substance dependence-abuse

In the mythical world of Japan, there once was an Oni (demon) named shuten-dōji, the Sake-drinking creature, a captive of the maidens. With mounting captives, minamoto no raikō, the hero was tasked with the downfall of the oni. Raikō and his companions camouflaged themselves as priests to trace and end the wrong-doings of the ogre responsible for feasting and enslaving young ingénues. On the way to shuten's habitat, they met with an old laundry woman who told them of the plight of these women and they got a plan in place. Cognizant of his achilles' heel, they treated shuten with Sake and under the influence, they could win over, free the captives as a result of his defeat. This mythic tale is a functional truth of the downside and realities of substance-dependence and abuse. Sake served as a poison exterminated the once powerful shuten, this myth gives access into the maladaptive-addictive consequences of substance overuse and its psycho-social-cultural decay. Through the jungian tool, archetypal amplification (an interdisciplinary approach to uncover the complexities of the fabric of the psyche through mythic expression) and reflections, the mythic tale of the inebriated demon is reviewed as a fresh perspective on the clinical-physiological framework of substance-dependence-abuse disorders. "for only through "amplification"—method of comparative morphological psychology, which interprets analogous material from the most varied spheres of religious history, archaeology, pre-historic studies, ethnology, and so on—can we reach an understanding of the archetypes and the individual symbols. However, the true object of our inquiry is the symbolic self-representation of the archetype that has passed through the medium of man, and that speaks to us from images fashioned sometimes unconsciously and sometimes consciously" (Neumann, 1991, p. 13). Anthropomorphizing the dynamics of alcoholism, this myth brings to light the psycho-social effects, conditions, symptomatology, comorbidity, interpersonal consequences, societal-community attitude and progression as well as stages of the disorder.

Audience Take Away Notes

- This research will help the audience understand how mythology is an expression of psycho-social-emotional human effects and conditions in relation to substance dependence-abuse disorders
- It will help them dive into a fresh perspective on the dynamics of alcoholism as a disorder through an interdisciplinary approach extended through the Jungian psychological understanding
- Faculties studying the traits of substance dependence-abuse disorders, treatment strategies, prevention approaches, reform interventions will get an interdisciplinary mythic-archaic and cultural standpoint into the aforementioned dimensions of the disorder
- A novel research design along with hermeneutic research tools would give a new dimension to the operational clinical psychological framework of substance dependence-abuse disorders

Biography

Priyanka Gupta is a PhD graduate in Psychology with a specialization in Jungian psychology and mythology from the University of Delhi, India (2023). Priyanka doctoral thesis explored the hero archetype, through the distinctive prism of Hindu and Native American mythology. As a researcher, Priyanka is captivated by the interplay of the meaning of symbols, life, and religions, drawing inspiration from the novel perspectives laid by prominent Jungian and Psychology thinkers. Beyond academia, Priyanka is a writing enthusiast and a painter.

Skokov Roman

Organisation Volzhsky Institute of Economics, Pedagogy and Law / Volzhsky, Volgograd region, Russian Federation

The research of the statistical relationship between the human development index and expenditures on addictive goods in European countries

The statistical research was conducted over 34 European countries: Belgium, Bulgaria, Czech Republic, Denmark, Germany, Estonia, Ireland, Greece, Spain, France, Croatia, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Hungary, the Netherlands, Austria, Poland, Portugal, Romania, Russia, Slovenia, Slovakia, Finland, Sweden, Great Britain, Iceland, Norway, Serbia, Malta, Bosnia and Herzegovina, and Northern Macedonia. Over the twelve-year period 2010-2021, the dynamics of Human Development Index (HDI) and the share of expenditures on the purchase of alcoholic beverages, tobacco products, and narcotic drugs in the structure of expenditures on household final consumption had been studied, the corresponding coefficients of determination and correlation had been calculated, trends in the share of expenditures and human development index, the direction and strength of the relationship between HDI and expenditures on alcoholic beverages, tobacco products and narcotic drugs had been determined. In general, during the analyzed period 2010-2021, the growth trend in the human development index had been determined in all countries (direct dependence). The uniformity of growth was somewhat disrupted only by the crisis phenomena in 2011, 2016, 2020 and 2021. The negative (inverse) relationship was revealed between expenditures on alcoholic beverages and HDI (with HDI growth, the expenditures on alcoholic beverages were decreased) in 15 countries (44%): Russia, Belgium, Bulgaria, Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Romania, Slovakia, Finland, Great Britain, Serbia, Bosnia and Herzegovina. 11 countries (73%) out of the 15 countries (44% of 34 countries) in which the share of expenditures on alcoholic beverages was decreasing with HDI growth, were in the group with relatively high share of expenditures on alcoholic beverages (located in the first half or close to it from 34 countries), and 10 countries (90.9%) of them were in the group with a relatively low HDI (located in the second half or close to it from 34 countries). The positive (direct) relationship was established between the share of expenditures on alcoholic beverages and HDI (with the growth of HDI, the share of expenditures on alcoholic beverages were growing) in 19 countries (56% of 34 countries): Denmark, Germany, Ireland, Greece, Spain, France, Croatia, Italy, Cyprus, Luxembourg, the Netherlands, Austria, Portugal, Slovenia, Sweden, Iceland, Norway, Malta, Northern Macedonia. 16 countries (84%) out of the 19 countries (56% of 34 countries), in which the share of expenditures on alcoholic beverages was increasing with the growth of HDI, were in the group with relatively low shares of expenditures on alcoholic beverages (located in the second half or close to it from 34 countries), and 12 countries (75%) of them were in the group with a relatively high HDI (located in the first half or close to it from 34 countries). The negative (inverse) relationship was established between the expenditures on tobacco products and HDI (with the growth of HDI, the expenditures on tobacco products were reducing) in 16 countries (53% of 30 countries): Bulgaria, Czech Republic, Denmark, Estonia, Ireland, Greece, Spain, Italy, Cyprus, Luxembourg, Portugal, Slovenia, Sweden, Great Britain, Iceland, Northern Macedonia. The positive (direct) relationship was established between the share of expenditures on tobacco products and HDI (with the growth of HDI, the share of expenditures on tobacco products was growing) in 14 countries (47% of 30 countries): Russia, Belgium, France, Croatia, Latvia, Lithuania, Hungary, Austria, Romania, Slovakia, Finland, Serbia, Malta, Bosnia and Herzegovina. 7 countries (50%) out of 14

countries (47% of 30 countries), in which the share of expenditures on tobacco products was increasing with HDI growth, were in the group with relatively low share of expenditures on tobacco products (located in the second half of the 30 countries), and 4 countries (57.1%) of them were in the group with a relatively high HDI (located in the first half of the 30 countries). The other 7 countries (50%) had some of the highest expenditures on purchase of tobacco products (located in the first half of the 30 countries), while 7 of them (100%) had relatively low HDI (located in the second half of the 30 countries). Based on the negative values of the correlation coefficient, the share of expenditures on narcotic drugs had a downward trend over the analyzed period in dynamics in 16 countries (61.5%) out of 26: Bulgaria, Czech Republic, Estonia, Ireland, Cyprus, Latvia, Lithuania, Luxembourg, Hungary, Austria, Romania, Slovenia, Slovakia, Great Britain, Iceland, Serbia. The share of the expenditures on narcotic drug was growing in 7 countries (27% of 26 countries): Greece, Spain, France, Croatia, Italy, Finland, and Northern Macedonia.

The share of expenditure on narcotic drugs did not change in dynamics in 3 countries (11.5%): Belgium (0.3%), Portugal (0.1%), Sweden (0.1%). The negative (inverse) relationship between expenditures on narcotic drugs and HDI was established (with HDI growth, the expenditures on narcotic drugs were reducing) in 16 countries (61.5%): Bulgaria, Czech Republic, Estonia, Ireland, Cyprus, Latvia, Lithuania, Luxembourg, Hungary, Austria, Romania, Slovenia, Slovakia, Great Britain, Iceland, Serbia. 11 countries (68.8%) out of 16 countries (61.5% of 26 countries) in which the share of expenditures on narcotic drugs decreased with HDI growth, were in the group with relatively low share of drug expenditures (located in the second half of 26 countries) and 7 countries (63.6%) of them were in the group with a relatively low HDI (located in the second half of the 26 countries). The positive (direct) relationship was established between the share of expenditures on narcotic drugs and HDI (with the growth of HDI, the share of expenditures on narcotic drugs was growing in 7 countries (27% of 26 countries): Greece, Spain, France, Croatia, Italy, Finland, and Northern Macedonia. 4 countries (57.1%) out of 7 countries (27% of 26 countries) in which the share of expenditures on narcotic drugs increased with the growth of HDI, were in the group with relatively high share of expenditures on drugs (located in the first half of 26 countries), and 4 countries (100%) of them were in the group with a relatively low HDI (located in the second half of the 26 countries). 3 countries (100%) out of 3 countries (11.5% of 26 countries) in which there was no relationship between expenditures on narcotic drugs and HDI, were in the group with relatively low share of expenditures on narcotic drugs (located in the second half of 26 countries) and 2 countries (67%) of them were in the group with a relatively high HDI (located in the first half of 26 countries).

Audience Take Away Notes

- The audience will get acquainted with the developed and tested tools for methodological, analytical and predictive support of regulatory policy in countries. Based on a comparative analysis, public authorities will develop effective measures to reduce the consumption of addictive goods, the risks of noncommunicable diseases and mortality
- The research is caused by the need to overcome the population decline and improve education and life level of the population
- The research reveals how human development in European countries is changing under the influence of expenditures on the consumption of addictive goods and vice versa

Biography

In 2005, Skokov R.Yu. defended PhD thesis "Conditions and mechanism of effective functioning of enterprises in the liquor industry", and in 2018 doctoral thesis "State regulation of markets for addictive goods: concept, evolution, improvement". Skokov is the developer of a holistic economic theory of markets for addictive goods that cause pathological dependence in consumers, the object structure of which is represented by alcohol, tobacco, electronic cigarettes, energy drinks, drugs, gambling, video games, social networks. While doing research Skokov carried out an interdisciplinary synthesis of economic knowledge with sociology, psychology, addictology and narcology. Skokov also developed the concept of behavioral design. The development and implementation of these scientific directions in

practice by Skokov R.Yu. have become the key to the research of cyberphysical systems, neurocomputer interface, the development of which leads to the formation of the next generation of a wide range of new products and needs. In 2024 the Resource Centre of information security and digital literacy for children was opened on the basis of the Volzhsky Institute of Economics, Pedagogy and Law under the leadership. Skokov is the author of 200 scientific publications.

Prof (Dr). Ramesh Nagarajappa
Department of Public Health Dentistry, The Oxford Dental College, Bengaluru, Karnataka, India

Upshots of binge-watching behaviour among the college students

Binge-watching is the act of watching entertainment or informational content for a prolonged period. Research shows that watching consecutive episodes of our favourite show may excite our brain, and subsequently, displace activities such as sleeping, exercising, and even housework and personal upkeep. Squeezing in just one more episode can make us stay awake until late at night, leaving us feeling tired and drained the next day.

Considering the chosen target group as university students, it is assumed that their academic education is a central aspect of their normal lives. Indeed, there is some evidence that suggests that prolonged binge-watching can lead to addictive characteristics and can have a negative influence on academic achievements and the time and effort students spend on learning. The type of instant gratification that it produces can be similar to that of gambling or computer/social media addiction.

Attributable to these outcomes, different methodologies can be planned to overcome the suffering from binge-watching. Technological solutions such as screen time limitations, parental controls, and educational programs promoting media literacy and responsible digital consumption emerge as potential coping mechanisms.

Keywords: Addiction, Binge-Watching, Internet Addiction Disorder.

Audience Take Away Notes

- Over time, this behaviour of binge-watching might hurt our well-being in numerous ways; such as decreased physical inactivity, sleep problems and fatigue, blood clots, heart problems, poor diet, social isolation, behavioral addiction, and cognitive decline
- The results reinforce previous findings regarding the detrimental effects of excessive media consumption on mental well-being and emphasize the need for proactive measures to address this issue

Biography

Prof (Dr). Ramesh Nagarajappa graduated from the prestigious Bapuji Dental College and Hospital in Davangere, India in 1999. Nagarajappa is presently working as a Vice Principal, Professor, and Head, in the Department of Public Health Dentistry affiliated to Rajiv Gandhi University of Health Sciences, at Bengaluru in India. Nagarajappa has a post-graduation teaching experience of over 24 years and has guided both PhD and MDS students. Nagarajappa has also authored 156 publications in various international and national reputed journals and been a regular reviewer too in many journals. Also has experience in delivering scientific presentations and chairing scientific sessions at various conferences.

Rayhan Shahid Shanavas[1,2*], Ridah Shaista Shanavas[2], Ravindra Kanchi[3], Veeresh Pratap[4]

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Comparative efficacy of typical and atypical antidepressants with olanzapine in acute and chronic models of depression

Depression is a chronic disease afflicting ~245 million individuals worldwide, of which 30-40% patients remain dissatisfied despite 70 years of research, >5 antidepressant drug classes, and 3 trillion healthcare-budget. Fluoxetine, an SSRI alone and with Olanzapine, is the first-line therapy but patient profile, poor efficacy, and tachyphylaxis, apart from tolerability, many times warrant switching/starting to/with other drug classes and augmentation therapies. However, there are no head-to-head preclinical/clinical studies within and across drug classes unequivocally supporting prescription changes. This study in immobilized and dark cycle-induced acute and chronic SD rat models of depression was conducted to assess if Fluoxetine/Olanzapine efficacy is a class effect. The Forced Swimming Test (FST) conducted in acute and chronic models treated with typical antidepressants (SSRI-Fluoxetine, SNRI-Duloxetine, TCA-Amitriptyline) or atypical antidepressants (Bupropion) alone and in combination with Olanzapine indicated that all drugs showed statistically significant antidepressant effect and that synergistic efficacy seen with Fluoxetine/Olanzapine is not a class effect and other drugs, except Bupropion, can also yield similar efficacy. Additionally, Amitriptyline showed the highest Anhedonia reversal effects, as assessed by the Sucrose Preference Test (SPT). These insights could help physicians augment the primary drug chosen based on patient disease/risk profile and preference with Olanzapine rather than switching to SSRI to attain Olanzapine effects through the only FDA-approved combination. The data also equips physicians to choose alternate drug classes during tachyphylaxis with SSRIs and lastly positions Amitriptyline as an additional anhedonia reversal drug for patients without cardiovascular risk factors.

Audience Take Away Notes

- Patients are increasingly taking charge of their health and expect data driven conversations with physicians on their prescriptions and this study outcomes equip physicians both in regulated and developing markets
- Slow onset of action combined with titration and efficacy/tolerability concerns, 30-40% of patients are dissatisfied with their first line antidepressant. This data is expected to accelerate the switching or augmentation therapies thereby combatting compliance
- Uniquely the data identifies Amitriptyline as a superior drug for anhedonia again helping physicians make the choice for their niche segment of severe anhedonia patients
- Help transition from hit and trial AE driven therapeutic regimen to ‘right drug for right patient’ yielding better efficacy and thus delay/prevent TRD

Biography

Rayhan S. Shanavas is a senior at Oakridge International School, UNICEF Ambassador of his school, and the co-founder of The Synapse Foundation. He is committed to building a more equitable society by understanding healthcare disparities and innovating with other change leaders. He has conducted primary market research and extensive literature analysis on antidepressants and their uses, especially among women and adolescents, in the real-world setting. He has undertaken this independent research under the mentorship of senior co-authors and driven the program from conceptualization to analyzing and interpreting the data and its potential for patients and prescribing physicians globally.

Richard Dembo[1]* Ph.D, Kerry Bittrich[2] BA

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Health coach project: Innovative services for justice involved youth

We present the background, formulation, and implementation of an innovative health service at the front end of the juvenile justice system serving the serious, growing public health service needs of justice involved youth-who bear a high burden of STD/HIV and other health problems. Involving multi-agency collaboration, especially the Florida department of health, the health coach service seeks to address the youth health needs through health risk assessment and biological testing-with indicated follow-up testing, prevention, and neighborhood based treatment services. Through continuous monitoring of the health coach service, we will be equipped to assess its feasibility, efficacy, and its real-world effectiveness and utility as a health-risk detection, prevention, and treatment paradigm.

Audience Take Away Notes

- Learn how to implement a similar service in their own communities
- More directly identify and respond to the public health issues of justice involved youth
- Provide an innovative solution to a significant problem that could simplify or make a designer's job more efficient
- Provide new information to assist in designing improved and more efficient public health services to seriously underserved youth

Biography

Richard Dembo, Ph.D. is a Professor of Criminology at the University of South Florida in Tampa. Richard is also an American Association for the Advancement of Science (AAAS) Fellow who has a long-term interest in developing, implementing, and evaluating intervention programs for at-risk and high-risk youth and had a major role in developing the Health Coach Service and its MIS.

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Seruminterleukins- 2,6 and tumor necrosis factor -alpha levels in children with attention deficit hyperactivity disorder

Background: ADHD is a behavioural disorder with symptoms of inattention, impulsivity and hyperactivity. A low dopaminergic and noradrenergic activity is noted in ADHD. The etiopathogenesis is not completely understood. A physiological role of IL-6 on neuronal stem cell migration, proliferation and synaptic plasticity is noted. An increase in levels of IL-6 may modify the neural connections of developing brain thus affecting the memory and attention. This variation in the normal brain development and function may play a role in the pathogenesis of ADHD.

Methods: A cross-sectional study conducted among 30 patients already diagnosed with ADHD against age and sex matched controls, coming to OPD in a tertiary care hospital. Levels of Inflammatory markers are tested using sandwich ELISA technique. A predesigned and pretested questionnaire conner's 3 parent short was administered to assess the severity of symptoms of ADHD and comparison of the variables were analysed using Independent t test and ANOVA(for more than two groups).The comparison of the variables which were qualitative in nature were analysed using Fisher's exact test & Pearson correlation coefficient was used for correlation.

Biography
Dr. Rishabh is a doctor of Medicine (Paediatrics) program at Guru Gobind Singh Indraprastha University, Delhi and graduated as MBBS in 2018. Dr. Rishabhjoined as a senior resident in VMMC and Safdarjang Hospital, Delhi.

Robert DeLetis CADC II

Director of ERP Therapy Innovative Treatments, LLC 1115 Crestworth Crossing Powder Springs, Georgia 30127, United States

Treating the triggers: The effects of exposure response prevention on reducing addictive cravings

Exposure response prevention is a behavior therapy technology that reduces a person's pre-disposition to respond to a set of stimuli. For example, ERP has been used to treat phobias and compulsions by exposing the person to the phobic situation or thing (stimuli set) and then preventing them from executing their dysfunctional response.

This technology to the many forms of addictions like (alcohol, cocaine, crack, marijuana, heroin, nicotine, sex, gambling, self-injurious behaviors & pills). One of the key hurdles a person must overcome is to remain substance free is to refrain from using when exposed to stimuli (people, places, & things) formerly conditioned to their substance abuse. Failure to behaviorally ignore such conditioned stimuli is the primary cause of relapse among substance abusers. The range of stimuli conditioned as triggers of substance abuse is varied and individualized. There are, however, common triggers. These are the sensory stimuli associated with the substance of choice, it acquisition and preparation for use. Secondly, there is the typical use setting, such as bars, time of day or special event. Finally emotional stressors while more individualized are another frequent trigger.

ERP is a new therapy that treats the triggers & can help people recover from drug and alcohol abuse when intelligently combined with other forms of treatment.

ERP Therapy helps a client extinguish his substance seeking behavior & impulses by systematically exposing them, in a controlled environment, to a sampling of the three sets of stimuli. It also reconditions the client's cognitive self-talk over a period of sessions. ERP is an eclectic therapy that is another piece of the recovery process. It is compatible with community support groups like AA, NA, etc.

Biography

Robert DeLetis, Director of ERP Therapy for the past 30 years. Mr. DeLetis is an international and nationally certified alcohol and drug counselor. Mr. DeLetis is also the co-author of Kill the Craving, a book that introduces Exposure Response Prevention (ERP) to professionals and their clients who want a new and innovate way to deal with their addiction. Mr. DeLetis, the co-creator of ERP for substance abuse treatment has been utilizing this process to help the residential and outpatient clients to fight their addictions for the past 28 years. Over the years Mr. DeLetis has been employed in the criminal justice field, as a probation officer, and as a mental health worker

Sam Louie MA, LMHC, CSAT
Private Practice, United States

Passport to shame: From Asian immigrant to American addict

This presentation covers the intersection of addiction, recovery, immigrant and Asian experiences as well as the broader themes of minority mental health and assimilating into American culture as an ethnic minority.

Sam Louie grew up torn between cultures as part of a first-generation Chinese immigrant family living in a predominantly African American neighborhood in the United States. He experienced the duality of existence with the tension of two vastly different worldviews, his identity intertwined with the country he lives in and his ancestral ties. What traditions and cultural beliefs get preserved, what gets discarded, and what gets lost in translation? beneath it all was the presence of three generations of addiction, trauma, and shame.

In this bold and vulnerable presentation, he documents the challenges of immigrant experiences and how maladaptive coping mechanisms in the form of compulsive behaviors were a means to gain a sense of adequacy due to the cultural tide of shame and ostracism within his own ethnic heritage and the external world.

Louie's journey of resiliency in navigating multiple cultural forces in the face of adversity and racism can give readers a new understanding of hope, perseverance, and the resources necessary to heal.

Audience Take Away Notes

- Understand the cultural tension facing immigrants from collectivist cultures in an individualistic American society
- Learn how Asian honor/shame can impact addictions
- Recognize what role therapy can play as a healing agent in collectivist cultures
- Develop new resources to help ethnic clients in their healing
- See how behavioral addictions such as porn/sex can be used to mask internal struggles

Biography

Sam Louie has a private practice near Seattle specializing in Asian cultural issues, trauma, and addictions. Sam has a master's degree in clinical psychology and also is a Certified Sex Addiction Therapist (CSAT). Sam is also an Emmy Award-Winning former television news reporter. In twelve years as a journalist, Sam garnered two Emmy Awards in Los Angeles. Sam has also self-published, Spoken not Broken: Healing through Poetry, a poetry book which covers themes related to Asian shame, addictions, and spiritual growth.

Sandra M. Estes[1]* EdD, RN; Graham J. McDougall[2] PhD, RN, FAAN, FGSA; Lori L. Davis[3,4,5] MD; Charlotte K. Cease[5] MA; Marietta P. Stanton[6] PhD, RN, FAAN

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Prescription stimulant use and misuse among nursing students: A survey study

Background: Substance Use Disorder (SUD) continues to be a serious public health burden associated with increased morbidity and mortality. Prevalence of prescription stimulant misuse ranges from 8% to 10.4% in the nursing student population. This study was designed to address the gap in knowledge regarding prescription stimulant misuse specifically among nursing students, which is abysmally deficient.

Objective: This study had three aims: (a) to identify the use and misuse of prescription stimulants; (b) to investigate if relations exist between particular variables and stimulant use; and (c) to determine motives for stimulant use.

Methods: An anonymous internet survey was emailed to members of a state nursing student organization inquiring about use of prescription stimulants.

Results:

a) Of the 88 respondents, 55.7% reported no use, 13.6% reported appropriate use of prescribed stimulants, 11.4% reported misuse of prescribed stimulants and 19.3% reported nonmedical prescription use. The majority of participants were female, and the group was well represented across races with a majority being caucasian followed by African-American, and Asian/Pacific Islander. The majority of students were sophomores followed by juniors, seniors, freshman and post-baccalaureate students. Most participants reported never using prescription stimulants, followed by nonmedical prescription use, appropriate use of prescription medication, then prescription stimulant misuse.

b) There was a statistically significant difference in grade point averages (F (3, 87) =2.93, p=.038). We found those who used prescription stimulants appropriately had higher GPAs than nonmedical prescription use. Although students misuse prescription stimulants with the intension of making them more competitive or improving GPAs, they, in fact have negative impacts on their academic standings. Indications are that the prescription medication, when used appropriately, does not give students an academic advantage over those that don't use it at all. We found statistically significant differences in membership in Panhellenic society (2 (1, n=29) =4.93, p=.026). When any misuse was separate into prescription misuse and nonmedical prescription use, the self-report rate for this study was 14.8% prescription misuse and 30.7% nonmedical prescription use. We found statistically significant differences in employment status (2(1, n=29) =5.15,

p=.023) between groups with appropriate use and nonmedical prescription use.

c) Nursing students had similar motivations to findings in other studies such as to: increase energy following a late night of activities, study longer, and increase their academic edge against the competition.

Conclusion: This study contributes unique knowledge to the evolving literature regarding substance use and abuse in the nursing student population. The education of nursing students might include awareness of their vulnerabilities, recognition, and actions for individuals suspected of stimulant misuse.

Biography

Dr. Estes practiced nursing in the areas of critical care, medical/surgical nursing, emergency, brain injury, mental health and research specialties. Following years of clinical nursing and research collaborations with Dr. Lori Davis, Dr. Estes earned graduate degrees in Nursing and Education (Ed.D.) specializing in Instructional Leadership at The University of Alabama. Estes dissertation research on stimulant use among nursing students was groundbreaking and innovative. Estes has been an award-winning nurse educator since 2006 and was promoted to Clinical Assistant Professor in 2021. Estes has published manuscripts in peer reviewed journals and delivered podium presentations at many professional conferences.

Santhosh Kumar J[1]*, Dr. Anila K P[2], Dr. Bindu Menon[3], Aparna T S[4], Arya Jayaprakash[4], Bhagyalakshmi Anish[4], Bibina Prakash[4]

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Mindfulness based therapeutic milieu intervention on patient safety culture among inpatient psychiatric settings in India

Patient safety has become a matter of global public health concern, and this problem has also become a fundamental issue of health care. The hospital is a place to provide round the clock treatment to patients. However, at the present time hospitals create life-threatening as well as fatal conditions for patients.

In recent years, there has been a growing recognition of the importance of patient safety culture within psychiatric settings, particularly in the context of inpatient care. In India, where mental health care infrastructure and resources may be limited, it is crucial to explore innovative approaches to enhance patient safety while promoting holistic well-being. One such promising approach is the integration of Mindfulness-Based Therapeutic Milieu Intervention (MBTMI) into inpatient psychiatric settings.

Mindfulness, rooted in ancient contemplative practices, has gained significant attention in mental health care for its potential to cultivate present-moment awareness, non-judgmental acceptance, and emotional regulation. In the context of psychiatric care, mindfulness offers a unique opportunity to create a therapeutic environment that not only ensures patient safety but also fosters healing, resilience, and empowerment.

Benefits of MBTMI:

- **Improved patient safety culture:** By fostering mindfulness and self-awareness, MBTMI enhances patient safety culture within psychiatric settings, reducing the risk of adverse events, self-harm, and aggression.
- **Enhanced staff well-being:** Mindfulness practices not only benefit patients but also support the well-being of psychiatric staff by reducing burnout, compassion fatigue, and workplace stress.
- **Holistic approach to care:** MBTMI promotes a holistic approach to psychiatric care that addresses the underlying psychological, emotional, and relational factors contributing to patient safety concerns.
- In conclusion, the integration of mindfulness-based therapeutic milieu intervention offers a promising avenue for enhancing patient safety culture within inpatient psychiatric settings in India. By cultivating mindfulness, compassion, and collaboration, MBTMI not only mitigates immediate safety risks but also promotes healing, recovery, and well-being for patients and staff alike. As mental health care continues to evolve, MBTMI represents a compassionate and effective approach to creating safer, more supportive environments for individuals experiencing psychiatric distress.

Audience Take Away Notes

- Mindfulness based therapeutic milieu interventions incorporate mindfulness practices into the therapeutic environment of psychiatric units to enhance patient safety culture
- Provide comprehensive training for mental health professionals, including psychiatrists, nurses, psychologists, and social workers, in mindfulness techniques foster a culture of compassion, empathy, and non-reactivity, promoting safer interactions with patients
- Patients are empowered through mindfulness practices to develop self-awareness, emotional regulation skills, and coping strategies, contributing to their safety and well-being
- Mindfulness based therapeutic milieu interventions are culturally sensitive, respecting and incorporating diverse cultural backgrounds and beliefs of patients
- Mindful communication between mental health professionals and patients fosters trust, understanding, and effective resolution of conflicts, enhancing overall safety culture
- Mindfulness based therapeutic milieu interventions promotes collaborative decision-making and goal setting between patients and mental health professionals, ensuring patient safety concerns are addressed effectively
- Rigorous evaluation of Mindfulness based therapeutic milieu interventions outcomes provides evidence for its effectiveness in improving patient safety culture within inpatient psychiatric settings

Biography

Mr. Santhosh Kumar J currently serves as Associate Professor in the Department of Mental Health Nursing, Amrita College of Nursing, Amrita Vishwa Vidyapeetham Health Sciences Campus, Kochi, Kerala, India and completed B.Sc Nursing in 2011 and M.Sc Psychiatric Nursing in the year of 2014, Currently Santhosh is pursuing PhD Nursing in Vinayaka Mission's Research Foundation, Tamil Nadu, India. Santhosh is also a MiCBT therapist at MiCBT Institute, Australia. Santhosh is a Life member of TNNMC, TNAI, ISPN, NSRI, NTA, InSc, RIF and AMCO. Mr. Santhosh Kumar J has been actively involved in national and international Multidisciplinary research projects and a Resource person and organizing secretary in various National and International conferences. Santhosh has authored and published Research papers in different National and International Journals. Santhosh is a psychiatric nurse with experience in patient care, research, teaching and specializes in using BMS and Mindfulness-integrated Cognitive Behaviour Therapy (MiCBT), a grounded, compassionate, and effective skill-based treatment approach.

Sara Mohamed Alzarooni
Ministry of interior, Sharjah Police, Sharjah, UAE

The future of drugs, addiction and rehabs

In our presentation, we embark on a journey into the future of addiction, drug control, and drug rehabilitation, exploring the pressing questions that will shape our approach to these critical issues. We delve into the evolving landscape of substance abuse, envisioning what drugs might look like in the years to come. From synthetic compounds to technologically-enhanced highs, we explore the potential forms of addiction that may emerge, shedding light on the complexities of future challenges.

Central to our discussion is the examination of the mechanisms driving the promotion and distribution of drugs in the future. We dissect the intricate interplay of social dynamics, technological advancements, and economic incentives that fuel the proliferation of substance abuse. By understanding these underlying mechanisms, we can better anticipate and combat the relentless onslaught of drug promotion in the digital age.

Moreover, we scrutinize the evolving landscape of drug control mechanisms, contemplating how law enforcement, regulatory bodies, and international cooperation can adapt to confront emerging challenges. From AI-driven surveillance to cross-border collaboration, we explore innovative strategies for curbing the illicit drug trade and safeguarding communities against its deleterious effects.

In parallel, we investigate the diverse methods of prevention aimed at stemming the tide of addiction before it takes hold. Through targeted education initiatives, community-based interventions, and policy reforms, we seek to empower individuals and communities with the knowledge and resources to resist the allure of substance abuse.

Finally, we turn our attention to the critical issue of addiction treatment, exploring the myriad ways in which individuals can find hope and healing on the path to recovery. From pharmacotherapy to psychotherapy, from holistic wellness programs to cutting-edge neurobiological interventions, we explore the multifaceted approaches to addiction treatment that hold promise for the future.

Through this comprehensive exploration, we aim to equip our audience with the insights and tools necessary to navigate the complex landscape of addiction, drug control, and rehabilitation in the years ahead. Together, let us envision a future where substance abuse is mitigated, communities are empowered, and individuals find the support they need to thrive.

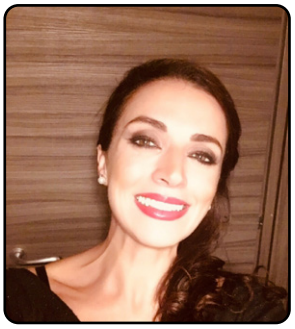
Audience Take Away Notes

- The presentation equips the audience with insights and strategies to address the future of addiction, drug control, and rehabilitation. Policymakers can develop evidence-based policies, educators can enhance prevention efforts, law enforcement can adapt enforcement strategies, healthcare providers can improve treatment modalities, and individuals and families can find resources and support. By collaborating and leveraging evidence-based approaches, stakeholders can foster healthier communities

- This presentation equips attendees with targeted insights and actionable strategies relevant to their roles. Policymakers learn to craft evidence-based policies, law enforcement adapts with innovative enforcement techniques, healthcare providers refine treatment methods, educators strengthen prevention efforts, and individuals/families find vital resources. Overall, participants emerge better prepared to navigate the multifaceted challenges of addiction, drug control, and rehabilitation in their professional capacities
- This presentation offers valuable insights and information that can improve the accuracy of design and assist in addressing design problems across various fields such as public health, law enforcement, healthcare, education, and community development. Attendees gain tailored strategies relevant to their roles, empowering them to design more effective interventions, policies, and programs to tackle addiction, drug control, and rehabilitation challenges

Biography

Sara Alzarooni is a first lieutenant Pharmacist specializing in Rehab Center and Forensic Lab in UAE, graduated from Higher Colleges of pharmacy in UAE as a pharmacist in 2013. Then Sara completed Msc in leadership and innovation in healthcare from Royal Colleges of Surgeons in Ireland. Sara is now a Doctorat student in Derby unviersity in UK and has rich skill set including Foresight, Innovation Management, Strategic Management also spearheads future foresight initiatives and raises health awareness in the community. Sara is a member of the Future Readiness Team and the Future Foresight Team in Sharjah Police. Sara came with an innovative idea about a smart watch that will help patients to be followed up remotely. Sara was a winner of an award called 40 leaders under 40 years from IACP.



Scuto M[1*], Trovato Salinaro A[1], Maiolino L[2], Calabrese V[1]

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Hormetic nutrition with medicinal mushrooms in neurodegeneration: Redoxomics and metabolomics approaches from bench to clinic

Hormetic nutrition for enhancing stress resilience and overall human health, recently, have received much attention. Redoxomics has been successfully applied to study neurodegeneration of ganglion neurons of the inner ear for the identification of potential biomarkers and novel mechanisms of Meniere's Disease (MD) neurodegeneration and the assessment of treatment prognosis and outcome. The identification and quantification of diverse lipidic species in human urine by innovative mass spectrometry platforms is of considerable importance to study redox metabolic homeostasis in normal and pathofisiological conditions.

To date, the cause of Meniere's disease remains substantially unknown, despite many study reports indicate idiopathic endolymphatic hydrops as the main pathophysiological event, and increasing evidence suggests that oxidative stress and neuroinflammation are central to the development of endolymphatic hydrops and consequent vestibular otholitic degeneration and crisis. Emerging evidence indicate that hormetic nutrients including mushrooms supplementation targeting Nrf2 pathway and stress resilience vitagenes have shown to improve neurotoxic insults and mitochondrial dysfunction thus inhibiting oxidative stress and neuroinflammation that trigger neurosensorial degeneration of spiral ganglion cells. In this study we showed increased levels of carbonyls, HNE and pro-inflammatory NF-kB pathway as well as reduced mitochondrial complex activities in MD patients with respect to MD plus Coriolus treated group for 6 months. According to hormesis, supplementation by mushrooms exhibits biphasic dose-response effects by upregulating at low dose the expression of HO-1, Hsp70, Sirt1, Y-GCs and Trx ($P<0.05$) in lymphocytes of MD patients as compared to untreated MD patients and by a significant increase in the plasma ratio reduced Glutathione (GSH) vs oxidized Glutathione (GSSG) ($P<0.05$) as measure of antioxidant status to oxidative stress. Lipidomics showed a significant increase of bioactive eicosanoid lipoxin A4 in lymphocytes, plasma and urine of MD patients compared to controls as well as a significant reduction of pro-inflammatory eicosanoid F2-isoprostanes. Metabolomics approach and results will be also discussed. In conclusion, hormetic nutrients including Coriolus versicolor biomass supplementation targeting vitagenes could be considered a promising nutritional approach in healthy aging medicine and anti-neurodegenerative therapeutics for neuroprotection in order to prevent or inhibit neuroinflammation releated to oxidative stress-induced neurodegeneration of vulnerable ganglion neurons in MD patients and high risk of developing sensorineural hearing loss.

Biography

Dr. Maria Scuto is a researcher in Clinical Biochemistry and Clinical Molecular Biology for the Degrees Courses in Biomedical Laboratory Techniques and in Chemistry and Pharmaceutical Technologies and in the Specialization in Clinical Pathology and Clinical Biochemistry. On October 13th 2010 Dr. Maria is graduated in Cellular and Molecular Biology at University of Catania. On February 13th 2015 Dr. Maria received the PhD in Neurobiology at the University of Catania discussing a thesis entitled "Mitochondrial biogenesis, misfolding and cellular stress response in aging and in neurodegenerative disorders: proteomic approach". From 2017 to 2019 Dr. Maria was the holder of a research grant

disciplinary scientific sector Clinical Biochemistry and Clinical Molecular Biology (Bio/12) on the project: "Regulation of MiRNA, neuroinflammation, response to stress in neurodegeneration: from basic research to the clinic", University of Catania. From 2019 to 2022 as a post-doc, Dr. Maria carried out diagnostic assistance research at the Oncological Reference Center (CRO), National Cancer Institute-IRCCS, in Aviano. Since 2021 Dr. Maria is specialized in Clinical Pathology and Clinical Biochemistry. In 2022 worked as a Tutor sector BIO/12 in the Degree Course of Human Nutrition Sciences at the San Raffaele Telematic University, Rome. From 2020 Dr. Maria is qualified in sector Clinical Biochemistry and Clinical Molecular Biology. Since 2011 actively collaborated at the Department of Biomedical and Biotechnological Sciences, University of Catania. The quality and productive results of the work carried out by Dr. Scuto are evidenced by numerous scientific publications in prestigious International Journals. Furthermore, collaborated in multiple teaching activities and as co-tutor for graduate students of the Degree Courses in Biotechnology, Biological Sciences and interns of the Degree Course in Medicine and Surgery. Dr. Maria is a member of the Editorial Board of several high peer-reviewed journals including: Clinical and Community Medicine, Current Research in Food Technology and Nutritional Sciences, International Journal of Molecular Sciences, and International Journal of Pharmaceutical Sciences and Clinical Pharmacy. Dr. Maria research focuses on the role of Oxidative stress, Cellular Resilience and Nutraceuticals in the human diet targeting antioxidant pathways and to develop novel preventive and therapeutic strategies that have a critical impact on treating human chronic diseases understanding how diet could cause or prevent them.

Shaivi Moparthi[1]*, Dr. Sonia Clayton[2], Dr. Dimpy Koul[3]

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[3]Anderson Cancer Center, United States

Gliosmart: A novel, non-invasive personalized treatment response for Glioblastoma Multiforme (GBM)

Glioblastoma Multiforme (GBM), a deadly brain cancer with a median survival of only 15-18 months, presents a significant hurdle for personalized treatment. Accounting for nearly half of primary central nervous system tumors, GBM is conventionally treated through surgical resection, radiation therapy, and Temozolomide (TMZ) chemotherapy. The MGMT gene's promoter methylation, observed in 40-60% of glioblastomas, enhances the TMZ response and serves as a prognostic biomarker. That is why the presence of MGMT promoter can be used to determine which treatment method to use for certain tumors, based on whether TMZ will be effective or not. However, the current gold-standard of genetic analysis to determine MGMT methylation status from surgical specimens is time consuming and may necessitate subsequent surgeries based on the results. This research introduces an innovative machine learning solution to streamline MGMT-status determination. Implemented using a convolutional neural network architecture for tumor-identification and predicting MGMT methylation, the model utilizes MRI brain scan images of GBM patients from The Cancer Imaging Archive-(TCIA) and genomic data from The Cancer Genome Atlas-(TCGA), achieving an impressive 96% accuracy. To further demonstrate clinical viability, I integrated the model with a web-application, "GlioSmart," enabling rapid MRI scan uploads and delivering MGMT status in less than 2 seconds. This novel breakthrough minimizes the need for invasive biopsies, significantly reducing time and cost.

Oncologists can leverage GlioSmart to recommend personalized treatment plans based on MGMT status. Beyond overcoming biopsy limitations, this innovative AI driven approach revolutionizes treatment decision making, offering more effective and personalized care for GBM patients.

Biography

Shaivi Moparthi is a passionate innovator and researcher with a deep interest in neuroscience and precision oncology. As a high school student, active member of the Society for Science Alumni and Sigma XI Scientific Research Honor Society. Shaivi has presented award- winning research at prestigious conferences, including Johns Hopkins, and is committed to promoting educational and health equity for underserved youth. Additionally, Shaivi is dedicated to community-led civic advocacy, volunteering with youth-led organizations to empower young voices and influence policymakers. Shaivi ultimate goal is to combine skills in research and public policy to advocate for sustainable development and equitable healthcare.

Sindhu Sriramoji-Virdi[1*], Rebecca Pollak[2], Jennifer Mulle[2], Miriam Bocarsly[1]

[1]Pharmacology Physiology and Neuroscience Department, Rutgers University, New Jersey Medical School, Newark, New Jersey, United States
[2]Center for Advanced Biotechnology and Medicine, Rutgers University, Piscataway, New Jersey, United States

Neurochemical and behavioral effects of olanzapine in a high-risk schizophrenia mouse model

Schizophrenia is a mental disorder affecting behavior, cognition, and emotion. While schizophrenia is characterized by the dysregulation of dopamine in the brain, specifically the striatum, its physiology is undetermined. Olanzapine, an atypical antipsychotic, is commonly prescribed to patients with schizophrenia. The 3q29 microdeletion presents a 40>fold increased risk of schizophrenia in humans, with symptoms including executive function deficits and psychosis. It has been modeled in a CRISPR mouse (3q29del). Mice with this deletion have reduced brain volume and several behavioral impediments including deficits in social interaction, cognition, and increased sensitivity to amphetamines. Utilizing fast scan cyclic voltammetry, 3q29del mice were compared to littermate controls for striatal dopamine levels differences. Mice were surgically implanted with osmotic pumps that delivered either olanzapine (8mg/24 h) or vehicle for 9 weeks. Levels of dopamine in 3q29del mice dorsal striatum were higher than controls and presented altered demands of the dopamine recycling players, including MAO-A, MAO-B, COMT, DAT, and aldehyde dehydrogenase 1. Furthermore, 3q29del mice showed a hypolocomotive phenotype. After chronic olanzapine treatment, dopamine levels, demands of the dopamine degrading enzymes (MAO-A, MAO-B, and COMT), and locomotion were restored to resemble littermate controls. Dopamine metabolism in the striatum and locomotion is varied in 3q29del mice compared to littermate controls. Dopamine levels, dopamine degrading enzymes and locomotion can be restored with chronic olanzapine treatment. Determining the effects of antipsychotic medications in animal models with a high-risk schizophrenia genetic variant ultimately may decrease the trial-and-error paradigm often used to prescribe medications to patients.

Audience Take Away Notes

- My presentation reignites the importance of studying the dopamine hypothesis in schizophrenia research and showcases a novel pipeline to study the disease
- My research utilizes the recently validated 3q29 microdeletion mouse which is a high-risk schizophrenia model that leads to a 40-fold increased chance of schizophrenia development in human patients
- The presentation shows how studying schizophrenia by its genetic background and drug interactions can be a viable research plan
- Scientists can begin conversations regarding neurobiology dependent on genetic models of schizophrenia and pharmaceutical compatibility
- Medical care providers can short list of medications that have higher chances of treating patients' conditions with more efficacy
- This research can model how to study other diseases where dopamine metabolism is dysfunctional such as OCD, addiction, and even Tourette's Syndrome

Biography

Sindhu Sriramoji-Virdi completed undergraduate degree at Rutgers University New Brunswick in Cell Biology and Neuroscience researching Alzheimer's Disease in the lab of Dr. Federico Sesti at Robert Wood Johnson Medical School. Sindhu then went on to work at Weinberg ALS Center at Thomas Jefferson University with Dr. Davide Trotti where Sindhu studied the role of C9orf72-ALS/FTD linked arginine -rich dipeptide repeat proteins in stress granule formation and earned master's degree in 2020. Currently a third year PhD candidate with a concentration in Neuroscience at New Jersey Medical School working under the guidance of Dr. Miriam Bocarsly.

Dr. Sindu Padmanabhan

PhD–Psychology Affiliated with Bharathiar University, Coimbatore, Tamil Nadu, India

Youth and addiction-understanding and addressing the crisis

Addiction among youth is a growing global concern, encompassing both substance and behavioral dependencies. This presentation delves into the multifaceted issue of youth addiction, exploring its causes, impacts, and effective interventions. By examining biological, psychological, and social risk factors, we uncover the complex nature of addiction and its profound effects on young individuals' physical, mental, and social well-being.

The presentation highlights various types of addictions prevalent among youth, including alcohol, drugs, internet, gaming, social media, and gambling. It emphasizes the critical signs and symptoms that signal addiction, aiming to equip parents, educators, and healthcare professionals with the knowledge to identify and address these issues early.

Prevention strategies, such as education programs, parental involvement, and community initiatives, are discussed to mitigate the onset of addiction. Furthermore, we explore treatment options and support systems, including counseling, medication-assisted treatment, and rehabilitation programs, tailored to youth needs.

A significant portion of the presentation is dedicated to the role of technology in combating youth addiction. Innovative solutions like AI therapy apps and online counseling services are examined for their potential to provide real-time support and monitoring.

By presenting global perspectives and successful case studies, we aim to foster an understanding of best practices and collaborative efforts needed to tackle this crisis. The presentation concludes with a call to action, urging policymakers, communities, and individuals to work together to create comprehensive strategies and support networks that address the unique challenges of youth addiction.

This comprehensive exploration of youth addiction provides valuable insights and practical solutions, emphasizing the need for early intervention, effective treatment, and continuous support to help young people lead healthy, fulfilling lives.

Audience Take Away Notes

- **Understanding different types of addiction affecting youth:** The audience will gain a comprehensive overview of the various substance and behavioral addictions that commonly impact young people
- **Identifying causes and risk factors:** Insight into the biological, psychological, and social factors that contribute to addiction, enabling better identification and prevention strategies
- **Recognizing signs and symptoms:** Practical knowledge on how to spot early signs of addiction, which is crucial for timely intervention and support
- **Effective prevention and treatment strategies**: Information on successful prevention programs and effective treatment models, including the role of technology in providing support

- **Global perspectives and case studies:** Exposure to international best practices and real-life case studies that illustrate successful interventions and recovery stories
- **Prevention and early intervention:** Educators, parents, and community leaders can implement learned prevention strategies to reduce the risk of addiction among youth
- **Enhanced identification:** Healthcare professionals and educators will be better equipped to recognize early signs of addiction and provide appropriate support and referrals
- **Informed policy and program development:** Policymakers and program developers can use the information to create or improve addiction prevention and treatment programs
- **Educators and school counselors:** Enhanced ability to identify at-risk students and implement school-based interventions
- **Healthcare professionals:** Improved diagnostic and treatment approaches tailored to young patients with addiction issues
- **Community and youth workers:** Effective engagement with at-risk youth through informed prevention programs and support networks
- **Policymakers:** Develop informed policies and funding allocations that address youth addiction comprehensively
- **Expanding research and teaching:** Faculty members in psychology, social work, and public health can use the research to expand their own studies or incorporate it into their curricula
- **Interdisciplinary applications:** Provides a foundation for interdisciplinary research projects and collaborations aimed at addressing youth addiction
- Practical Solutions for Designers and Program Developers
- **Simplifying prevention program design:** Provides clear, evidence-based strategies for designing effective prevention programs
- **Improving accuracy of interventions:** Offers data and case studies that can help refine intervention approaches and improve their effectiveness
- **Increased awareness:** Raising awareness about the severity and complexity of youth addiction among a broader audience
- **Encouraging collaboration:** Fostering partnerships between different stakeholders, including schools, healthcare providers, and community organizations
- **Providing hope and support:** Sharing success stories and effective treatment models can inspire hope and encourage those affected by addiction to seek help
- **Promoting use of technology:** Highlighting the role of AI and digital tools in addiction treatment can lead to innovative applications and solutions in the field
- This comprehensive learning approach will empower the audience with the knowledge and tools needed to effectively address and mitigate youth addiction in their respective roles and communities

Biography

Dr. Sindu is a multifaceted professional passionate about the human mind. As a psychologist and independent researcher, Sindhu excels in understanding human behavior, offering evidence-based therapy, and conducting innovative research. Sindhu's work, published in leading journals, has significantly advanced psychology. Dr. Sindu also serves as a peer reviewer and editor for prestigious publications, refining ideas and ensuring research quality. A skilled writer, Sindhu authors articles, essays, and books on psychology and well-being, making complex concepts accessible. Sindhu lifelong dedication to learning and mental health inspires and educates the community.

Sophie Sall[1,2*], Jack Korleski[2], Maya Johnson[1], Amanda Johnson[1,2], Bachchu Lal1, Katherine Luly3, Jordan Green3, John Laterra[1,2], Hernando Lopez-Bertoni[1,2]

[1]Hugo W. Moser Research Institute at Kennedy Krieger, 707 N. Broadway, Baltimore, MD, USA 21205

[2]Department of Neurology and Oncology, Johns Hopkins University School of Medicine, Baltimore, MD, USA 21205

[3]Department of Biomedical Engineering, Institute for NanoBioTechnology, and the Translational Tissue Engineering Center, Johns Hopkins University School of Medicine, Baltimore, MD, USA 21205

miR-590-3p delivery via nanoparticle technology inhibits recurrent GBM tumor growth by targeting multiple oncogenic nodes downstream of TGFBR2

Glioblastoma (GBM) is the most common central nervous system cancer diagnosed in adults. Heterogeneous and aggressive in nature, GBM is often found to resist Standard of Care (SOC) treatment and is almost guaranteed to recur. Upon recurrence, treatment options are very limited and ineffective. This study aimed to understand resistance mechanisms contributing to GBM recurrence and identify targetable molecular pathways amenable to therapeutic intervention. RNA sequencing obtained from recurrent GBM (rGBM) clinical specimens shows that the TGFBR2: SMAD2/3 pathway is upregulated in rGBM compared to non-tumour samples, and that high levels of TGFBR2 correlates with worse patient outcome and increased therapy resistance. Pharmacologically, this pathway can successfully be inhibited using ITD1, which has been found to not only decrease the expression of both TGFBR2 and pSMAD2, but also CSC markers, while simultaneously increasing the expression of lineage markers in multiple rGBM Patient-Derived Xenografts (PDX) cell lines. Additionally, in vitro, ITD1 can re-sensitize these cells to Temozolomide (TMZ), the SOC chemotherapy for GBM. Despite the clear in vitro efficacy of ITD1, the compound was ineffective in orthotopic rGBM mouse models. By combining bioinformatics and knowledge of the drugs' target molecular pathway, we identified miR-590-3p as a putative inhibitor of the TGFBR2: SMAD2/3 axis and hypothesized that it can target multiple downstream oncogenic nodes within the pathway. In vitro, miR-590-3p effectively reduces cell viability, the CSC phenotype, and re-sensitizes rGBM PDX cell lines to SOC. To deliver this in vivo, Poly(Beta-Amino Esters) (PBAE) based nanoparticle technology was used to package miR-590-3p, resulting in over 75% reduction in viable tumour volume concurrent with over 80% increase in the necrotic area of the tumour post treatment. Spatial transcriptomic analysis confirmed the reduction across the entire tumour area for 34/37 of the intended targets. These findings show that nanoparticle technology to deliver miRNAs to brain tumours can provide a novel way for safe and highly efficient targeting of oncogenic pathways to circumvent resistance when no options are available for these patients. The reach of this technology can be applied to all neurological diseases which find the delivery of small molecules to the brain a hinderance to disease treatment and research advancements. This research also highlights the importance of the TGFBR2: SMAD2/3 pathway in rGBM and the CSC phenotype, and that the continued development of targeting this pathway can provide safe and effective ways to treat this disease.

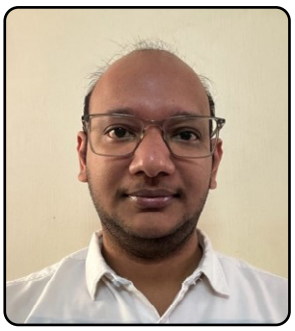
Audience Take Away Notes

- The development of this technology utilizing miRNA delivery via nanoparticles can be widely applicable to almost any area of research which aims to suppress a collection of genes downstream of an important disease-driving pathway. This specific manner of delivery is particularly useful for brain and CNS research due to its ability to cross the blood brain barrier and deliver to nervous system tissues, unlike over 95% of all small molecules. This method of disease targeting can also be used in

combination, utilizing multiple different miRNAs in a single delivery, allowing for a wider range of inhibition. This specific use of miRNA and nanoparticle technology to target rGBM in vivo demonstrates the importance of this oncogenic pathway in reference to this disease and provides a way to target the specific recurrent tumor which currently has no SOC protocol for treatment

Biography

Sophie Sall studied cellular and molecular biology at Towson University in Towson Maryland and graduated with a Bachelor of Science with honors in 2021. Since graduation Sophie has joined the Laterra Lab at Johns Hopkins School of Medicine and Kennedy Krieger Research Institute researching the molecular characteristics of glioblastoma and the driving forces behind treatment resistance, tumor recurrence, and the glioma stem cell phenotype under the supervision of Dr. Lopez-Bertoni and Dr. Laterra.



Sridhar Subramaniyam Kalyanasundaram1*, Ashalatha Radhakrishnan2, Ramshekhar N Menon[2]

[1]Resident, Department of Neurology, Sree Chitra Tirunal Institute of Medical science and Technology, India

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Seizure outcome in women of reproductive age after switching from valproate

Objective: We analysed seizure control in reproductive age group women on Valproic Acid (VPA) and studied the difference in seizure control between VPA maintenance and after changing to other Anti-Seizure Medications (ASMs), because of reproductive age group or impending pregnancy.

Methods: All Women with Epilepsy (WWE) from prospectively maintained Electronic Medical Records (EMR) from 2013 to 2022 were analysed. We included WWE in age group 18- 45 years, both primary generalised and focal epilepsy well controlled on VPA. We studied their clinical profile, ASMs use, seizure control while on VPA and after changing to other ASMs and adverse effect and pregnancy related complications.

Results: Totally 290 WWE were analysed. After excluding 221 due to various reasons, there were 69 WWE who were well controlled on VPA, enrolled in this study. Among 69 WWE well controlled on VPA, 28 (40.58%) had diagnosis of JME, 30 (43.47%) were having other subtypes of GGE, whereas 11 (15.9%) patient had focal onset epilepsy. Among these patients, 26 (37.68%) only needed VPA dose more than 800mg/d for their control of seizures, remaining majority of patients required less than 800mg/d of VPA. Also, VPA mono-therapy needed for about 21 (30.43%) with the mean dose of 660mg/d. Out of the 69 patients who were well controlled on VPA, 18 patients were switched to other ASMs. Among these Switch group (n= 18), 10 (55.55%) had lost their seizure control after switching from VPA. Among the patients who continued on VPA, teratogenicity occurred in 3 patients with the mean dose of 966mg/d.

Conclusion: Switching to alternative ASMs in WWE who are already well controlled on low dose VPA (<800mg/d) leads to poor seizure control which could be detrimental for both mother and fetus.

Audience Take Away Notes

- Importance of maintaining seizure control, whenever possible with low dose VPA, which is the drug of choice, especially in IGE subtypes
- IGE subtypes, requires mostly low dose VPA monotherapy for seizure control which can be safely continued during pregnancy
- Further studies to look into the aspect of losing seizure control and risk to growing fetus including IUGR, decreased placental flow affecting developing organs like brain, is needed

Biography

Dr. Sridhar completed MBBS from Madras Medical College, Chennai, Tamil Nadu (India) in 2013 and then joined Shyam Shah medical college, Rewa (MP) in 2017 for post gradualtion in General medicine. Currently joined in Sree Chitra Tirunal Institute of Medical Sciences and Technology (SCTIMST), Thiruvananthapuram (Kerala) for pursuing specialisation in Neurology.

Sruthi Degapudi*, P. Nithya, S. Ragul Sen, Santhosh Kumar, Rahul Gandhi, Nithyanandam. I, Aravind Gautham, Velusamy. S, M. Jawahar, Balasubramanian. S

Department of Neurology, Madras Medical College, Chennai, Tamil Nadu, India

Lymphomatosis cerebri mimicking CNS demyelination: Case series and literature review

Background: Lymphomatosis cerebri is a variant of primary central nervous system lymphoma that is characterized by diffuse infiltrates without a mass formation that is often seen. It poses a diagnostic challenge because the radiological findings are not typical for lymphoma.

Methods: We discuss three cases of Lymphomatosis cerebri and perform a literature review.

Results: The ages of the patients were 41, 42, and 48 years, respectively, of whom 2 were women (41, 42). All three of them had ataxia and diplopia at onset, and eventually progressed to have bulbar palsy with quadriplegia. One patient presented with cognitive impairment and seizures. The mean duration of illness was 2.5 months. One of them had a 12-year history of rheumatoid arthritis and was on weekly methotrexate. MRI Brain of all patients showed bilateral subcortical hyperintensities along white matter tracts extending into the brainstem showing patchy areas of diffusion restriction, and increased uptake on PET-CT. Demyelination was suspected and all of them received immunotherapy, either first or second line or both. One of them was treated with cyclophosphamide with transient improvement. Two of them succumbed to complications of prolonged ventilation and one remains in a minimally conscious state on ventilatory support. Biopsy may be challenging in such cases considering brainstem lesions and deep white matter lesions at the onset of illness. With clinical progression, surgically accessible brain lesions may appear, by which time significant clinical deterioration has already occurred. In our patients, this was the main limitation, and we were unable to perform a biopsy. However, an early diagnosis based on clinical features and specific radiological signs is likely possible, with reasonable exclusion of other differentials, consistent with previous reports.

Conclusion: It is often diagnosed as an inflammatory or demyelinating disorder contributing to the delay in initiating anticancer therapy. Rapid clinical progression, a lack of response to steroids, infiltrating lesions with diffusion restriction, and increased activity on PET are highly predictive of lymphoma.

Audience Take Away Notes

- To recognise red flags for demyelination
- Interpretation of radiological signs and common pitfalls in diagnosing Lymphomatosis cerebri
- A simplified algorithm to guide clinical judgment in suspected cases of CNS demyelination to rule out close differentials, i.e, vasculitis, infections and neoplasms

Biography

Dr. Sruthi. D is a Neurology resident training at Rajiv Gandhi Government General Hospital, Madras Medical College, Chennai, India. Dr. Sruthi is involved in ICMR funded research project "Fever, hyperglycaemia, swallowing and hypertension management in acute stroke: A cluster randomized controlled trial (Indian Quality Improvement in Stroke Care Study) FeSSH. Dr. Sruthi has a special interest in Autoimmune neurology and is currently performing research in the field of Autoimmune encephalitis.

Sujata Gokhale[1*], Sandhya Khasnis[2*]

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Impact of addiction abstinence facilitation program on adolescent girl students in India

Addiction is a global concern in both rich and economically disadvantaged nations. It has significant effects on public and personal health, mental well-being, and community dynamics. Adolescence is a critical period involving identity confusion increasing their vulnerability to substance or digital addiction. In this phase factors such as peer pressure, social norms, and cultural influences play a crucial role in shaping adolescents' perceptions about substance use or digital engagement. This study examines the impact of the addiction abstinence program "SAIYAM" (Self Awareness In Youth for Anti-addiction Motive) on adolescent girls in India (13 to 16 age). The program creates awareness about the prevention of and abstinence from substance abuse, media-internet addiction, and sexually risky behavior through self-control and self-regulation. This comprehensive program also involves two parent awareness sessions, considering their vital role in the upbringing of the children. Quasi-experimental pre-post-research design was used. The facilitation program included key topics, such as personality development, self-regulation, and abstinence from addiction which facilitate assertiveness, spread over 25 interactive and informative sessions including games, role plays, and songs to keep the students engaged. Three tests namely- My Knowledge My Health (MKMH), Myths and Misconceptions about Addiction Test (MMAT), and Emotional Regulation Test (ERT) were used. A sample of 1200 girls students from 8th and 9th grades residing in Pune city (India) was collected.

A significant difference in the pre-post scores on MKMH, MMAT, and ERT has been found. The results indicate a positive impact of the facilitation program on students' knowledge and attitude towards sexuality and gender concepts, addiction abstinence, and emotional regulation. At the post-test, a highly significant (.001) correlation between MKMH (My Knowledge My Health) and MMAT (Myths and Misconception about Addiction Test) is seen, however, a positive but non-significant correlation is seen with ERT (Emotional Regulation Test).

Awareness sessions were also conducted for their parents after some classroom sessions. Parents' feedback was collected to know about the children's impression of the program and their own perception about behavior change in their wards. The analysis of parents' feedback supports the quantitative findings.

Keywords: Addiction Abstinence, Facilitation, Awareness, Self-Control, Self-Regulation. Adolescent Girls.

Audience Take Away Notes

- The comprehensive program is more effective as it includes adolescent students and their parents. Along with addiction abstinence, the program also addresses the physical and psycho-social needs of adolescents. The program is disseminated and can be adopted according to the socio-cultural context

Biography

Sujata Gokhale Masters in Electronics (1986) and Masters in Management Science (1998). Sujata worked as a Technical Manager in Electronic Industry for 22 Years. Sujata's has PG Diploma in Counselling Psychology (2013) and worked as a counselor and facilitator. Masters in Psychology (2023). Sujata has been joined Jnana Prabodhini' Institute of Psychology as Project Coordinator "SAIYAM" in 2021.

Sandhya Khasnis Postgraduate in Engineering, worked as an Assistant professor for 10 years in polytechnic and Engineering colleges. Sandhya completed Post Graduate Diploma in Gifted Education and worked as a Talent Development program for Gifted students as a content developer and facilitator. Sandhya completed MA in Education and pursuing PhD in Education. Presently working as a project Assistant in the “SAIYAM” program since July 2021.

Thanompong Sathienluckana
Faculty of Pharmacy, Siam University, Bangkok, Thailand

Practical points of antipsychotics in substance-induced psychosis and schizophrenia: Similarities or differences?

Psychotic symptoms are the main symptoms in schizophrenia and substance-induced psychosis, which are treated by antipsychotic drugs. The main pathophysiology of psychotic symptom is overactivity of dopamine in mesolimbic tract that can be treated by the use of dopamine-2 receptor antagonist effect of antipsychotics. However, although antipsychotics are the mainstay of treatment for schizophrenia and substance-induced psychosis, concept and dosage regimen of antipsychotics in 2 conditions have different. Schizophrenia is a progressive neurodevelopmental disorder that characterized by chronic disease, therefore, long term treatment with antipsychotic is needed for prevent relapse and recurrent. For substance-induced psychosis which substances elevated dopamine level in mesolimbic tract, dopamine can gradually reduce when substance is discontinued. Therefore, antipsychotics could be used only short term or a specific period in substance-induced psychosis. However, pattern of antipsychotic use may vary with different substances. For stimulant-induced psychosis, antipsychotics generally show a good response and full effect within one week. Response degree of antipsychotics in stimulant-induced psychosis was higher than schizophrenia. Antipsychotics are recommended at a low dose and for short-term treatment, for example, continuing use for 2 weeks after psychotic symptom resolve. However, for cannabis-induced psychosis, evidence-based studies have found that the full effect of antipsychotics may be seen after a month. Therefore, antipsychotics for cannabis-induced psychosis often need to be used at higher dose and for a longer period than stimulant-induced psychosis.

Biography

Thanompong Sathienluckana, PharmD, Board Certified Pharmacotherapy (BCP), is a clinical pharmacy lecturer in the Faculty of Pharmacy, Siam University. Current position is Assistant Dean for academic service at Faculty of Pharmacy, Siam University and Academic chair of Pharmacotherapy council of Thailand. My area of interest is the pharmaceutical care in neurologic and psychiatric disorders. Thanompong also practice with multidisciplinary team at the Somdet Chaopraya Institute of Psychiatry, Bangkok, Thailand and graduated Pharm.D. degree at faculty of pharmacy, Srinakharinwirot University, Thailand in 2009. Then Thanompong graduated pharmacy residency program at The College of Pharmacotherapy of Thailand and received Board Certified Pharmacotherapy (BCP).

Thersilla Oberbarnscheidt MD, PHD
University of Pittsburgh, United States

No risk, no fun: Current trend and risks associated with delta-THC use

Cannabis and cannabis derivates are enjoying wide popularity in the U.S. While many developments came to a hold during the Covid-19 pandemic, the legalization of cannabis further progressed along with an expanding market for delta-THC.

Cannabis is federally a schedule 1 substance but hemp derivates are exempt from this law through the 2018 farm bill. The substances classified as hemp derivates include the delta-THC and CBD. Due to this legal loophole, they are easily accessible and sold at local convenience stores, gas stations or online. The sales of delta-THC in the last 2 years have exceeded over 2 billion dollars.

The most used delta-THC are delta-8-, 9- and 10-THC. Delta-THC's effects are similar to marijuana as they induce euphoria, feeling stoned and can cause anxiety and psychosis. The effects on cognitive alertness differ as Delta-8 -and 9-THC are sedating while Delta-10-THC is rather activating. Altered sense of time as well as short-term memory deficits and poor concentration are associated with any of the delta-THC. In addition, cardiovascular effects including tachycardia and hypertension have been reported.

Legally, the THC content of these substances is supposed to be less than 0.3% THC. The majority of delta-THC do not undergo any laboratory testing prior to marketing. Conducted tests of products have shown discrepancies with worrisome results with deviations from the claimed content on the label by up to 150%.

There is no standardized method established to synthesize delta-THC. Chemically, the delta-THC are molecularly close relatives. First, manufacturers must extract CBD from hemp and then convert it to psychoactive cannabinoids. For this chemical synthesis process, unsafe household chemicals are frequently used. Those potentially leave residual substances in the Delta-THC, so that the substance can contain toxic solvents, for example acetone, heavy metals, or lead. These toxic byproducts can lead to harm in the user and potentially cause lung damage if smoked or vaped.

Along with the increasing popularity of delta-THC, there are also increasing cases of toxicity being reported. During the time between january 2021 and february 2022, the DFA (U.S. Food and Drug Administration) reported over 2,300 calls to national poison control centers. Every third person who called poison control required a medical evaluation in a hospital setting, while one person required an inpatient admission. Due to these safety concerns, seventeen states have banned the sales of delta-8-THC while seven others have restrictions in place.

This presentation is a systematic review of literature discussing the available data on delta-THC for psychiatric and medical use. Utilized sources were pubmed, ovid, medline, psychInfo, EMBASE.

Biography

Thersilla Oberbarnscheidt is an Assistant Professor at the Western Psychiatric Hospital at the University of Pittsburgh where Thersilla also completed fellowship in Addiction Psychiatry. Thersilla completed residency at Central Michigan University in Psychiatry and graduated Medical School from the Christian-Albrechts University in Germany as well as Yale University School of Medicine and completed PhD in neuroscience at the Christian-Albrechts University as well with the thesis of "The effect of phenazone in the acute migraine attack". Thersilla has a long-standing interest in the field of Addiction and has published numerous articles in the field of Addiction. Thersilla particular interest is in Marijuana and Opioids.

Toru Kondo

Division of Stem Cell Biology, Institute for Genetic Medicine, Hokkaido University, Japan

Development of novel MIR-dependent genome-editing adeno-associated virus that selectively eradicates glioblastoma-initiating cells

Glioblastoma (GBM), one of the most malignant human cancers, frequently recurs despite multimodal treatment with surgery and chemo/radiotherapies. One of the reasons of why GBM recues is likely the existence of GBM-Initiating Cells (GICs) that have strong proliferative and tumorigenic abilities and are resistant to various types of chemotherapies and radiotherapy. It is therefore crucial to find novel methods that specifically kill GICs by targeting their characteristics. Previously, we have identified various factors, such as membrane proteins, transcription factors and microRNA (miR), which increase or decrease in GICs compared with normal Neural Stem Cells (NSC), and demonstrated their functions in GICs. On the process developing novel methods for GBM therapy, we noticed that these factors are considerably expressed in the cells of non-central nervous system, suggesting the concerned side effects if we target these factors for therapy. To overcome this hurdle, we combined our previous findings with the genome-editing system and developed new miR-dependent genome-editing Adeno-Associated Virus (AAV) that selectively killed GICs reducing off-target effects to normal cells. I will present the anti-tumorigenic ability of our new AAV in my talk.

Audience Take Away Notes

- The audience leans that a combination of two GIC-related factors can specifically target GICs but not normal resident cells
- The audience learns how our miR-dependent genome editing system can selectively eliminate GICs with reducing side-effects and can apply our method for their research
- I also provide a method how to deliver genes into the transplanted human cells using systemically delivered AAV

Biography

Dr. Toru Kondo is currently working as Distinguished Professor at the Institute for Genetic Medicine, Hokkaido University. He has received his PhD from Osaka University (Prof Yoshio Okada). He worked at the Osaka Bioscience Institute (Prof Shigekazu Nagata) and University College London MRC LMCB (Prof Martin Raff), as a postdoctoral fellow. He then worked as PI at the Cambridge University Centre for Brain Repair, RIKEN CDB, and Ehime University Proteo-Medicine Research Center. He has been serving as an Associate Editor of “Stem Cells” and a council member of the Japanese Association for Molecular Target Therapy of Cancer.

Psychiatrist Twesigye Lucky*, Dr. Otim Patric
Department of Psychiatry, Kampala, Mulago, Uganda

State of addiction and addiction psychiatry in Uganda: A comprehensive review

Uganda, like many other countries faces challenges related to addiction in different forms among its regions. This abstract gives a comprehensive view of the state of addiction, addiction psychiatry and addiction management in Uganda.

The review extracts data from a wide source of literature including research studies, hospital reports, articles and other publications on addiction and addiction psychiatry form credible publishers. It further traverses through the different forms of addictions registered in psychiatric hospitals and how such cases are managed.

Additionally, the abstract lists the different psychiatric hospitals prearranged to handle patients with psychiatric disorders and addictions including Mulago national hospital and butabika national mental referral hospital as the main psychiatric hospital prearranged to handle psychiatric patients. It explains the procedures how patients are identified from the community, how they are transported to the facilities, how they are diagnosed and managed while they are at these facilities. It explains the different services offered by these facilities during patient care including curative, preventive and rehabilitative psychiatric services.

Furthermore, the abstract discusses the types of treatment approaches used during patients care including interventions, behavioral therapies, and psychosocial support. It also highlights the effectiveness of these approaches on handling different natures of addiction.

The findings of this review indicate a need for more research, sensitization on prevention, treatment strategies in order to fight this global problem of addiction. By understanding the risk factors associated with addiction and causes of addiction, health professionals in the line of addiction psychiatry together with ministries of health, NGOs and other governments can join efforts and develop plans and interventions aimed at improving psychiatric patient care, treatment, promote awareness and make policies that target reducing levels of addiction in societies.

Audience Take Away Notes

- The presentation will act as a learning ground for the audience since it will show how Uganda has put in place different measures to manage addiction in its country which measures can be adopted by the audience and applied in their respective countries
- The presentation will show and explain the different addictions and how Uganda has handled them which will be a share point of knowledge using Uganda as a point of reference
- The presentation will front to the audience different treatment approaches adopted in Uganda and their effectiveness which can be employed by other Psychiatrists to better their patients care

Biography

Psychologist Twesigye Lucky Studied Psychiatry at school of psychiatric clinical officers in Uganda and graduated in 2006. Twesigye did a certificate in HIV/AIDs guidance and counseling in 2008. Furthermore in 2013, joined Mbarara University of science and technology, did a bachelor degree in clinical psychology and Twesigye now actively working with Mulago National hospital department of psychiatry.

V. N. Krasnov*, V.V. Kryukov, S.A. Trushchelev
Moscow Research Institute of Psychiatry. Moscow, Russian Federation

Psychosocial pathomorphosis of depressions

The aim of the study is to determine the changes in phenomenology of depressions over the past four decades. We've compared the archival date of one of the authors (V.N.K) obtained in the study of depression within 1980-1986 years (1st group, 103 patients, 47 with Recurrent Depression/RD, and 56 with Bipolar Depression/BD; 53 female, 50 male) and the data of the study of depression carried out in the same clinic within 2015-2021 years (2nd group, 109 patients, 52 with Recurrent Depression/RD and 57 with Bipolar depression/BD; 54 female, 55 male). Age of patients 21-59 years in both groups. Severity of depression: 21-32 points by Hamilton Depression Rating Scale (HDRS-17). Besides, the original psychopathological chart, elaborated in 1980 for registration of melancholic symptoms, were used in both studies. The two samples were comparable by age, sex, severity of depression.

Results: Biologically mediated symptoms of depressions (heavy sadness with "vitalization", early awakening, loss of energy, loss of appetite and libido} were the same in both groups; but phenomenology of congruent depressive ideas, connected with self-reflection and moral feelings (worthlessness, guilt, anaesthesia psychica dolorosa), even suicidal ideas are decreasing last decades, especially in young persons. We suppose psycholinguistic reasons, taken into consideration spreading of social media with very poor language instead of live direct communication. Patient are suffering, but have not enough variable emotional language to express their suffering.

Audience Take Away Notes

- That clinicians have to take into account the linguistic problems in young patients, and develop their skill in clinical interview for revealing hidden suffering in patients; that researchers have to find some appropriate instruments to explore the influence of virtual communication on phenomenology of depression

Biography

Professor Valery N. Krasnov has been a clinician and researcher at the Moscow Research Institute of Psychiatry since 1974. Former director of the Institute. Valery Current position is Head of Department for clinical and pathogenetic studies in psychiatry. Sphere of interests: psychopathology and psychophysiology of affective disorders, schizophrenia, stress related disorders, psychosomatics. Valery is a Past-president of the Russian Society of psychiatrists. For many years Valery did involve in different international professional activity, being the WPA Zonal Representative for Eastern Europe (1999-2006), member of Education Committee of WPA (2006-2009) and also an Honorary Member of WPA. From 2014 to 2019, Valery was a member of the WHO working group on revision of ICD-10 and development of ICD-11. Additionally, Valery is an International Member of American Psychiatric Association.

Dr. Vijayan Gurumurthy Iyer

Faculty Climate Change, Bihar Institute of Public Administration & Rural Development (BIPARD), Honorary Director, Dr. Vijayan Gurumurthy Iyer Techno-Economic-Environmental Study and Check Consultancy Services, Proprietorship Business, India

Environmental Health Impact Assessment (EHIA) process proposal for efficient and effective deaddiction centres in India

An Environmental Health Impact Assessment (EHIA) is proposed for an effective and efficient deaddiction system as it is to set the sustainable battle against drug use and alcoholism.

It is necessary to build treatment and deaddiction facilities in 272 districts identified as vulnerable based on prevalence of substance abuse, illicit trafficking and access to drugs. The focus is on reaching the youth and high-risk population. Since 125 vulnerable districts out of the 272 districts that do not have integrated rehabilitation centres for addicts for drug dependence treatment including addiction treatment facilities available in All India Institute of Medical Sciences (AIIMS). It is observed that there is lack of sufficient deaddiction centres, drop-in-centres, efficient institutional treatment, community-based outreach and extension centres for conduction awareness programs including treatments for youth and high-risk populations. The deaddiction facilities should also be provided for screening, assessment, counselling and treatment. The magnitude of substance abuse rate is high as it is estimated that 16 crore alcoholic affected consumers in our country, 19% were dependent on alcoholic effects, around 5.7 crore consumers requiring treatment, 72 lake drug affected users requiring treatment of cannabis that is the drug consumers obtained from the hemp plant, 60 lakh drug affected users for opium and related addictive drug made from the juice of poppy flowers, and 11 lakh seducers and sedative users who persuade sex including calm and sleepy purposes. It is also observed that here is insufficient funds for community centre extension programs, and institutional health care programs in order to control rehabilitation and deaddiction process in sampled population.

This research note discusses an importance of conducting Environmental Health Impact Assessment (EHIA) process for the project proposal of integrated rehabilitation and addiction treatment centres.

“Environmental health impact assessment can be defined as the systematic identification and evaluation of the potential health impacts of proposed nuclear power projects, plans, programs, policies or legislative actions relative to the physical-chemical, addiction, biological, cultural, and socioeconomic components of the total environmental health. EHIA which is a specialized deaddiction terminology that is divided into most significant terms, viz., “environmental health inventory ”, “environmental health impact assessment ” and “ environmental health impact statement”.

The objective of the study and check are to conceptualize Strategic Environmental Health Assessment (SEHA) process for the generic, source specific and industrial addiction sector in order to control climate change. Deaddiction organizational planning and decision-making process should include the integrated consideration of technical or engineering, economic, environmental, safety, health, social and sustainability factors to achieve climate sensitivity environment.

It is also important to conduct EHIA process study to address psychological and neuroscience impacts.

Psychological Impact Assessment (PIA) process is the systematic identification and evaluation of potential environmental physiological effects of proposed deaddiction projects, plans, policies, and legislation action that are with mental adverse health effects, depression, anxiety, post-traumatic stress-strain disorders, damages to mental health impacts including emotional somatic unsafe radioactive exposure cum disorders on human being, animals and plant ecosystem.

Strategic Environmental Health Assessment (SEHA) process has been aimed in order to incorporate Environmental Quality (EQ) and sustainability factors in to organizational project planning and decision-making process. The primary purpose of the SEA process is to encourage the consideration of the addiction, environment, safety, health, social and sustainability factors in organizational planning and decision-making process and to arrive at actions that are compatible.

SEA process protocol has been proposed for the EQ control. The health impacts of projects, plans, programs, or policies should be considered in the organization planning and decision-making process. Because of the importance of these concerns, particularly in developing and developed countries, environmental health impact assessment process is addressed. For certain types of projects such as deaddiction centre, it is necessary to address addiction, behavioral science, psychiatric, psychological, neurological, and physiological impacts on nearby residents and populations for the assessment and mitigation of mental illness in order to assess and mitigate mental health that is environmental health impact assessment and their components such as prediction and assessment of impacts on the air environment, surface water environment, soil and ground water environments, noise environment, biological or ecological environment, habitat based methods, cultural environmental impacts, architectural, historical and archaeological impacts, visual and aesthetic impacts, socioeconomic environmental health impacts including public participation on environmental health impact decision making process. The aim of the study is to conceptualize and develop SEHA and SEA processes for the control of climate change and environmental pollution. Social Impact Assessment (SIA) process can be defined as the systematic identification and evaluation of the potential social impacts (effects) of proposed nuclear power projects, plans, programs, or legislative actions such that social considerations are encouraged in project planning process and to arrive at actions that are socially compatible. This treaty and official government procedures of SEHA helpful for making much earlier in the decision-making process than EHIA process of psychological impacts and mental health damages on nearby residents.

The workers and mothers of young children are at risk of environmental health impacts such as depression, anxiety, psychosomatic, and post-traumatic symptoms about nuclear radiation exposures including stigma impact assessment nearby local residents. It is suggested to mitigate environmental health impacts due to psychological symptoms among village people, power plant workers, and medical program and awareness needed to reduce stigma, integration of psychiatric treatment and medical treatment as the nuclear effect change damage of mental health and psychological impacts on nearby residents.

Keywords: Alcohol, Deaddiction, Environment, Health

Audience Take Away Notes

- The audience will able to learn entitled “An Environmental Health Impact Assessment (EHIA)” which is proposed for an effective and efficient deaddiction system as it is to set the sustainable battle against drug use and alcoholism
- It is observed that there is lack of sufficient deaddiction centres, drop-in-centres, efficient institutional treatment, community-based outreach and extension centres for conduction awareness programs including treatments for youth and high-risk populations

Biography

Dr. Vijayan Gurumurthy Iyer studied Environmental Science and Engineering at the Indian School of Mines, Dhanbad and graduated as M. Tech. in 1998. Vijayan then joined as a research scholar in Indian School of Mines, Dhanbad India and received his PhD degree in 2003 at the same institution. After thirteen years postdoctoral elaborative experience Vijayan obtained the position of Professor (Environmental Science and Engineering) at the Institute of Technology, Haramaya University, Alemaya, Ethiopia. Presently serving as Faculty in Climate Change in Bihar Institute of Public Administration & Rural Development and Honorary Director, Dr. Vijayan Gurumurthy Iyer Techno-Economic-Environmental Study and Check Consultancy Services, Proprietorship Business, Vijayan Gurumurthy Iyer GSTIN/UIN 33AIZPG9735D1ZW. Vijayan has published more than 450 research articles in SCI journals including conference proceedings and Vijayan citations cited more than 4139 and h. index is 60.

Vinayak Sharma[1*], Dr. Ashwini A Mahadule[2], Dr. Arun Goel[2], Dr. Sunita Mittal, Dr. Prashant Patil[2], Dr. Latika Mohan[2]

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Exploring the use of virtual patient model in the context of teaching clinical empathy in medical students at a tertiary care centre: A cross-sectional study

Clinical empathy is a vital aspect of medical practice that enhances patient care and strengthens the doctor-patient relationship. To investigate innovative teaching methods for clinical empathy, this cross-sectional study explored using a virtual patient model in medical education. Medical students were allocated into two groups according to their roll number as odd and even: the Virtual Patient (VP) group, exposed to Virtual People Factory (VPF) simulations, and the Standard Patient (SP) group, interaction with volunteers role-playing as patients respectively. Pre- and post-interaction changes in the empathy level of both groups were assessed using the toronto empathy questionnaire. Empathetic communication was evaluated using the Empathetic Communication Coding System (ECCS) during the interaction by the research team. Results showed empathy scores between the VP and SP groups were similar, indicating the effectiveness of both approaches in enhancing clinical empathy and the potential for using VP as an empathy teaching tool.

Audience Take Away Notes

- Medical educators can use this study to consider incorporating Virtual Patients (VPs) like Virtual People Factory (VPF) simulations into their curriculum
- Medical schools can explore the feasibility and effectiveness of VPs as a teaching tool for clinical empathy alongside traditional methods like Standardized Patients (SPs)
- This research can inform the development of new VP scenarios specifically designed to cultivate empathy skills
- Medical educators can improve the quality of medical education by providing students with diverse learning experiences that enhance empathy
- By fostering empathy, educators can equip future doctors to build stronger relationships with patients leading to better communication and care
- This study provides valuable data for further research on clinical empathy education
- Other faculty can use this as a foundation to explore VP applications in different contexts or with various empathy assessment tools
- The study can also prompt research on comparing the long-term impact of VP and SP training on doctors' empathy
- This research doesn't directly address design tasks. However, it suggests that VPs could be a practical and scalable solution for empathy training compared to SPs

- VPs can potentially simplify scheduling and logistics of empathy training sessions
- The study doesn't directly assess design accuracy. Still, it provides new information on the potential effectiveness of VPs as an empathy teaching tool
- VPs can potentially offer standardized scenarios for consistent training, while SP interactions can vary depending on the volunteer
- VPs can allow for greater control over emotional complexity within scenarios to target specific empathy skills

Biography

Vinayak Sharma is enrolled in the All India Institute of Medical Sciences Rishikesh, Uttarakhand India in 2019 and currently pursuing his MBBS undergraduate degree. Vinayak is currently working on with project related to pediatric neurology such as “Evaluation of Modified Child Mini Mental Status Scale as a Tool for Prediction of Presence and Severity of Intellectual Disability.” Vinayak is a passionate researcher and was selected for ‘Undergraduate CSIR-CCMB Summer training Program 2023’ for hands on experience of working on drosophila fly in the epigenetics lab under the guidance of Dr. Rakesh Kumar Mishra at the CCMB Hyderabad, India.

Weifeng Peng[1,2*], Zihan Hu[2], Jia Liang[2], Jing Ding[2], Xin Wang[2]

[1]Department of Neurology, Shanghai Geriatric Medical Center, Shanghai, China
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Components of event-related potentials N170, VPP, LPP, and P3 individually or combinatorically measured for assessing depression in temporal lobe epilepsy

Objective: This study explored whether the Event-Related Potential (ERP) components of N170, VPP, LPP, and P_3 could be sensitive neurophysiological markers for assessing depression in Temporal Lobe Epilepsy (TLE).

Methods: Patients with TLE were divided into two groups with matched age, education, and seizure-related parameters: Patients comorbid with Depression (EPD) and those without (EPN) according to the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-V). Matched volunteers without epilepsy and depression were included in the control group. Participants were performed Electroencephalographic (EEG) recordings, the oddball task, and the emotional conflict Stroop face-word task simultaneously. The EEG data were post-analyzed by the EEGLAB software.

Results: There were 20 patients in the EPD group and 16 in the EPN group, with matched age, gender, and seizure-related parameters. The peak amplitude and latency of N170, the peak latency of VPP, and the area under the LPP waveform were all significantly greater, while the peak latency of P_3 was shorter in the EPD group compared with the EPN group. The Areas Under the Curve (AUC) for N170, VPP, LPP, and P_3 were 0.755, 0.692, 0.645, and 0.731, respectively, and it was as highest as 0.922 for the four combinatorial ERP components, with a sensitivity of 0.950 and a specificity of 0.812 for assessing depression based on the HAMD-17 score.

Conclusion: Combination of N170, VPP, LPP, and P_3 components exhibits a high sensitivity and specificity for assessing depression in TLE, which expects to be an aiding neurophysiological biomarker for physicians to make a more precise diagnosis.

Audience Take Away Notes

- The Event-Related Potential (ERP) components of N170, VPP, LPP, and P_3 could be sensitive neurophysiological markers for assessing depression in Temporal Lobe Epilepsy (TLE)
- Combination of N170, VPP, LPP, and P_3 components exhibits a high sensitivity and specificity for assessing depression in TLE, which expects to be an aiding neurophysiological biomarker for physicians to make a more precise diagnosis
- I think other faculty could use this research to expand their research
- I think this research provides a practical solution to objectively assess depression in patients with epilepsy
- I think the research provides new information to assist in making a more precise diagnosis

Biography

Dr. Weifeng Peng is a chief physician in Shang Geriatric Medical Center affiliated to Shanghai Zhongshan Hospital, Fudan University, Shanghai, China. Dr. Weifeng received MD degree in 2014 at Fudan University. Dr. Weifeng majors in epilepsy research and has published more than 30 research articles in SCI(E) journals.

Xuejian Wang
Department or Neurosurgery, Affiliated Hospital 2 of Nantong University, Nantong City, Jiangsu, China

Neuroendoscopic techniques in neurosurgery

With the progress of science and technology, new technologies and equipment are continuously transformed and entered clinical use. The current clinical related surgical techniques have been greatly improved, the surgical effect and the prognosis of patients have been greatly improved. Neuroendoscopy technology has been applied to clinical practice in the past two decades. With the progress of related equipment, it has been able to solve most of the clinical problems of neurosurgery, simplify many surgical problems of neurosurgery, simplify many operations that could not be carried out in the past, and enable many basic hospitals to carry out related technologies. However, the technology related to neuroendoscopy in neurosurgery has not been promoted in many areas at present, and there are still many different understandings about the operations carried out by this technology, which need to be promoted and exchange and learn. We will introduce our related work.

Audience Take Away Notes

- The audience will learn about neuroendoscopy and feel the technical charm of neuroendoscopy
- The audience will learn from the lecture to understand the technical advantages and diseases related to endoscopy, and know their disease advantages
- This is an introduction to a technique that does not provide such assistance

Biography

Xuejian Wang, PH.D, graduated from Fudan University, work at department of neurosurgery, Affiliated Hospital 2 of Nantong University, lecturer of medical college of Nantong University. Currently Wang is a committee member of ASPN (American Society for Peripheral Nerve), editor of Synapase (Association journal of ASPN). Editorial committee and reviewer of several magazines, including Synapse. In clinical practice, Wang main works on the neurosurgery minimally invasive technique, especially the neuroendoscopic technique and peripheral nerve, has published more than 50 articles, including more than 20 SCI papers. At present, there are more than 42 authorized patents, and more than 30 invention patents in the stage of substantive review.

Yasmine Elsherif

Internal Medicine Department, American Hospital Dubai, Dubai, United Arab Emirates

What is the best therapeutic regimen for primary CNS melanomas? A case report and critical review of literature

Background: Melanocytes, responsible for melanin production, originate from the neural crest and can give rise to malignant tumors known as melanoma. Primary Central Nervous System Melanoma (pCNSM) is a rare occurrence, with an incidence of 0.005 cases per 100,000 individuals annually. Considering this rare occurrence and variations in tumor biology, a comprehensive treatment strategy has not been introduced yet. Immunotherapy is an emerging treatment avenue warranting further exploration.

Objectives: In this paper, we conducted an extensive literature review on patients with pCNSM including brain and spine to figure out the most successful treatment protocol. We shared our case of a teenage girl diagnosed initially as an arteriovenous malformation; however, she was found to have a pCNSM Melanoma.

Materials and Methods: A systematic review of literature of all published articles from 1980 till 2023 was conducted. The data were collected from the primary data sources included PubMed and Google Scholar, electronic medical records, multiple published case studies, and archives of the American institute for radiologic pathology.

Results: The systematic review found 138 articles with 148 pCNSMs (77 cases of brain and 71 cases of spinal primay melanoma) spanning since 1980 to 2023. The vast majority of patients (95%) underwent therapeutic gross total or partial resection of the tumors followed by radiotherapy. Only two cases with brain melanomas underwent immunotherapy including our case. The treatment strategies of primary brain melanomas were similar to those of Primary Spinal Melanoma (PSM) but exhibited better outcomes in PSM cases.

Conclusion: Our findings suggest that surgical intervention, followed by adjuvant radiotherapy+immuntherapy, yields favourable outcomes in PSM cases, but not in primary brain melanomas. Further multicentric studies are needed to explore alternative more effective treatment modalities.

Keywords: Brain Neoplasms, Spinal neoplasms, Melanoma, Primary

Audience Take Away Notes

- Audience utilization the audience, in particular those who treat and manage melanoma, can make better use of the research's findings by incorporating them into their treatment plans
- Professionals will be able to improve their effectiveness in treating melanoma patients, potentially leading to better patient outcomes and satisfaction. It will also help them stay updated with the latest research and treatment protocols in this rare condition
- Faculty research and teaching this research could serve as a valuable resource for other faculty members interested in expanding their research or teaching in the field of melanoma treatment. It

provides a comprehensive review of existing literature and presents new insights into the treatment of primary CNS melanoma

- Useful solution the results can assist medical technology designers and developers in creating more effective and efficient treatment methods. This could make treatment planning easier and result in better patient care
- Enhanced Precision and Novel Data: Through an extensive analysis of existing research and results, this study offers fresh insights that may help to improve treatment guidelines and enhance the precision of diagnosis and prognosis for individuals suffering with primary CNS melanoma
- It helps to bridge the gap in knowledge regarding the treatment of a rare condition like primary CNS melanoma
- It offers a foundation for additional study and the creation of creative treatment plans
- It might result in melanoma patients having a higher quality of life. It may facilitate the development of new drugs or therapies for melanoma treatment

Biography

Dr. Yasmine pursued her Medical degree at Tbilisi State Medical University, Georgia, and completed her studies in 2022. She commenced her professional journey by joining American Hospital Dubai in the capacity of a Dubai Health Authority (DHA) Intern, where she contributed significantly from 2022-2023. Her dedication and achievements during this period led to her being offered a position as an Internal Medicine resident at the same institution. Throughout her Internship, which lasted for a year, Dr. Yasmine actively participated in various professional development opportunities. This included the publication of two case reports and participation in three conferences, where she presented Oral/E poster presentations.

BOOK OF ABSTRACTS

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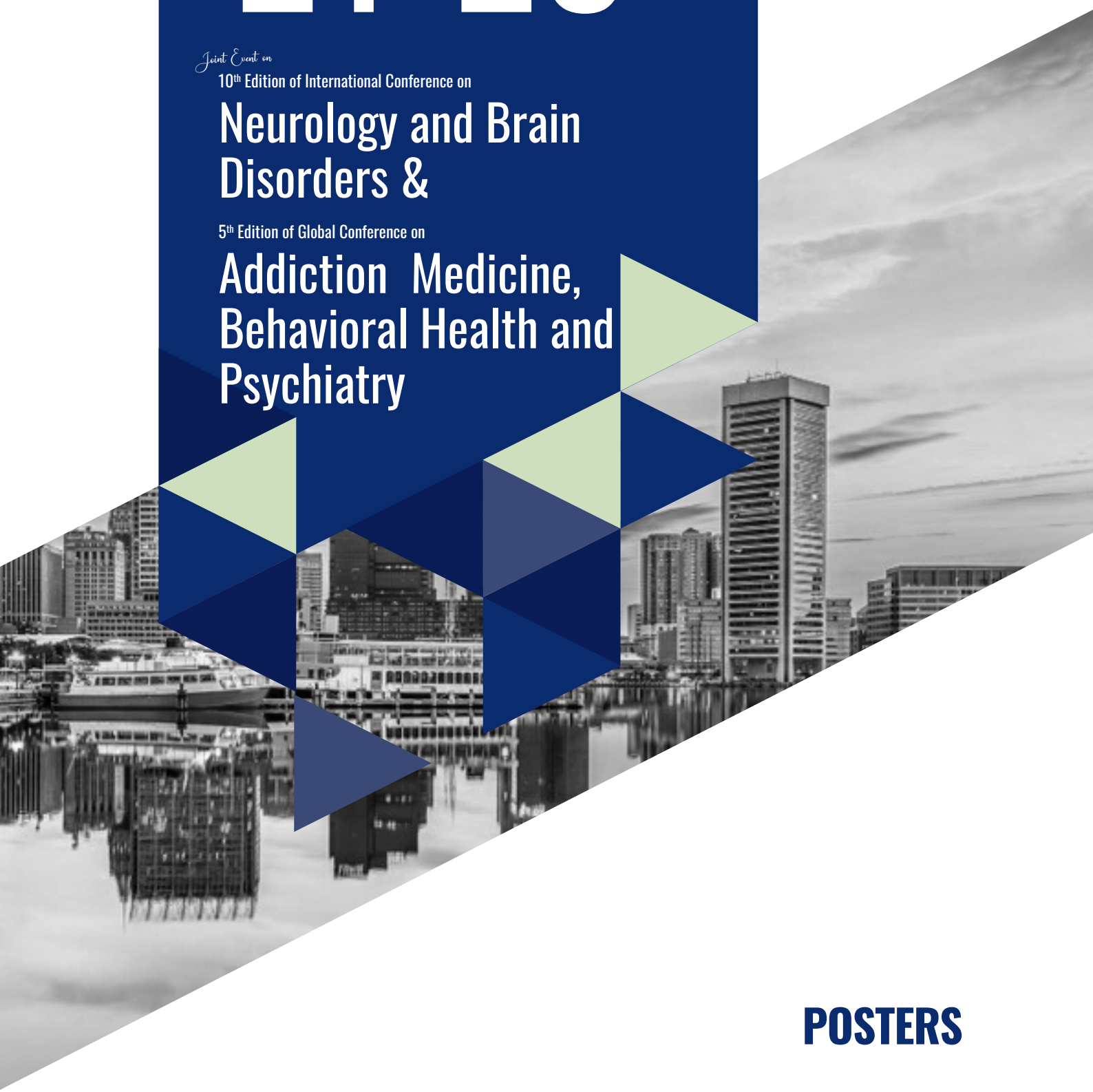
5th Edition of Global Conference on

Addiction Medicine, Behavioral Health and Psychiatry



POSTERS

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A rare case of paroxysmal kinesigenic dyskinesia

Introduction: Paroxysmal Kinesigenic Dyskinesia (PKD) is a rare neurologic disorder characterized by transient, episodic, involuntary hyperkinetic movements such as chorea, dystonia, myoclonus, or ballism. It is triggered by sudden voluntary movements, commonly present in young adults with a male predominance. We report a case of a young female with choreiform and ballistic movements lasting over two to three minutes which is an uncommon presentation for PKD.

Case Presentation: A 24-year-old female with a history of asthma was transferred to our facility for evaluation of seizure disorder. The patient was witnessed to have sudden onset, focal, ballistic movements in the right arm that quickly spread to the rest of the body. She would subsequently lose all bodily muscle tone and throw herself from one end of the bed to the other without losing consciousness. Spells were preceded and accompanied by sinus tachycardia and were provoked by voluntary motor activities such as standing, walking, or a change of posture. Her episodes had been ongoing for one month and would recur fifteen to twenty times per day, each lasting two to three minutes. Physical and neurologic examination were otherwise normal in between episodes. She was initially diagnosed as having focal seizures with secondary generalization and treated with levetiracetam but did not experience any improvement. Complete blood count, comprehensive metabolic panel, thyroid panel, vitamin B12, urine drug screen, Treponema pallidum antibody, and HIV screen were all negative. 24-hour electroencephalogram with video monitoring while patient had her episodes did not show any epileptiform activity. MRI brain with and without contrast did not show any abnormality. Cerebrospinal Fluid analysis revealed a normal cell count, protein, and glucose levels, and was negative for Herpes Simplex Virus (HSV)-1, HSV-2, West Nile virus IgG/IgM. CSF culture had no growth. A diagnosis of PKD was considered and the patient was started on Carbamazepine 100mg twice daily. Levetiracetam was discontinued, and she was on no other antiepileptics. Initially, her episodes continued. After two days, the carbamazepine dose was increased from 100mg to 200mg twice daily. After three days on this higher dose, the patient demonstrated dramatic improvement. The frequency of her episodes decreased to only three to five per day, with a duration of less than one minute per episode. By the end of her hospitalization, she walked 400 meters with physical therapy, gained independence in most of her activities of daily living, and had only two spells a day lasting under one minute.

Discussion: PKD is a rare dyskinetic disorder with an estimated prevalence of 1/150,000. It is a diagnosis of exclusion, often misdiagnosed as an epileptic seizure or psychogenic non-epileptic seizure, the latter especially due to the age group of patients affected. Upon literature review, we found a paucity of standardization of diagnostic protocols. Diagnosis requires exhaustive workup ruling out infectious and metabolic causes as in our patient. Studies have demonstrated a dramatic response of PKD to anticonvulsants, particularly sodium channel blockers like Carbamazepine and Phenytoin. This case will prompt the diagnosis and management of this rare entity.

Audience Take Away Notes

- Recognizing clinical features of Paroxysmal Kinesigenic Dyskinesia

- Establishing a diagnosis while systematically ruling out similar conditions
- Developing treatment plans

Biography of presenting author

Dr. Abhishek Pant graduated with his M.B.B.S degree from Kathmandu Medical College, Nepal. He subsequently served as a Medical Officer for 3 years in Kathmandu. Currently, he is continuing his medical journey as an Internal Medicine resident in the Texas Tech University HSC- El Paso/Transmountain campus.

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Caspase inhibition: A trailblazer armament to treat neurodegenerative disorders

Introduction: Apoptosis is a form of programmed cell death, that underlies the wide range of symptoms investigated in neurological disorders from stroke to neurodegenerative diseases such as alzheimer's. Caspases are shown to be capable of producing inflammasomes along with aiding axon pruning and synapse elimination resulting in the maturation of the nervous system. Their contribution to synapses and the processing of aggregates provides a key to better understanding neurodegenerative diseases and developing alternative approaches for prevention and treating neurodegenerative disorders as a whole. These neurodegenerative diseases have a distinct presentation, etiopathogenesis and individual clinical manifestations. The current-day treatment options present significant morbidities and are not successful in completely halting the progression of the disease, therefore making caspases considerable novel therapeutic targets. In this review, we have summarized emerging evidence concerning the association of apoptotic caspases with neuronal development and neurodegenerative disorders. In addition, we consider recent evidence of potential treatments targeting caspase inhibition concerning neurodegenerative diseases.

Material and Methods: In this study, a systematic search was done based on the guidelines of the preferred reporting items for systematic reviews and meta-analyses. A literature search was carried out by key-electronic databases, controlled vocabulary and indexing of trials to evaluate all the relevant studies in both medical subject headings and advanced electronic databases. The protocol was registered in the PROSPERO register with ID CRD42022347466.

Results: From our study, we found out that there are 17 studies regarding alzheimer's disease, 10 studies related to parkinson's disease, and others related to other neurodegenerative disorders like prion disease, and Huntington's. Among mechanisms leading to neuronal degeneration, most studies have demonstrated the role of caspases in this degenerative process. A total of 11 studies mentioned the involvement of caspase-3 in alzheimer's disease. A total of 5 studies mentioned the involvement of caspase-3 in the neuronal degeneration process in parkinson's disease, the second most common neurodegenerative disorder. Various other studies discuss the direct involvement of caspase-1, 8, 9, and 12 and their inhibition to treat parkinson's disease and alzheimer's disease. Each one of the studies included has its diversity regarding demographic factors of the populations as well as the study design and settings. Thirdly, those trials that are undergoing require completion in addition to integrating randomized controlled trials and cohort studies with a greater sample size to reveal the reality regarding the role of various caspases for neuronal degradation.

Conclusion: There is accumulative evidence and an incredible amount of data supports the activation of apoptosis in general, and caspases particularly, as an initial event that may not only lead to neuronal death but also enhance the underlying pathophysiology associated with numerous neurodegenerative disorders like alzheimer's disease, parkinson's disease, huntington's chorea and ischemic brain injury etc. It is essential to have a better knowledge of the caspase involvement in neuronal death, to come up with therapies that may change the course of the illness and provide symptomatic relief.

Audience Take Away Notes

- The audience will gain insights into the intricate role of apoptosis, specifically being mediated by caspases, in various neurodegenerative disorders such as alzheimer's, parkinson's, Huntington's and ischemic brain injury
- Understanding the specific caspases involved (caspase-3, -1, -8, -9, -12) and their impact on neuronal death and pathophysiology will be a key learning point
- Latest treatment modalities being involved in clinical trials employing inhibition of caspases to curate these neurodegenerative disorders
- Brain physiology is an evolving branch of medicine; this study helps provide a deeper understanding of the underlying mechanisms in neurodegenerative disorders and the manipulation of those mechanisms to treat them and develop care
- Healthcare professionals, researchers, and clinicians can benefit from a more nuanced understanding of caspases' role in neurodegenerative disorders, potentially informing the development of more effective treatment strategies
- Researchers may find avenues for further investigations and the design of clinical trials targeting specific caspases
- Other faculty in the field of molecular biology, and related disciplines could use this knowledge for expansion of understanding of apoptotic caspases and their relevance to neurodegenerative diseases. Identification of specific caspases through these studies could lead to discoveries in the study of caspase biology and novel roles for caspases that are relevant to all cell types and not just the central nervous system
- While the study is more geared towards medical and research professionals, the knowledge gained could potentially inspire the development of targeted therapies, contributing to practical solutions for treating neurodegenerative disorders
- The findings may encourage the design of experiments and clinical trials exploring caspase inhibition as a therapeutic approach for not only nervous disorders but other systemic disorders too
- The research has the potential to improve the accuracy of therapeutic designs for neurodegenerative disorders by highlighting the significance of caspases in disease progression
- The inclusion of a systematic search methodology and a diverse range of neurodegenerative disorders enhances the reliability and applicability of the findings

Biography

Amaan Javed is a final-year medical student at the University College of Medical Sciences, affiliated with Delhi University in India. Amaan brings a diverse background to the table, covering a range of expertise in neurological disorders, COVID-19, stem cells, and infectious diseases. Currently, Actively involved in the realm of Computational Neuroscience, particularly focusing on reinforcement learning. Amaan is committed to pushing the boundaries of medical technology, which led to the successful filing of two Indian patents for device innovation. Developed an in-depth understanding of research protocol and methodology and collaborated both nationally and internationally, which has resulted in the publication of ten research papers and the acceptance of several manuscripts.

Andrew Wong

Student, Illinois Mathematics and Science Academy, Aurora, Illinois, United States

Investigating the applicability of AI for lucid dream induction

The utilization of Artificial Intelligence (AI) in enhancing modern day technology has garnered increasing research interest, particularly in the field of medicine. Lucid dreaming, where the dreamer is aware of their dream and can control what occurs in one, holds significant therapeutic potential for psychological disorders and offers unique insights into human consciousness and cognitive processes. With the progression of companies such as OpenAI, there are now many advancements and methodologies in AI that can be worked in with sleep medicine. This review discusses various AI technologies currently employed or proposed for lucid dreaming induction as well as the ethical implications of AI in healthcare. This review also explores several machine learning algorithms that predict the onset of lucid dreams by analyzing sleep patterns, neural activity, and biometric data. Notable among these are predictive models that use EEG (Electroencephalogram) data to detect REM (Rapid Eye Movement) sleep, which is most conducive to lucid dreaming.

Moreover, this presentation assesses the efficacy of AI-driven biofeedback systems. These systems often integrate sensory stimuli in sync with REM sleep phases to cue dreamers, aiming to trigger self-awareness within the dream. The effectiveness, adaptability, and user experience of these AI interfaces are analysed, including their integration with mobile apps and sleep tracking devices. Special attention is paid to the ethical implications and potential psychological risks associated with manipulating sleep patterns, including dependency and the blurring of waking and dreaming states' boundaries.

This presentation also explores the broader implications of AI in cognitive sciences, particularly how AI-assisted lucid dreaming could advance our understanding of memory, learning, and emotional resilience in controlled dream environments. It proposes a framework for ongoing collaboration between cognitive scientists, neurologists, and AI researchers to further refine these technologies for possible application to help treat narcoleptics, patients with RLS, and other sleep disorders. This presentation calls for a balanced approach that respects both the immense potential and the ethical considerations of this intriguing frontier in cognitive science and artificial intelligence research. Through rigorous scientific methods and innovative AI solutions, the dream of controlled, lucid dreaming could soon be a practical reality, opening new pathways for therapy and research in human consciousness.

Audience Take Away Notes

- Develop AI-driven tools and applications for sleep medicine, particularly focusing on the induction of lucid dreaming
- Integrate AI technologies into existing therapeutic practices to enhance treatment options for psychological disorders
- Apply machine learning algorithms to improve the understanding and prediction of sleep patterns conducive to lucid dreaming

- Provides a foundation for interdisciplinary courses and research projects combining cognitive science, AI, and neurology
- Can be used to develop case studies or practical projects for students in AI, healthcare technology, and psychology
- AI interfaces for inducing lucid dreams could streamline and enhance the design of biofeedback systems and mobile health applications
- Offers methodologies for integrating sensory stimuli with electronic devices, potentially improving user interface designs for better user experience in health applications

Biography

Andrew Wong is currently a student at Illinois Mathematics and Science Academy and a student researcher at the Feinberg School of Medicine. So far, Wong has conducted research with Dr. Phyllis Zee at Northwestern Feinberg School Medicine and is working with a team of 3 others on an upcoming project. Wong is currently investigating the role of light exposure in correlation with sleep and has written several literature reviews regarding topics centered around circadian rhythm, sleep health, lucid dreaming, and sleep disorders. Outside of Wong research, works to integrate AI into health watches, providing insightful data analysis to users.

Andżelina Wolan-Nieroda[1] Andrzej Maciejczak[1], Paweł Kiper[2], Sara Federico[2], Agnieszka Guzik[1]

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Reliability and validity of MCS zebris in the assessment of cervical spine range of motionto check in

Introduction: The cervical spine presents the highest segmental mobility of all spinal regions. At present, in Poland there are no studies focusing on the assessment of the reliability of the zebris MCS. Various methods measuring the range of motion of the spine are used to identify disorders and to plan and evaluate the effectiveness of the therapy provided.

Purpose: The study aimed to assess the reliability and validity of the zebris system in measuring cervical spine range of motion in a population of polish young adults.

Material and Method: Sixty-one healthy individuals took part in the study. Each participant was examined twice, two weeks apart, by two independent raters. The cervical spine range of motion was measured in the sitting position, in three planes of motion. The assessments were performed using the zebris ultrasound system. The scores obtained by one rater in the two measurements were compared to assess the reproducibility of the results, and the scores obtained by the two raters were compared to assess its reliability.

Results: The analyses show high agreement between the results recorded in the two measurements, by the two raters, with the Intraclass Correlation Coefficients (ICC)>0.9.

Conclusions: The present study demonstrates high inter-rater and intra-rater reliability of the zebris device in assessing cervical spine range of motion. Given its reliability, the device can be effectively utilized in daily clinical practice to monitor the progress of therapy, ensuring accurate and consistent evaluation of patient outcomes.

Keywords: Cervical Spine, Spine Range of Motion, Zebris Device

Audience Take Away Notes

- **Understanding the reliability of the zebris system:** Participants will learn that zebris, a device for assessing cervical spine mobility, demonstrates high reliability in measurements, making it a dependable tool in both clinical and research settings
- **Application in clinical practice:** Attendees will receive practical guidance on effectively using zebris to accurately measure cervical spine mobility, which will enhance diagnosis and treatment planning
- **Contribution to research and teaching:** The study's findings can be utilized by other researchers and educators to expand their own research or develop teaching materials, based on a proven and reliable measurement system

Biography

Andżelina Wolan-Nieroda earned her Master's degree in Physiotherapy from the University of Rzeszów in 2006. In 2016, she obtained an PfD in Physiotherapy, at the Medical Faculty of the University of Rzeszów. Currently, she holds the position of lecturer at the Institute of Health Sciences, Department of Physiotherapy, University of Rzeszów. Andżelina Wolan-Nieroda PhD served as the Principal Investigator for the PCI Project No. N3063, focusing on innovative methods for assessing visual fields and cervical spine mobility using virtual reality technology. Andżelina Wolan-Nieroda has published 56 research articles in scientific journals.

Aryan Shah*, Rhea Ahuja*

William P. Clements High School, Sugar Land, Texas, United States

Projective testing as windows to the mind: Unveiling anxiety's expression through artistic mediums in teenagers

Nearly one in three of all Americans aged 13 to 18 experience an anxiety disorder. It is important now to accurately diagnose anxiety in adolescents. Current methods of diagnosis involve psychological evaluations and questionnaires. However, unconscious bias and stereotypes can impact the diagnosis, and it can vary between professionals, creating confusion. The purpose of this study is to explore a novel method to evaluate anxiety levels in individuals using a modified version of the house-tree-person test and to uncover statistical correlations between the characteristics of participants' responses and anxiety levels. The 107 individuals who participated in this method drew and colored a scene with a house, tree, and person, just like the original test. However, this dual-modal approach asked participants to verbally describe a story that explains the scene. This study used the Shapiro-Wilk test, Independent Sample T-test, Mann-Whitney U test, and Pearson correlation coefficient test to analyze the characteristics of the audio and scene. The results revealed a statistically significant difference between the anxious and healthy groups in lexical density ($p<.05$) and voice pitch ($p<.05$) with a negative correlation. The participants' responses also revealed a negative correlation between DASS-42 scores and average window width and height and a positive correlation in average tree trunk width. This research challenged the status quo in anxiety assessments and opened doors to inspire future studies with diverse sample sizes, hoping to create a digital real-time speech and drawing analysis system that accurately evaluates anxiety.

Audience Take Away Notes

- Unbiased and accurate method to diagnose anxiety
- Significant negative correlation between anxiety levels and lexical density
- Using this method, teenagers around the world can receive the care they need before anxiety progresses
- More accurate diagnosis of anxiety will lead to proper treatment, in turn creating a positive work environment
- Researchers could develop quantitative systems using projective testing and speech analysis
- The method could be studied in a clinical setting and tested on various age groups
- Increases accuracy of existing diagnostic methods, preventing the manipulation and bias of results

Biography

Aryan Shah is a student at William P. Clements High School, graduating in 2025 at the top of his class. Aryan has conducted research with Dr. Lex Frieden at The University of Texas Health Sciences Center. He assisted the team in planning a study to assess the experiences of people with disabilities with telemedicine platforms and performed a thorough literature review. Aryan has conducted various independent projects by implementing machine learning into current healthcare procedures. Aryan is presenting his study on a novel method to diagnose anxiety at the 2024

International Science and Engineering Fair in Los Angeles, California.

Rhea Ahuja is a junior at William P. Clements High School with a keen interest in neuroscience. Rhea worked closely with the Freshman Research Initiative and the Associate Professor of Practice, Dr. Josh Beckham, at UT Austin College of Natural Sciences to clone Yersinia Pestis FabG into an expression vector and analyze EhPTP to screen for novel inhibitors against Amebiasis. Rhea's research experience inspired her to take research to the next level and Rhea worked with Aryan Shah to develop a novel unbiased method to diagnose anxiety. They will be competing in the International Science and Engineering Fair in Los Angeles, California.

Ashlee Guzman*, Jack Lin, Amy Thein, Cinthia Del Toro, Felicia Gallucci

University of Miami Miller School of Medicine, Miami, Florida, USA

Comparative analysis of substance use disorders in youth by race: A national database study

Background: Substance use disorders represent a significant public health issue among adolescents and young adults in the United States. Racial disparities in health care and outcomes have been well-documented across various conditions, yet limited literature specifically addresses the differences in hospital admissions for youth with mental and behavioral disorders due to psychoactive substance use in different racial groups. This study aims to explore these disparities among white and other racial groups (black, Hispanic, Asian/Pacific Islander, native American) in individuals aged 21 years and under.

Methods: Data from the NIS database was analyzed spanning across 3 years from 2018 to 2020, focusing on patients 21 years old and under with ICD10 codes F10.xx-F19.xx. A total of 127,097 discharge cases were categorized into White (N=53,876) and Non-White (N=73,221). Variables analyzed included age at admission, sex, type of admission (elective vs non-elective), primary expected payer, urban-rural location, and the median household income quartile for patient ZIP codes. Normality of continuous variables was assessed using the Kolmogorov-Smirnov test. The nonparametric Mann-Whitney U test and chi-square analysis were used to assess the significance of differences between groups (P<.05).

Results: The median age at admission was 19 years old (IQR 18-20) for both the white and non-white group. Mean age 18.62 vs 18.73 (P<.001) years. Length of stay median 3 (IQR 2-5) vs 3 (IQR 2-6) mean 4.71 vs 5.28 (P<.001) days. A larger proportion of the non-white group had non-elective admissions (P<.001) and were more likely to be located in urban areas (P<.001). Additionally, the non-white group was more likely to reside in lower-income areas as indicated by the median household income national quartile (P<.001).

Conclusions: These findings suggest notable differences in the characteristics of hospital admissions for substance use disorders among racial groups, which can be used to tailor interventions toward reducing mean length of stay, identifying reasons for non-elective admissions, and identifying barriers to care in low-income areas to help reduce the gap between racial groups.

Audience Take Away Notes

- The audience will learn about the significant differences in hospital admission characteristics for substance use disorders among various racial groups, with a focus on youth aged 21 years and under
- The audience will gain insight into how factors such as the type of admission (elective vs. non-elective), urban vs. rural location, and median household income impact hospital admissions for substance use disorders among different racial groups
- The research equips healthcare administrators and public health officials with data-driven insights to make informed decisions about resource allocation, intervention strategies, and policy development to reduce healthcare disparities

- The findings provide a clear framework for designing targeted public health interventions, simplifying the process of addressing specific disparities and improving healthcare access for underrepresented groups

Biography

Ashlee is a fourth-year student in the combined MD/MPH program at the University of Miami Miller School of Medicine and graduated from Tufts University with degrees in Biology and Psychology where Ashlee conducted research on language attrition and neurocognition. Prior to medical school Ashlee worked as a clinical research coordinator at Columbia University Irving Medical Center where Ashlee was awarded own NIH grant to conduct research on cancer risk reduction in medically underserved populations. Ashlee current research focuses on global functioning in schizophrenia and substance use disorders in youth. As a first-generation Dominican American, Ashlee aims to address cultural barriers to mental health care for underrepresented communities and reduce stigmas. Ashlee interest in psychiatry, particularly child and adolescent psychiatry, stems from a passion for the complex interplay of public health and psychiatry, patient advocacy, and cultural competence. Ashlee has published more than 15 research articles in SCI(E) journals.

Ashlee Guzman*, Jack Lin, Amy Thein, Cinthia Del Toro, Felicia Gallucci

University of Miami Miller School of Medicine, Miami, Florida, USA

Patterns of hospital admissions for substance-related disorders among youth in the United States

Background and Aims: Youth substance use remains a critical public health issue throughout the United States. This study aims to describe the demographic and socioeconomic patterns among patients aged 21 years and under who are admitted for mental and behavioral disorders due to psychoactive substance use, utilizing the HCUP Nationwide Inpatient Sample (NIS).

Methods: Data from the NIS database was analyzed spanning across 3 years from 2018 to 2020, focusing on patients 21 years old and under with ICD10 codes F10.xx-F19.xx. Descriptive statistics were used to explore the characteristics of n=127,097 discharge cases, including age, sex, race, urban-rural location, median household income quartile for patient ZIP code, and length of hospital stay.

Results: The median age of discharge cases was 19 (IQR 18-20), mean of 18.69. Male to female ratio of 1.19. The majority of the admissions were non-elective (85.2%), with a median length of stay of 3 (IQR 2-5) mean 4.95 days. Most patients were treated in hospitals located in census divisions with high urbanization. Regarding socioeconomic status, a significant portion of patients came from the lowest income quartile by ZIP code (34.3%). The primary expected payer was medicaid (51.1%). Racial demographics distribution reveals 60.3% white, 19.3% black 13.4% hispanic.

Conclusions: The findings reveal that admissions are predominantly among individuals from lower socioeconomic backgrounds, particularly in the lowest income quartiles (34%), highlighting the connection between socioeconomic disparities and the need for inpatient care. Despite a slightly higher prevalence of substance-related disorders in males, this difference is not strongly mirrored in hospital admissions, suggesting differing factors driving hospitalization. These results emphasize the need for targeted interventions that address both substance use disorders and the broader social determinants of health, particularly in vulnerable populations who are more likely to seek inpatient rather than outpatient care. Future research should focus on post-discharge outcomes and further investigate the disparities in care to inform more equitable healthcare practices.

Audience Take Away Notes

- The audience will gain insights into the demographic and socioeconomic factors associated with hospital admissions for substance-related disorders among youth, including the significant impact of low socioeconomic status
- The presentation will highlight disparities in hospital admissions across different racial groups and discuss the slight gender differences in hospitalization patterns, despite a higher prevalence of substance use disorders in males
- Attendees will learn about the need for more targeted interventions that address the broader social

determinants of health, particularly for vulnerable populations that are more likely to require inpatient care

- The presentation will emphasize the importance of analyzing post-discharge outcomes to better understand the long-term impacts of hospitalization and the effectiveness of current treatment strategies
- The findings and recommendations from this study could encourage policymakers to use data more effectively in decision-making processes. This might involve the use of hospital admission data to identify at-risk populations and allocate resources more efficiently, or to assess the impact of existing policies on youth substance use and related hospital admissions

Biography

Ashlee is a fourth-year student in the combined MD/MPH program at the University of Miami Miller School of Medicine and graduated from Tufts University with degrees in Biology and Psychology where Ashlee conducted research on language attrition and neurocognition. Prior to medical school Ashlee worked as a clinical research coordinator at Columbia University Irving Medical Center where Ashlee was awarded own NIH grant to conduct research on cancer risk reduction in medically underserved populations. Ashlee current research focuses on global functioning in schizophrenia and substance use disorders in youth. As a first-generation Dominican American, Ashlee aims to address cultural barriers to mental health care for underrepresented communities and reduce stigmas. Ashlee interest in psychiatry, particularly child and adolescent psychiatry, stems from a passion for the complex interplay of public health and psychiatry, patient advocacy, and cultural competence. Ashlee has published more than 15 research articles in SCI(E) journals.

BriAnna Lowe
Department of Psychological Sciences, Western Kentucky University, Bowling Green, KY, USA

Investigating visuospatial working memory for facial emotion and identity

The central executive plays a key role in the encoding of visual stimuli in working memory, including the memory for faces in a social context. Faces often contain important details about the identity of social targets as well as the emotion that these targets are expressing. Encoding accuracy requires that we have resources to consider and organize facial features into a holistic representation of a target. Of course, emotion recognition accuracy may be critical to encoding success. The cognitive demand on the participant when evaluating facial stimuli impacts emotion recognition accuracy and therefore the encoding of facial features and emotion categories. In the present study, load is operationalized in terms of a working memory task in which participants encode three stimuli successively on each trial, while simultaneously performing a secondary task that either is or is not resource demanding to the central executive. The load on the central executive affects memory for individual and bound features, including facial emotion, person identity, and the conjunction of the two. Participants completed either a standard visuospatial short-term memory task using images of objects that vary in terms of shape and/or color, or they completed a modified version of this task in which they were asked to encode emotion cues and/or identity cues in faces of social targets. Consistent with expectations, in the object-based working memory task, item memory was greater in the articulatory suppression condition that in the counting condition – a condition that imposed an additional load on the participants' updating capacity. Moreover, the additional load in the counting condition elicited a strong recency effect favoring the last item in the memory set. However, this recency effect did not emerge in the articulatory suppression condition but just in the additional counting condition. Finally, when considering the load imposed on visuospatial working memory by the stimuli themselves regardless of the concurrent digit task, recency effects emerged favoring the final position in the memory set for both conditions involving memory for a single feature (shape or color) and for the conjunction condition (shape + color). For the face-based working memory task, memory was superior in the emotion + identity conjunction condition than in the emotion or identity conditions. This is an interesting finding given that observers have to integrate more features to perform the conjunction condition than the single feature conditions. The possible distinctiveness gained by stimuli if participants are presented with faces that differ from one another in two complex domains (i.e., identity and emotion) is further discussed. Also, the conjunction condition in the object-based working memory task did not yield the worst memory performance contrary to expectations. Parallels between the object-based and face-based working memory in the conjunction condition are also further discussed. Item memory was greater in the articulatory suppression condition than in the counting condition for the face-based working memory task as well. Recency effects emerged for the final position in the memory set under both articulatory suppression and additional counting conditions, but the recency effect was stronger in the additional counting condition here just as observed in the object-based working memory task. This is consistent with the expectation that additional counting served to disrupt the updating process and possibly caused relevant stimulus features for the first two items in the memory set to slip away. Finally, the largest recency effects in the face-based working memory task emerged when participants remembered the conjunction of the facial emotion and identity. Just as additional counting adds a load to the updating process in visuospatial working memory, so does the need to integrate multiple facial features. An incremental increase in performance with each later serial position

supports the prediction that updating in visuospatial memory may increase the fragility of the memory trace of early items in the set when executive functioning is taxed by either feature integration or the need to update in a concurrent task.

Audience Take Away Notes

- The findings of research in this area can be expanded to other clinical and age populations and their clinical outcomes on this task, as well as how the organizational structure of the brain plays a role in storage for objects and faces. Certain clinical populations, specifically Autism Spectrum Disorder and those with alexithymia (the inability to recognize and/or describe their own emotions), have difficulty recognizing and understanding emotion from others and also themselves. This could pose to be an issue that would hinder performance in the face-based working memory task and result in lower corrected recognition scores compared to the average population. Performance for clinical populations that are subject to neurodegenerative diseases could also be another route for future research. Alzheimer's Disease, for example, is a progressive brain disease in which brain cell connections and the cells themselves slowly degenerate and die. As a result, past literature has found impairment for certain mental functions such as overall memory and even difficulty in recognizing certain emotions in others. A well-known symptom of Alzheimer's Disease that occurs in the later stages of severe cognitive decline is the forgetting of family members, friends, and other loved ones. For patients with neurodegenerative diseases, high levels of corrected recognition could potentially be difficult to achieve in both the object-based and face-based working memory tasks. This would be a result of damage to the brain that affects binding and updating and, especially for the emotion trial block of the face-based task, the ability to recognize the emotions and identify them correctly when probed. The findings from such a study would be useful for recognizing and understanding how degeneration of the brain affects processes like facial emotion and person identity recognition, while also seeing if different areas of the brain function independently for the working memory storage of objects and faces
- The observation of potential age differences would also be useful for other researchers to consider, especially in age comparison research. Age differences have been noted in emotion recognition research under a particular set of circumstances. However, considering that the current study is free of certain experimental techniques that can hinder performance for older adults (e.g., forced-choice task, serial presentation, and lack of verbal labels), the findings could further inform if there are any significant differences in the perceptual aspect of recognizing facial emotion and person identity, while ruling out any variance from the experimental design of added cognitive load. Until such a study is completed, the findings of the current study can be used as a guide for predicting how older adults would perform in this study
- A significant takeaway from this is that the presence of an additional cognitive load negatively affects the first two items within a memory sequence, and this pattern was found for both objects and faces in the current study. The manipulation of the stimulus features for both the object-based and face-based working memory tasks infers that the capacity of the visuospatial working memory system is not as straight-forward as prior literature suggests. In this study, performance in the conjunction conditions were superior in the face-based working memory task, while the color condition was greatest in the object-based working memory task. This tells us that in contrast to objects, there is something about the integration of features for faces that improved memory performance for the last item in the memory sets when participants were presented with the facial stimuli sequentially. This could provide more insight as to how faces are encoded and stored in real-world environments and socially relevant contexts, as opposed to objects that lack necessary social meaning and context. This pattern also demonstrates how early items are still prone to displacement when the central executive is under cognitive load

Biography

BriAnna Lowe received a Master of Science degree in Psychological Sciences and Clinical Science from Western Kentucky University. While in graduate school, her research focused on age comparisons in cognition, working memory, and emotion recognition for younger and older adults. Her master's thesis explored visuospatial working memory storage for faces and objects in young adults and is interested in applying her findings to clinical populations, including ICU patients and older adults. She currently serves as a Clinical/Translational Research Coordinator II for the Critical Illness, Brain Dysfunction, and Survivorship (CIBS) Center's Long Term Outcomes Team, a team dedicated to understanding cognitive deficits in ICU patients with delirium.

Ofer Gonen[1], Yang. Shen2, Tim Porter3, Buwei Wang[2*], Fenchao Xue[4], Weiliang Fan[5], Yongfen Ma[6], Linan Song[7], Pei Sun[8]

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Safety, pharmacokinetics and target engagement of a novel brain penetrant RIPK1 inhibitor (SIR9900) in healthy volunteers with therapeutic potential for neurodegenerative diseases

Background: Receptor-Interacting Protein Kinase 1 (RIPK1) is a serine/threonine protein kinase that regulates inflammatory signalling and induces apoptosis and necroptosis. Activation of RIPK1 has been observed in human pathological samples from individuals with neurodegenerative, autoimmune and inflammatory diseases. Pharmacological inhibition of RIPK1 kinase activity has demonstrated efficacy in numerous animal models, such as Alzheimer's Disease (AD), Multiple Sclerosis (MS), Amyotrophic Lateral Sclerosis (ALS), etc. RIPK1 may promote the progression of AD through both neuroinflammation and neuron cell necroptosis.

Methods: SIR9900 is a potent and selective novel small molecule RIPK1 kinase inhibitor. This first-in-human, phase I, randomized, double-blind, placebo-controlled study in Australia (ACTRN12623000696695, ACTRN12623000790640) evaluated the safety, Pharmacokinetics (PK), and Pharmacodynamics (PD) of single (3-200 mg) and multiple (3-60 mg daily for 10 days) ascending oral doses of SIR9900 in healthy adult (18 to 64 years, n=80) and elderly participants who were healthy or had managed, stable disease (≥65 years, multiple doses at 30 mg, n=8,) between June 2023 and January 2024. The study also included a food effect component.

Results: Overall, oral administration of SIR9900 was safe and well tolerated in healthy adult and elderly participants, with no concerned dose-dependent trends in safety observed. The most reported Treatment Emergent Adverse Events (TEAEs) were headache and gastrointestinal disorders. The majority TEAEs were mild, most TEAEs were resolved by the end of the study. No clinically meaningful trends were identified from 12-lead Electrocardiogram (ECG), vital signs and laboratory results. SIR9900 was rapidly absorbed with a median time to maximum plasma concentration (Tmax) range of 3.0-4.0 hours and eliminated with a geometric mean plasma half-life (t1/2) ranging from 31.92 to 37.75 hours following single doses. Similar Tmax and t1/2 results were observed following multiple doses. The systemic exposure to SIR9900 on Day 10 was approximately 2 to 4-fold higher than that following a single dose on Day 1. Systemic exposure to SIR9900 increased in a generally proportional manner as the dose increased. No appreciable food effect was observed. A geometric mean value of Cerebrospinal Fluid (CSF) to unbound plasma ratio was 1.15, potentially indicating a good Blood-Brain Barrier (BBB) permeability. Systemic exposure to SIR9900 was similar between adult and elderly participants. SIR9900 demonstrated a robust PD effect with approximately 90% (84.9% to 98.2%) peripheral target engagement at 3 hours post-dose following single and multiple doses tested, and a sustained RIPK1 activity inhibition effect even at trough levels over the 10-day treatment period of multiple doses once daily.

Conclusion: The favourable safety, PK, and PD profile of SIR9900 with Central Nervous System (CNS) penetrating potential in healthy adult and elderly participants supports its further clinical development

in patients with neurodegenerative diseases, particularly those affecting the central nervous system, such as AD.

Audience Take Away Notes

- To highlight and draw attention to a novel therapeutic approach for neurodegenerative diseases, such as Alzheimer's Disease (AD)
- To report the safety, Pharmacokinetics (PK), and Pharmacodynamics (PD) profile of RIPK1 inhibitor SIR9900, providing valuable information to researchers and industries working in this field
- The RIPK1 inhibitor SIR9900 exhibits potential for good blood-brain barrier (BBB) permeability, making it a promising candidate for treating central nervous system diseases

Biography

Buwei Wang graduated from Beijing University of Chinese Medicine with master's degree. Wang present position is Medical Manager in Sironax, a biotechnology company that is emerging leader in the discovery and development of transformational therapies that address the root cause of age-related degenerative disease. Wang oversees the clinical trials of RIPK1 inhibitors that are currently under development from Sironax.

Cyrus Ghane
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The hierarchical spatiotemporal dynamics of the visual system in Macaques

The brain's ability to process complex real-world phenomena relies on its operation across multiple timescales, which have been shown to be organized hierarchically across various brain regions. At present, the relation between the topography of Intrinsic Neural Timescales (INT) and gradients of Functional Connectivity (FC) has not been investigated in the macaque visual system. In this study, we aim to investigate the relationship between Functional Magnetic Resonance Imaging (fMRI)-derived hemodynamic INTs, calculated by applying a voxel-wise autocorrelation function, and FC gradients in the visual system in an attempt to gain a complete understanding of the large-scale organization of the macaque brain. Using ultra-high field fMRI (10.5 T), we show that the distribution of INTs in visual areas V1 to V4 is organized along one dimension of high-dimensional FC topography. Furthermore, these correlations reflect the functional organization of visual processing pathways: specifically, in V1, an anterior-posterior axis; in V2 and V4, a ventro-dorsal axis, and in V3, a medial-lateral axis. Our findings demonstrate a significant voxel-wise correlation between INTs and FC gradients, highlighting the utility of high-resolution neuroimaging for elucidating brain function. This research advances the understanding of the hierarchical spatiotemporal dynamics in the visual cortex, with implications for studying neurological disorders and cognitive function in the visual areas.

Keywords: Intrinsic Neural Timescales, Functional Magnetic Resonance Imaging, Functional Connectivity, Visual System

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Dynamic modulation of postural stability in polyneuropathy: Insights from IMU-based analysis

Introduction: Postural stability is maintained through a complex interplay of long-loop reflexes and higher brain centers. Long-loop reflexes, involving transcortical pathways, provide rapid, context- dependent responses to perturbations. Higher centers, including the cerebellum, basal ganglia, and cortex, modulate these reflexes and contribute to anticipatory postural adjustments. Various neurotransmitter systems, such as serotonergic, dopaminergic, and noradrenergic pathways, are implicated in this modulation, affecting the gain and timing of postural responses.

Methodology: We employed a novel approach to assess postural stability using an Inertial Measurement Unit (IMU) sensor attached at the C7 vertebral level. Data were collected from 71 healthy controls and 14 patients with polyneuropathy. The IMU recorded accelerometer data at 50 Hz for one minute during quiet standing. We calculated the magnitude of acceleration and applied an envelope curve to this time series, reflecting the modulation of postural control by higher brain centers.

Results: Comparison of envelope curve characteristics revealed significantly greater fluctuations in amplitude among patients with axonal sensorimotor or sensory polyneuropathy compared to healthy controls. This finding suggests a reduced efficiency in the dynamic modulation of reflex responses in polyneuropathy patients.

Discussion: Two primary mechanisms may explain the observed differences in postural stability modulation: Reduced Proprioceptive Input: Polyneuropathy leads to a decrease in sensory axons of peripheral nerves, diminishing proprioceptive information. Additionally, a potential reduction in vestibulocochlear nerve axons may result in decreased input from the semicircular canals, utricle, and saccule. Decreased muscle strength: The loss of motor axons in peripheral nerves results in reduced strength of anti-postural muscles. These mechanisms likely contribute to the fluctuations in reflex response modulation observed in polyneuropathy patients. The reduced proprioceptive input may lead to less accurate internal models of body position, necessitating more frequent and larger corrections. The decreased muscle strength could result in less precise and more variable motor outputs, further contributing to instability. The increased variability in postural control modulation may represent a compensatory mechanism, where the central nervous system attempts to adapt to unreliable sensory inputs and inconsistent motor outputs. This adaptation, while potentially beneficial for maintaining balance, may come at the cost of increased energy expenditure and cognitive load.

Conclusion: Our IMU-based analysis provides new insights into the dynamic nature of postural control deficits in polyneuropathy. These findings have implications for both the assessment and rehabilitation of balance disorders in neurological conditions.

Audience Take Away Notes

- They may consider acquiring Inertial Measurement Unit (IMU) themselves to use in their own practice
- IMUs can be used in both diagnostics and treatment of balance disorders
- Many workplaces are experimenting with MUs, this will help them see what other professionals are doing and what results are they getting

Biography

Dr. David Matyas studied medicine at the Charles University in Prague, Czech Republic. He graduated in 2020 and the joined the Department of Neurology at the University Hospital in Hradec Kralove. In his doctoral study under dr. Vysata, he is using IMUs in diagnostics and therapy of neurology stance and gait disorders.

Dilpreet Singh
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Cognitive crossroads: Navigating autoimmune limbic encephalitis amidst neuropsychiatric complexity

AutoImmune Limbic Encephalitis (AILE) is a rare form of encephalitis that manifests with atypical neuropsychiatric symptoms. Anti-NMDA receptor, anti-LGI1, and anti-GAD65 antibodies are associated with abnormal inflammation of the limbic system, leading to focal neurological deficits, altered mental status, fevers, seizures, and mood disturbances not explained by another disorder. Diagnosing AILE requires a comprehensive evaluation to rule out common organic causes, which can be challenging due to the difficulty in distinguishing between infectious and autoimmune etiologies, often prolonging diagnosis and treatment. Imaging studies and Electroencephalograms (EEGs) may reveal temporal lobe abnormalities, and results are often nonspecific. Testing typically involves identifying elevated auto-antibody titers in CSF and blood, though results can be inconclusive. Treatment includes primary immunosuppressive interventions such as Intravenous Immunoglobulin (IVIG) and corticosteroids, with potential escalation to long-term agents like cyclophosphamide and rituximab. Swift recognition and appropriate treatment are critical to optimize therapeutic outcomes, minimize neurological sequelae, and identify potential comorbidities.

We present a case of a 44-year-old female admitted for refractory seizures secondary to Auto Immune Limbic Encephalitis (AILE). Since her initial diagnosis of AILE in 2016, which was delayed for many years due to inadequate diagnostic testing, she experienced recurrent breakthrough seizures and unexplained mood symptoms. Following a COVID-19 infection in 2021, her symptoms worsened and required nine infusions of IVIG, with clinical improvement. During the current admission, the patient exhibited new neuropsychiatric manifestations, including labile mood, facial dystonia, and pain upon tactile stimulation. EEG revealed moderate encephalopathy with frequent bitemporal epileptiform discharges but no distinct electrographic seizures. Magnetic resonance imaging of the head indicated moderate cerebral atrophy with ventricular dilation and gliosis in the right frontal lobe, consistent with prior infarct or trauma. An infectious and metabolic workup was negative for alternative causes. She was resumed on her usual extensive medical regimen consisting of five antiepileptic agents, an antipsychotic, and as-needed benzodiazepines. Adjustments to these medications were ineffective in controlling the symptoms; therefore, IVIG treatment was re-initiated. Throughout her course, she experienced numerous musculoskeletal contractures, resulting in significant pain throughout her body, and multiple rapid responses were called for these concerns. Additionally, she failed multiple attempts at swallowing, necessitating nutrition via a nasojejunal tube, and she eventually received a Percutaneous Endoscopic Gastrostomy (PEG) tube placement. The patient is improving minimally and will be transferred to a long-term care facility for further management and care.

Emerging studies have identified a link between COVID-19 and an increased prevalence of autoimmune encephalitis, potentially caused by mechanisms such as molecular mimicry, cytokine storms, direct viral invasion, and autoantibody production. Currently, the precise cause of this presentation remains unclear, highlighting the necessity for further research to differentiate it from other neurological, infectious, or

psychiatric conditions. This case illustrates the complexities in diagnosing and managing AILE, especially in patients with preexisting medical conditions. Despite multiple IVIG courses, persistent seizures and neuropsychiatric manifestations underscore therapeutic challenges. Timely recognition, aggressive treatment, and continuous monitoring are crucial for managing AILE to minimize neurological sequelae and improve overall quality of life.

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From humor to harm: A case of cocaine-induced toxic leukoencephalopathy mimicking delirium

Introduction: Toxic Leukoencephalopathy (TL) is cerebral white matter damage caused by toxic agents. It affects higher cerebral function resulting in forgetfulness, inattention, changes in personality, dementia, coma, and even death, and is detectable on MRI. Preservation of language, typical in TL, can mask other neurobehavioral deficits. It is necessary to rule out delirium and psychiatric diseases which can also present with a similar picture. Here, we report a case of cocaine-induced TL in a patient with chronic Substance Use Disorder (SUD), despite a normal MRI 3 months prior.

Case Presentation: A 47-year-old male with SUD was admitted due to subacute confusion and abnormal behavior following recent binge cocaine use. After returning from a binge 1 month ago, he experienced a week-long illness with fever, cough, and fatigue, followed by progressive decline, including confusion, memory loss, impaired balance, and bizarre behaviors. Examination revealed odd affect, and a wide-based gait. An MRI three months prior was unremarkable. The following night, he exhibited agitation with possession of a knife and gross disorientation, prompting a mental health emergency response code. His symptoms initially appeared waxing and waning, mimicking delirium. The patient was safely redirected and remained at the hospital voluntarily. Throughout his hospital admission, the patient used humor to mask his cognitive deficits. Delirium workup was initiated and a repeat MRI was ordered given progressive cognitive decline, and showed extensive subcortical white matter damage consistent with toxic leukoencephalopathy.

Discussion/Conclusion: The case underscores the diagnostic challenges of cocaine-induced TL due to its varied neurological manifestations. It might mimic delirium and present with pseudo “waxing and waning”. In the case of our patient, he used humor to mask his inability to answer questions about his family, and appeared funny rather than clueless. Despite a normal MRI three months prior, the patient showed signs of subacute confusion and progressive worsening cognitive decline, suggesting TL rather than delirium. Clinical suspicion, aided by neuroimaging, is crucial for accurate diagnosis in patients with substance abuse and neurobehavioral deficits. Treatment approaches for cocaine-induced TL lack consensus, with outcomes ranging from reversible to permanent damage whether delirium is often reversible with the treatment of the underlying cause. In this case, vitamin therapy (E, A, C, coQ10) and neurocognitive rehabilitation were initiated, highlighting comprehensive care. Continued monitoring and interdisciplinary collaboration are vital due to uncertainty regarding TL's reversibility.

Audience Take Away Notes

- The audience will learn about the diagnostic challenges of cocaine-induced TL, which can resemble other phenomena such as delirium. They will understand the importance of considering substance use as a potential cause of cognitive decline, even in the absence of abnormalities on recent imaging

- For healthcare professionals, this information will aid in developing a heightened awareness and clinical suspicion for TL in patients with a history of Substance Use Disorder (SUD). It emphasizes the need for comprehensive neuroimaging and interdisciplinary collaboration in managing such cases
- Case study can serve as a valuable addition for other faculty members in various fields including neurology, psychiatry, radiology, and addiction medicine. It can be used to expand research on the neurological impacts of substance abuse, the nuances of TL, and the challenges of differential diagnosis

Biography

Miss Elizabeth Voloshyna-Farber was born and raised in Ukraine. She moved to the United States on her own in 2015. She completed her education in the United States, earning an M.S. in Neuroscience from George Mason University in 2021, after which she began medical school. Now in her final year at UC San Diego School of Medicine, she is applying for a Neurology Residency. Her interests include neurophysiology and neuromuscular disorders. Elizabeth recently presented at the UC Irvine Annual Neuromuscular Colloquium, where she was the only medical student to give an oral presentation.

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Precision prognostication of long-term outcomes in acute ischemic stroke based on aspects lesion core quantification

Objective: The ASPECTS score serves as a semi-quantitative instrument for assessing acute ischemic strokes within the Middle Cerebral Artery (MCA-AIS) territory, and DWI-ASPECTS has been found to exhibit superior sensitivity and precision. The primary objective of this study was to devise a model that leverages the volumes of lesion cores within the ASPECTS-defined regions (ASPECTS-VolDWI), as inferred from Diffusion-Weighted Imaging (DWI), along with conventional multi-clinical parameters, to precisely forecast long-term functional outcomes in patients with MCA-AIS.

Methods: This multicenter retrospective study included 464 MCA-AIS patients who met the inclusion criteria. ASPECTS-VolDWI was obtained using RealNow software based on DWI images. The 90-day modified rankin scale (90d-mRS) score was employed as the benchmark for categorizing long-term functional outcomes, with an mRS score of ≤2 indicating a favorable outcome and an mRS score of >2 indicating an unfavorable outcome. Statistical evaluations were performed using R statistical software (version 4.2.1).

Results: The logistic regression model that integrated ASPECTS-Vol and multi-clinical variables demonstrated the highest predictive efficacy, with an area under the curve (AUC) of 0.878 (95% confidence interval [CI]: 0.847-0.909), a sensitivity of 0.8075 (95% CI: 0.744-0.861), a specificity of 0.810 (95% CI: 0.759-0.855), and an accuracy of 0.809 (95% CI: 0.769-0.849). DeLong's test indicated that the combined ASPECTS-VolDWI + multi-clinics model significantly surpassed the performance of both the ASPECTS-VolDWI model ($p<0.001$) and the multi-clinics model ($p<0.001$). The nomogram constructed revealed that age, baseline National Institutes of Health Stroke Scale (NIHSS) score, and the volume of infarcts in the lentiform nucleus, caudate nucleus, and posterior limb of the internal capsule were the most influential predictive factors.

Conclusion: This investigation presents a refined method for quantifying the lesion core volumes within the ASPECTS regions, which are crucial quantitative imaging markers for assessing the severity of MCA-AIS, guiding treatment strategies, and forecasting outcomes with enhanced accuracy. Additionally, by incorporating a range of clinical variables, this study develops and visualizes a predictive model that facilitates the prognostication of long-term outcomes in patients with MCA-AIS.

Keywords: Middle Cerebral Artery-Acute Ischemic Stroke (MCA-AIS), Diffusion-Weighted Imaging (DWI), ASPECTS Score, Lesion Core Quantification, Prognostic Prediction.

Audience Take Away Notes

- **Enhanced Precision in Stroke Assessment:** This enhanced precision may lead to more accurate prognostications and tailored treatment plans
- **Integration of Clinical and Imaging Variables:** This integration potentially offers a more holistic understanding of stroke severity and long-term outcomes

- **Prognostic Value for Treatment and Planning:** This tool can aid clinicians in making informed decisions about treatment strategies and resource allocation, potentially improving patient outcomes and optimizing the use of healthcare resources

Biography

Fushi Han holds a Master's degree in Medical Imaging from Tongji University, which obtained in 2015. Currently, Fushi is a doctoral candidate under the mentorship of Professor Peijun Wang at the School of Medicine, Tongji University. Fushi has published more than 10 research articles in SCI(E) journals and obtained more than 10 national invention patents.

Gracilina Cedeno, M.D*, Yaneris Polanco, M.D

Department of Neurology Pediatric, Pediatric Hospital Dr. Robert Reid Cabral, Santo Domingo, Dominican Republic

Immune-mediated encephalitis with epilepsy: Case report

Case Report

Case A: A previously healthy male with 11 years old was taken to a community hospital with parasomnia and focal motor to bilateral tonic-clonic epileptic seizures, was diagnosed with epilepsy, medicated with valproic acid, without showing clinical improvement. Days later, patient with confusion, agitation, irritability, he was diagnosed with brief psychotic disorder and discharged home. Symptoms progressed, with orofacial dyskinesias and visual hallucinations, was brought to our hospital, Brain computerized tomography (CT) and MRI were normal. VEEG lenification, acute encephalopathy. CSF showed mildly elevated lymphocytes. Anti-NMDA-R antibodies were detected in serum and CSF. Responded to immunoglobulin. He currently returned to school, with good academic performance, without neurological sequelae 5 months after his discharge.

Case B: A previously healthy, 4-years old female, treated at a health center in her community as community-acquired pneumonia, due to a history of fever and respiratory symptoms for 3 days prior to admission. While in hospital the patient presented focal to bilateral tonic-clonic epileptic seizures, became very irritable, with altered sleep patterns, aggressiveness, emotional lability and then only drowsiness and increased epileptic seizures. Hematology biometric with leukocytosis, EEG slowing (DeltaTheta). Normal skull CT. CSF (Wbc: 2 mm2, lymphocytes 100%, proteins 21mg/dl glucose 75 mg/dl). Negative meningoencephalitis panel. TORCHES, herpes+. Antibody NMDAr positive. Medication: Oxcarbamazepine and neuroleptic. Treated with immunoglobulin, (IVIG, 2 \g/kg) improvement in neurological status.

Case C: A preschool 3 years old male, healthy with sensation of cramps in the right upper limb, subsequent ipsilateral hemiparesis mentioned by the mother, Neurologic examination was normal. He developed progressive confusion, agitation, broad-based gait. Brain CT and MRI were normal. CSF was sent for anti-NMDA-R antibodies. Empiric high-dose corticosteroids were started to treat possible steroid-responsive encephalopathy. A course of IVIG (2 g/kg divided over 5 days) after steroids. Anti-NMDA-R antibodies were confirmed in the CSF. VEEG lenification, acute encephalopathy. Good response to treatment, currently without neurological affectation.

Audience Take away Notes

- A relatively recent pathology such as NdFeB encephalitis requires clinical cases in pediatrics, a population where the clinical manifestations can be different depending on the age range and each patient
- The importance of making the diagnosis and starting treatment empirically in most cases can make a difference for the patient, avoiding neurological sequelae that can affect their quality of life
- Evaluation of neurodevelopmental stages in pediatric patients, depending on their age, what skills they have achieved and whether the pathology has produced changes during and after diagnosis and treatment

- Psychiatric clinical manifestations can cause an erroneous diagnosis, so encephalitis must be considered in patients with acute psychiatric clinical manifestations
- At the beginning of the clinical manifestations, the patient may present generalized signs and symptoms, which could be confused with common pathologies in pediatrics, usually of viral origin

Biography

Dr. Gracilina Cedeño studied Medicine at Universidad Central del Este, San Pedro de Macoris, Dominican Republic, graduated from Medicine School in 2016. Dr. Gracilina worked in the anatomy laboratory of the same institution, as a professor. In 2019, Dr. Gracilina took the national exam for medical residency, and winning pediatrics at the peditric hospital Dr. Robert Reid Cabral, In 2022, after finishing the pediatrics program, Dr. Gracilina competed again and managed to become part of the pediatric neurology department at the same hospital. She is currently in her last year of medical residency.

Harshdeep Kaur
Idaho College of Osteopathic Medicine, Meridian, ID, USA

Prophylactic antibiotic use in patients with acute brain injury

Ventilator-Associated Pneumonia (VAP) remains a significant complication in patients with Acute Brain Injury (ABI) requiring mechanical ventilation, often leading to poor outcomes and increased healthcare costs. This presentation will focus on the results of the PROPHY-VAP trial, a multicenter, randomized, double-blind, placebo-controlled study aimed at evaluating the effectiveness of a single dose of ceftriaxone in preventing early-onset VAP in ABI patients. The trial demonstrated a substantial reduction in VAP rates among the ceftriaxone group, highlighting the potential of prophylactic antibiotics to prevent complications in this vulnerable population. We will discuss the clinical implications of these findings, including how ceftriaxone prophylaxis could improve patient outcomes and reduce ICU burden without significantly altering current workflows. This study also offers insights into integrating preventive strategies into osteopathic medical practice, emphasizing a holistic approach to patient care. Lastly, the potential for further research into antibiotic resistance patterns and long-term outcomes will be explored

Audience Take Away Notes

- This presentation will equip the audience with practical knowledge about using antibiotic prophylaxis to reduce VAP in ABI patients, potentially transforming ICU care practices. Clinicians can directly apply this to reduce infection rates and improve patient outcomes. Faculty members will also gain insights into how this research can be expanded for future studies, especially concerning resistance patterns, offering a foundation for enhancing medical education on preventive care strategies

Biography
Student Doctor Harshdeep Kaur studied Neurobiology at the University of California Davis from where Kaur graduated in 2017. Afterwards, Kaur pursued her Masters in Public Health at SUNY Downstate in New York. Currently, Kaur is a third year medical student at Idaho College of Osteopathic Medicine.

Homa Rasoolijazi
Iran University of Medical Sciences, Iran

Salivary levels of disease-related biomarkers in the early stages of parkinson's and alzheimer's disease: A cross-sectional study

Introduction: Finding a non-invasive and repeatable tool has been recommended to make an accurate diagnosis of Alzheimer's disease (AD) and Parkinson's disease (PD).

Methods: 70 volunteers participated in three groups: 24 with mild dementia of AD, 24 in the first and second stages of PD, and 22 healthy controls. After valuing the scores of cognitive tests, the salivary levels of phosphorylated tau (p-tau), total alpha-synuclein (α-syn), and beta-amyloid 1–42 (Aβ) proteins have been evaluated. Finally, the cutoff points, receiver operating characteristic (ROC), sensitivity, and specificity have been calculated to find accurate and detectable biomarkers.

Results: Findings showed that the salivary level of Aβ was higher in both PD ($p<0.01$) and AD ($p<0.001$) patients than in controls. Moreover, the level of α-syn in both PD and AD patients was similarly lower than in controls ($p<0.05$). However, the level of p-tau was only higher in the AD group than in the control ($p<0.01$). Salivary Aβ 1–42 level at a 60.3 pg/ml cutoff point revealed an excellent performance for diagnosing AD (AUC: 0.81).

Conclusion: Evaluation of p-tau, α-syn, and Aβ 1–42 levels in the saliva of AD and PD patients could help the early diagnosis. The p-tau level might be valuable for differentiation between AD and PD. Therefore, these hopeful investigations could be done to reduce the usage of invasive diagnostic methods, which alone is a success in alleviating the suffering of AD and PD patients. Moreover, introducing accurate salivary biomarkers according to the pathophysiology of AD and PD should be encouraged. Keywords: Phosphorylated tauTotal alpha-synucleinBeta-amyloid Alzheimer's disease, Parkinson's disease

Jae Sung park
Konyang University, South Korea

Application of a TREVO device for access to an acutely angled common carotid artery via bovine aortic arch

Background: Access to the common carotid artery is crucial for any neuro-interventional procedures. Bovine aortic arch followed by an acutely angled proximal Common Carotid Artery (CCA) can pose a great challenge. Owing to urgency, we resorted to a non-conventional method to obtain an access to the CCA: TREVO device.

Case: A 69 year old female with left MCA M1 infarction was prepped for a mechanical thrombectomy. In addition to severely tortuous femoral artery and bovine aortic arch, her proximal CCA was also acutely curved, which precluded the guiding catheter advancing to the CCA. Following several attempts with different catheters and wires, a TREVO device was introduced and deployed in the proximal Internal Carotid Artery (ICA), which ultimately allowed a sofia intermediate catheter to reach the distal ICA. Through this rather unconventional method, M1 infarction was successfully treated.

Conclusion: When having to pass through unfortunate routes in the aortic arch and CCA, a trevo device might help advancing the guiding catheter to the ICA, which is an absolute necessity in successful neuro-intervention.

Biography:

Dr. Jae-Sung Park is currently a tenured professor in the Department of Neurosurgery at Konyang university, Daejeon, South Korea. Dr. Park received his MD and master degree from Chung-Ang University, Seoul, Korea, where he completed his Neurosurgery residency. He earned his PhD from Sungkyunkwan University,Seoul, Korea in 2019. In 2007 he was employed by the Cleveland Clinic Foundation for Skull Base Surgery fellowship with Dr. Joung H. Lee, in Cleveland, OH, US. An additional fellowship was also completed in the Center for Neurological Restoration (Cleveland Clinic Foundation) with Dr. Ali Rezai. Since he had returned back to Korea in 2010, he made a clinical professor in 2012 and a tenured professor in 2023. In 2019, he expanded his expertise to endovascular intervention surgeries by completing a fellowship program at Severance hospital, Seoul, Korea. He has more than 20 publications to date.

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Relative risk of mental health diagnoses following mild traumatic brain injury

Introduction: Traumatic Brain Injury (TBI) affects an estimated 27 to 69 million people worldwide annually 1,2 with the majority of cases being classified as mild. 3 Mild TBI (mTBI) is caused by blunt trauma or acceleration or deceleration forces to the head or body with resulting alterations in consciousness or mental status. 3,4 previous literature established a link between mTBI and mood-related disturbances, 5,6,7,8,9 with anxiety/mood disruption now recognized as a subtype of mTBI symptomology. 10 depressive symptoms, suicidal ideation, and suicide attempts have been found to be higher in adolescents with mTBI compared to those without. 8,9,11 however, little is known about the impact of mTBI on mental health disorders in adult populations. We aim to investigate the relationship between having a mTBI diagnosis and subsequent mental health disorder diagnoses in the adult population.

Methods: This retrospective cohort study compared two groups of matched adult patients, 1) individuals diagnosed with mTBI and 2) individuals not diagnosed with mTBI (control), to determine the risk of having a mental health diagnosis within 5 years of injury. Data were collected from a large integrated healthcare system between 2009 and 2022.

Results: The study included 33,779 patients with diagnosed mTBI and 66,996 matched controls. The average age of the two study groups was approximately 39 years. The median follow-up time was 3.68 years. The Kaplan Meier five-year cumulative incidence rates of having a mental health diagnosis of the mTBI and control groups were 26.8% and 17.5%, respectively. Cox proportional regression with discrete time intervals was used to examine the association between mTBI and having a mental health diagnosis. Controlling for demographics and comorbidities, the mTBI group had an 80% increase in the risk of having a mental health diagnosis in the first-year post-injury compared to the control group. The mTBI group also had increased risks of having a mental health diagnosis in follow-up years 2-5, albeit at decreasing rates of 54%, 36%, 25%, and 12%, respectively.

Conclusion: The risk of mental health diagnosis is significantly higher following mTBI with the highest risk at follow-up year 1 and the lowest risk at follow-up year 5. While the decrease in risk throughout the follow up period is promising, clinicians should be aware of possible mental health disorders following mTBI to ensure early intervention and minimize negative long-term outcomes. Further research is needed to determine appropriate interventions for mental health diagnoses in the sub-acute and chronic period following mTBI.

Audience Take Away Notes

- The risk of mental health diagnosis is significantly higher following a diagnosed mTBI in the adult population
- Clinicians should be aware of possible mental health disorders following a mTBI. Earlier diagnosis of mental health disorders can allow for timely intervention and aid in holistic rehabilitation following injury
- Further research is needed to determine appropriate screening protocols and interventions for mental health disorders following mTBI

Biography

Jordan Cornwell graduated from Dartmouth College in 2019 with a BA in Psychology and Anthropology. At Dartmouth College, Cornwell worked in the Haxby and Hill Labs on fMRI and mild traumatic brain injury (mTBI) studies, respectively. Cornwell then joined the Stanford Brain Performance Center from 2019-2021 to conduct sports-related mTBI diagnosis, symptomology, and rehabilitation research. Cornwell began medical school in 2021 at Kaiser Permanente Bernard J. Tyson School of Medicine and has continued passion for traumatic brain injury research.

Kaneeka Chakraborty*, Dr. Sumit Sarkar PhD
Little Rock Central High School, United States

Temporal progression of inflammatory changes of microglia in the brain of rat model of alzheimer's disease

Background: Alzheimer's Disease (AD) has been shown to lead to deposition of Amyloid Aβ plaques and Neuro Fibrillary Tangles (NFT) in the cerebral cortex and hippocampus of the brain. These have the potential to cause neurological damage and suggests a relationship to the neuropathology in an AD brain. To examine this, this study analyzes the characteristics of one of the key neurovascular units of the brain such as microglia in an AD brain. Microglia are macrophages in the brain that respond to pathogens and neurological damage, engaging in phagocytosis to regulate the brain environment. The Toll-Like Receptors (TLR) of the microglia recognize pathogens which leads to an ameboid shape and phagocytic response. The purpose of this study is to determine a causative relationship between the buildup of Amyloid Aβ plaques and the activation and proliferation of microglia.

Methods: Both transgenic AD and non-transgenic female rat brain sections 25 micron thin were used and stained with a microglial marker, IBA1. Brain sections were additionally stained with Congo Red (CR) which detects amyloid AB plaques. Microglia labeling was visualized under light microscope (Nikon), and the CR staining was visualized under the fluorescence microscope to determine whether the increase in amyloid Aβ plaques was related to the activation/proliferation of microglia. Further quantitative analysis was performed using ImageJ software.

Results: In transgenic rats, microglial size significantly increased over time in the hippocampal and cerebral cortex regions. On the contrary, in non-transgenic rats, microglial size increased in the hippocampus and cerebral cortex, but was not significant.

Conclusion: In AD brain sections, the hippocampus and cerebral cortex experienced a significant increase in microglial proliferation and inflammation over time. This was not seen in non-transgenic brain sections. This signifies a relationship between temporal changes of microglia during AD progression.

Elisa Pujals MD MPH, Luis Roman Badenas* Psy D, Jose Lozada Berrios RN, Kathia Ocasio MHS, Yelanesse Pastrana PsyD

Intercambios PR, Puerto Rico

A mobile clinic uses harm reduction and street medicine principles to address mental health in at risk populations in Eastern Puerto Rico

Objectives: Describe how a comprehensive mobile health team model provides a range of services including mental health support, substance use counseling, and social services. Identify healthcare delivery models that are trauma informed and reaches out to individuals experiencing homelessness or those who face barriers accessing traditional healthcare services. Review practices that minimize barriers to social determinants of health and health consequences in vulnerable populations affected by poverty, mental health and substance use disorders.

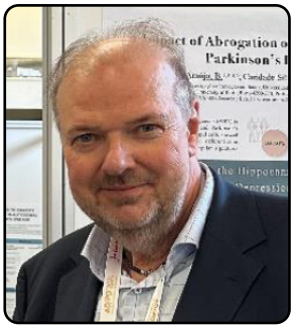
Methods: We evaluated our mobile health program, La Movil, using quantitative methods. We collected data on participant encounters from monthly reports and non-electronic chart reviews. In addition to demographic data, we evaluated the need and engagement with social determinants of health through our interventions and referrals to medication assisted treatment centers, housing, and primary care clinics.

Results: From January 2022 to October 2023 our mobile services served 279 participants in 8 municipalities. Services were offered by one or more professionals including a social worker, case manager, nurse, psychologist and/or physician. Of 1393 encounters, 26.78% were for mental health services, 15.22% for health screenings and 12.2% for wound care. 902 encounters included harm reduction related counseling The mobile team placed 222 referrals for medication assisted treatment for substance use disorders, primary medical homes, wound care, housing, and official documents.

Conclusions: By reaching out to marginalized populations, the mobile clinic enhances direct access to services for individuals who face barriers to traditional healthcare. Substance use and homelessness is a leading cause of morbidity and early mortality in adults worldwide. Mobile harm reduction strategies contribute to public health by preventing consequences related to infectious diseases and overdoses. The mobile clinic provided continuous psychology related services most frequently. Mental health encounters were most utilized among adults 44-65 years old. This proactive approach can identify underlying health and social issues and connect individuals with appropriate care.

Biography

Luis Román Badenas, PsyD holds a doctorate degree in psychology from the Universidad Carlos Albizu, Puerto Rico. Luis served on the board of Puerto Rico's Continuum of Care organization for services for the homeless and advocated for sound drug policies with the national harm reduction organization. As Director of Mental Health Services with the FQHC SANOS, Luis implemented the adoption of SBIRT and Medication Assisted Treatment. In addition to working as a clinical psychologist at Intercambios PR, Luis is a researcher and professor, imparting experience and knowledge in substance use with the future generation of psychologists.



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Golexanolone, a gabaa receptor-modulating steroid antagonist, improves microglia activation and tyrosine hydroxylase levels in substantia nigra, dopamine in striatum and several motor and non-motor alterations in 6-OHDA rats

There are no drugs available for Parkinson's Disease (PD) that alter progression of disease. Current symptomatic treatments provide imperfect relief and have side effects. Enhanced GABAergic neurotransmission contributes to PD pathogenesis. In animal models, GABA levels are increased in Substantia Nigra (SN), leading to reduced expression of Tyrosine Hydroxylase (TH) in neurons which contributes to the behavioural deficits.

Background: We have recently shown that treatment with golexanolone, a well-tolerated GABAA receptor-modulating steroid antagonist in clinical development, improves some motor and non-motor deficits in 6-OHDA rats (1). Treatment starting 4 weeks after surgery (6-OHDA injection) improved motor coordination and locomotor gait alterations and non-motor deficits including fatigue, anxiety, anhedonia and short-term memory. Moreover, golexanolone treatment did not induce dyskinesia, as L-DOPA does, and improved glial activation and loss of TH in striatum.

Aims: The aims were to analyse if golexanolone improves microglia activation and TH levels in SN and dopamine levels in striatum, which are main steps in the mechanisms leading to neurological impairments in PD. We also analysed if beginning treatment earlier (one week after surgery) affords more beneficial effects on neurological impairment than starting four weeks after surgery.

Methods: We used unilateral 6-OHDA rats. Golexanolone treatment (50 mg/kg, daily, intragastric) started one week after surgery. A group of rats was sacrificed at 3 weeks for mechanistic analyses. Another group performed behavioural tests at 6-8 weeks. Motor symptoms were assessed in the catwalk. We also analysed fatigue (treadmill), and short-term memory (Y maze). TH in SN and dopamine levels in striatum were analysed by immunofluorescence and microglia activation in SN was analysed for the content of glutaminase by double immunofluorescence (Iba1 staining).

Results: Glutaminase levels inside microglia are increased in SN of 6-OHDA rats, indicating microglia activation. Golexanolone completely reversed this effect, indicating reversal of microglia activation. TH levels are reduced in SN of 6-OHDA rats. Golexanolone significantly increased TH levels. Reduction of TH in SN in 6-OHDA rats is associated with reduced dopamine levels in striatum. Golexanolone treatment completely reversed this decrease, returning dopamine to normal levels. Starting treatment 1 week after surgery improves short-term memory and the following parameters in the Catwalk (7 weeks after surgery): regularity index, initial dual stance and duty cycle. This treatment also improves several parameters which were not improved when treatment started 4 weeks after surgery: terminal dual stance, step cycle, print positions, swing and afforded more sustained improvement of fatigue.

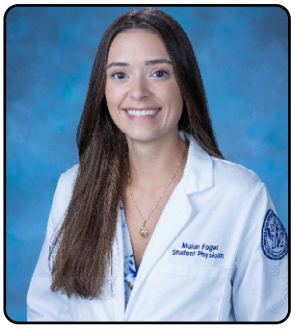
Conclusion: Golexanolone is a novel oral small molecule in clinical development for CNS disorders due to neuroinflammation and enhanced GABAergic neurotransmission. Golexanolone treatment improves main steps of the mechanisms leading to behavioural impairment in PD: microglia activation and tyrosine hydroxylase in SN and dopamine levels in striatum. Golexanolone may be useful to improve different symptoms that affect the patients' quality of life: anxiety, depression, fatigue, motor coordination and locomotor gait, and some cognitive alterations. Early onset of treatment generates sustained treatment effects indicating a potential for reduced symptomatic progression.

Audience Take Away Notes

- GABAA is a new avenue in Parkinson's Disease research. However, converging lines of evidence support that excessive GABAergic neurotransmission is central in motor and non-motor symptoms in PD. Advantages of targeting excessive GABAergic neurotransmission in PD would include
- Targeting non-motor symptoms: One of the main advantages would be the potential to address non-motor symptoms of PD, which are often not adequately managed by dopaminergic therapies like MAO-B inhibitors and significantly impact the quality of life in PD patients
- Different therapeutic approach: GABAA represents a novel approach by modulating GABAergic neurotransmission rather than directly influencing dopaminergic systems. This may be beneficial in cases where motor symptoms are well-managed with other therapies, but non-motor symptoms persist
- Potential for synergy with dopaminergic treatments: Targeting GABAA could be used in combination with dopaminergic therapies, including MAO-B inhibitors, to provide a more comprehensive treatment approach that addresses both motor and non-motor symptoms
- Reduced risk of dopamine-related side effects: MAO-B inhibitors, while beneficial, can sometimes lead to side effects related to increased dopamine levels, such as dyskinesia or impulse control disorders. Golexanolone does not induce LID, potentially avoiding these side effects while still offering therapeutic benefits
- Golexanolone (GR3027) offers a promising approach for addressing non-motor symptoms of Parkinson's disease through GABAA receptor modulation. It could complement existing therapies, such as MAO-B inhibitors, which are primarily focused on improving motor symptoms by increasing dopamine levels

Biography

Dr. Doverskog has a MSc and PhD in biotechnology from the Royal Institute of Technology, Stockholm and an Executive MBA from Stockholm Business School. Magnus is presently SVP & Chief Scientific Officer at Umecrine Cognition, a biotechnology company located at Karolinska Institute Science Park, Stockholm with >20 years industry experience from development of small molecules and biologics. Senior positions at Astra Pain Control, Biovitrum AB, and as CEO of IMED AB. Post-doc at European Molecular Biology Laboratory (EMBL) in Heidelberg with a Marie Curie individual Fellowship. Magnus was the CEO of Umecrine Cognition between 2012-2022.



Maiah Foge[1]* M.S, Alena Khalil M.A, Sheikh Khaled, Elizette Rodriguez, Keaton Payne, Jesse Blount, Madison Petschke, Roshan Ara Nizamuddin, Faige Jeidel, Vivienne Riven, Stephanie Petrosky D.C.N., M.H.A, RDN

Dr. Kiran C. Patel College of Osteopathic Medicine, Nova Southeastern University, Davie, Florida, USA

Aspartame and its potential neurocognitive effects in humans: A scoping review

Background: The safety of aspartame, a widely consumed low-calorie artificial sweetener, has been heavily debated for human consumption. Published research has demonstrated its breakdown products, aspartic acid and phenylalanine, are associated with potential neurotoxicity due to their ability to activate glutamate receptors and a correlation between aspartame consumption and carcinogenic and metabolic effects in animal models. Neurocognitive implications must be further assessed for consumer safety.

Objective: To evaluate the extent of literature on the neurocognitive effects of aspartame.

Methods: Following PRISMA-ScR, we searched peer-reviewed literature using databases Embase, Ovid Medline, and web of science. Search strategy was limited to full-text studies published in English between 2013 and 2023, excluding review articles. Using the search terms "aspartame": exp, aspartame and neuro*, (aspartame) and (neuro* or memory or dementia), Aspartame and health*, aspartame and health and human*, the initial search yielded 170 articles. After filtering based on inclusion and exclusion criteria and quality of the design and results, 29 articles were selected.

Results: The domains for data extraction were 1) dose-independent and dose-dependent changes in brain and neuronal cells, 2) memory/cognition, 3) behavior/mood and 4) potential neuroprotective agents. Multiple experimental studies involving rats exposed to aspartame over a period of several weeks revealed histopathological changes in the brain such as neuronal damage, reactive gliosis, and increases in oxidative stress markers in the hippocampus, cerebral cortex, and striatal tissue samples, indicating that aspartame has potential neurotoxic effects. Others showed memory and learning impairments in rodents after aspartame ingestion, as well as an association with mood disorders such as depression and anxiety in both human and rodent models. One study showed the consumption of aspartame increased anxiety levels in rodents by down-regulating GABA signaling and up-regulating glutamate signaling in the amygdala. Similarly, adults who frequently consumed beverages containing aspartame were found to exhibit increased levels of depression. Interestingly, mice with induced Parkinsonism consuming aspartame demonstrated a significant decrease in dopamine concentration as well as cognitive changes, such as immobility suggestive of behavior resembling depression and impaired memory. Lastly, diabetic rats consuming aspartame were found to be more aggressive and anxious than their nondiabetic counterparts and had indications of cognitive dysfunction by impaired memory and learning behaviors. Nonetheless, multiple experiments demonstrated potential ameliorative compounds, such as B-caryophyllene, Pimpinella anisum oil, vitamin E, L-carnitine, and a combination of N-acetyl-L-cysteine and folic acid, that may have neuroprotective benefits with aspartame administration.

Conclusions: This review highlighted the negative neurocognitive effects of aspartame consumption, such as neuronal damage, deficits in spatial learning and memory retention, as well as behavioral and mood alterations in both rodent and human subjects and further emphasized its detrimental effects on populations diagnosed with certain conditions such as Parkinson's disease or diabetes. Aspartame's common use as a

“healthier” sugar replacement needs to be reevaluated and caution needs to be taken in the advisement of its use in clinical practice. Further research involving human subjects in controlled settings is required to reassess aspartame’s safety and enable informed decision-making among consumers.

Audience Take Away Notes

- Provides background for future research on aspartame consumption and neurocognitive changes in human subjects
- Recall indications to exercise caution with aspartame consumption in people diagnosed with Parkinson’s disease or diabetes
- Recognize molecular effects of aspartame on the brain and its implications on memory, cognition, behavior, and mood
- Identify new research applications for compounds with the potential to offset the negative neurocognitive impacts of aspartame

Biography

Maiah Fogel holds a BA in Spanish from the Ohio State University and an MS in Management from the University of Colorado. Maiah is a current second-year student at the Dr. Kiran C. Patel College of Osteopathic Medicine at Nova Southeastern University. Maiah is involved in research on potential medications for use in Alzheimer’s Disease.

Mary Avella*, Matthew Nassar

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Developing an online task to examine how attention to detail affects learning dynamics

Autism spectrum disorder is a neurological disorder that affects how a person communicates and interacts with others. One way people on the spectrum are different from neurotypical people is in their attentional focus. In particular, those on the spectrum have been shown to pay close attention to detail instead of looking at “the bigger picture”. One way these contrasts manifest is through learning, where attention to detail might reflect focusing attention on the most recent information, rather than integrating over longer time periods. Because neurodiversity is a wide spectrum, it is hard to measure the difference between every autistic and normal learning style. Previous work from the Nassar lab has identified relationships between "attention to detail," as measured by the autism spectrum questionnaire, and specific learning strategies that are overly focused on specific data points. This work was conducted as part of a small in-person study, and we hope to conduct a larger, online study to validate and extend the results. To do so, we used an online video game experiment to analyze how people learned based on the movements and changes on the screen. The video game measured how participants moved a bucket to catch money dropped by an invisible helicopter. The participant had to infer where the helicopter was, so they could catch the money to earn points. The movements of the helicopter once each new trial started varied between similar patterns and spontaneous movements, so we could measure how people would decide on where to move the bucket. We have a working, online version of the task and plan to collect behavioral data and measures of attention to detail using an autism spectrum questionnaire. The initial pilot results show a mix of stable and flexible learning, with jumps in learning at changepoints between trials. Future work will scale up the study and examine whether individuals with higher attention to detail have heightened flexibility at the expense of belief stability.

Biography

Mary Avella is a rising senior at Hunter College pursuing a degree in psychology with a concentration in Physiology Psychology. In the summer of 2023, Mary conducted research in Dr. Matthew Nassar’s lab at Brown University to understand the way autistic people learn and think. Her project focused on how neurotypical and autistic people learn in a stable or flexible way, with specific relation to attention to details. Once Mary returned to New York, she joined Dr. Peter Serrano’s at Hunter College Psychology Department for the upcoming academic year. Mary is interested in studying the autistic brain to better diagnose individuals on the spectrum, and how high-functioning, autistic people have a level of social intelligence to navigate their surroundings. Mary will be a summer research assistant at Yale University in the Summer of 2024 and will be working in Dr. Moitrayee Bhattacharyya’s lab. Mary main goal is to learn more about neural testing and use research experiences to pursue a Ph.D. in Neuroscience.

Gowri Anil Peethambar[1] MD, Nived Jayaraj Ranjini[2*] MBBS, Anvitha Mummadisetty[3] MBBS, Kesha Jayeshkumar Desai[4] MBBS, Aishwarya Ramesh[5] MBBS, Manvi Gupta[6]

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Epidemiology, imageology and treatment strategies in tumefactive mulitple sclerosis: A systematic review of literature

Objective: Tumefactive Multiple Sclerosis (TMS) is a rare subtype of Multiple Sclerosis (MS) with an incidence of 1-3 per 1000 MS patients. Here, we aimed to review the literature to present data on the epidemiology of TMS.

Background: The annual incidence of Tumefactive MS is 0.3/100,000. The overall prevalence of TMS is 1.4 to 8.2% of MS patients. This could be an underestimate due to the unavailability of a global TMS registry and the underreporting of this condition.

Design/Methods: We searched pubmed and google scholar for articles published on Tumefactive MS using the search term "Tumefactive MS" and identified 137 case reports and 16 case series. Data from a total of 221 patients reported from various countries were analyzed.

Results: Out of the 221 cases studied, 152 (68.7%) were females and 69 (31.2%) were males. The mean age was 33.17 ± 14.47 years. In 146 cases (66.1%), TMS was the first presentation of MS, while 75 (33.9%) occurred in known cases of MS. The most common clinical presentation of TMS was motor symptoms (65.6%); other common features included sensory disturbances (32.13%), visual defects (24.4%), cerebellar symptoms (23.07%), speech disorders (21.71%), cognitive impairment (8.14%), headache (14.9%), and seizures (8.59%). MRI findings indicated that the frontal lobe (36.2%) was the most affected, followed by the parietal lobe (31.9%), temporal lobe (16.4%), occipital lobe (11.3%), pons (8%), cerebellum (7.5%), spinal cord (4.7%), and thalamus (4.2). Almost all patients were treated with steroids (87.6%), which mostly led to regression of symptoms. Plasma exchange therapy was also effectively used along with steroids in many cases (27.3%). Fingolimod (15.8%) was the most used disease-modifying therapy in TMS. Other disease-modifying drugs included interferon beta (11.5%), cyclophosphamide (7.2%), rituximab (5.3%), IVIG (3.8%), natalizumab (3.3%), and glatiramer acetate (3.3%). The study also revealed notable data on drug-related tumefactive lesions, reporting 29 cases (13.1%) associated with fingolimod, 2 cases with alemtuzumab, 1 case with ocrelizumab, 1 case with natalizumab, and 1 case with rituximab.

Conclusion: Our study revealed data on the demographics, symptomatology, and anatomical distribution of TMS. It also sheds light on the treatment-related TMS phenomenon, particularly with fingolimod. Further trials should be conducted on the use of these medications in multiple sclerosis.

Audience Take Away Notes

- This review on Tumefactive Multiple Sclerosis (TMS) provides healthcare professionals with valuable insights into clinical practice. The given data sheds light on demographic profiles, common clinical presentations, and lesion distributions in the brain

- Additionally, this review of treatment options, including steroids, plasma exchange, and disease-modifying therapies, shows comprehensive data on the therapeutic decisions and treatment outcomes. This data may be referred to in developing newer treatment plans
- Beyond clinical application, the review serves as a valuable educational resource for neurology faculty and researchers of the treatment. It supports further exploration into emerging therapies and the underlying mechanisms of TMS, advancing knowledge and stimulating future research in the field

Biography

Dr. Nived Jayaraj Ranjini is a medical graduate from India who has a passion for neurology. He graduated from Government Medical College Kozhikode, Kerala, India in 2023. He is currently involved in various research projects associating with doctors from India and the United States. He is the co-founder of a startup project that uses computer vision and artificial intelligence to objectively analyze hand movement disorders. He will be attending the EEG course and research scholar program at Case Western University from July 2024.

Pranav Reddy OMS-II, Priyamvada Joshi OMS-II, Muskanjot Kaur* OMS-II

Medical Students at Rowan-Virtua SOM, Stratford, New Jersey, USA

Unlocking neuroplasticity: A comprehensive review of stroke rehabilitation strategies and future direction

Background: Stroke, the second-leading cause of mortality and the third-leading cause of mortality and disability, imposes a substantial financial burden, exceeding $721 billion 1. Addressing underlying causes and mitigating stroke-related consequences are crucial aspects of stroke management. Recent studies confirm the effectiveness of stroke rehabilitation in enhancing neuroplasticity post-incident. Neuroplasticity, involving cellular, molecular, and synaptic changes, is boosted by non-invasive brain stimulation, motor rehabilitation, and cognitive rehabilitation 3. This literature review explores modalities like motor and cognitive rehabilitation, assessing their successes and failures, and delves into future research directions aimed at improving the quality of life for stroke survivors.

Methods: The assessment of different therapeutic modalities on brain plasticity was thoroughly analyzed in recent studies. A comprehensive search of PubMed databases and the Cochrane Library yielded relevant papers that were published between 2016 to 2023. To conduct the literature review, the search terms included “stroke patients,” “brain plasticity,” and “therapeutic modalities or rehabilitation.”

Results: This study focused on Functional Electrical Stimulation (FES) to improve gait patterns in stroke patients within 48 subjects. Randomly allocated into a four-channel FES group, a dual-channel FES group, or a placebo group, the four-channel FES group exhibited increased fibers in the Region of Interest (ROI), with an enlarged diameter in and around lesions. New Corticospinal Tract (CST) fibers were found progressively closer to the motor cortex 5.

A study involving eight patients with chronic lacunar stroke and residual leg paresis enrolled in a 5-week training program focusing on mobility, endurance, and coordination. Results showed increased activations in specific brain areas after training, emphasizing the positive role of physical therapy in altering brain plasticity in stroke patients 4.

This study investigated the impact of Motor Imagery-based Brain-Computer Interface (MI-BCI) training with transcranial Direct Current Stimulation (tDCS) or sham-tDCS on brain plasticity in 19 subjects with unilateral subcortical stroke. Post-training, both groups showed improved motor function without significant differences. The tDCS group exhibited increased Fractional Anisotropy (FA) in Diffusion Tensor Imaging (DTI) compared to the sham group. Cerebral Blood Flow (CBF) analysis revealed baseline reductions, with varied post-training changes between groups. Positive correlations were found between CBF changes and motor function improvement in both groups. Ipsilesional resting motor threshold decreased after MI-BCI training in the tDCS group, correlating positively with CBF in the ipsilesional primary motor cortex 2.

Discussion/Conclusion: In summary, the in-depth literature analysis highlights neuroplasticity's pivotal role in stroke rehabilitation. Various interventions, including FES, targeted training programs, and innovative combinations like MI-BCI with tDCS, offer valuable insights for post-stroke recovery. While proving

constructive for motor function and neural plasticity, diverse outcomes underscore the intricate nature of stroke rehabilitation. Individual response heterogeneity emphasizes the need for nuanced, personalized approaches. Future research should focus on understanding determinants like lesion characteristics and patient demographics, shaping more effective, personalized stroke rehabilitation protocols to enhance the overall quality of life for stroke survivors.

Audience Take Away Notes

- **Healthcare Practitioners:** Implement insights in stroke rehabilitation programs. Tailor interventions based on individual patient profiles
- **Educators:** Incorporate findings into teaching materials. Enrich curriculum for healthcare professionals.
- Researchers: Expand investigations into specific modalities and demographics. Contribute to ongoing advancement of knowledge in neuroplasticity
- **Designers and Practitioners:** Streamline rehabilitation processes based on effective modalities. Explore innovation in healthcare technology
- **Healthcare Practitioners:** Enhance treatment plans with evidence-based practices. Improve patient care by applying research insights
- **Educators:** Provide informative case studies for teaching. Enrich curriculum with real-world applications
- **Researchers:** Gain a foundation for further studies. Expand knowledge base in stroke rehabilitation
- **Designers and Practitioners:** Streamline rehabilitation processes for efficiency. Potentially inspire innovation in healthcare technology
- **Quality of Life Improvement:** Enhance overall quality of life for stroke survivors. Cost-efficient interventions. Implement evidence-based practices for cost efficiency
- **Contribution to Scientific Knowledge:** Contribute to broader scientific understanding of neuroplasticity and stroke rehabilitation
- **Healthcare Practitioners:** Implement insights in stroke rehabilitation programs. Tailor interventions based on individual patient profiles
- **Educators:** Incorporate findings into teaching materials. Enrich curriculum for healthcare professionals
- **Researchers:** Expand investigations into specific modalities and demographics. Contribute to ongoing advancement of knowledge in neuroplasticity
- **Designers and Practitioners:** Streamline rehabilitation processes based on effective modalities. Explore innovation in healthcare technology
- H**ealthcare Practitioners:** Enhance treatment plans with evidence-based practices. Improve patient care by applying research insights
- **Educators:** Provide informative case studies for teaching. Enrich curriculum with real-world applications
- **Researchers:** Gain a foundation for further studies. Expand knowledge base in stroke rehabilitation
- **Designers and Practitioners:** Streamline rehabilitation processes for efficiency. Potentially inspire innovation in healthcare technology

Biography

Muskanjot Kaur, OMS-II holds a B.S. degree in Biology from The College of New Jersey, where she conducted marine biology research under Dr. Gary Dickinson. Muskanjot Kaur is currently studying at Rowan-Virtua School of Osteopathic Medicine and is involved in infectious disease research in affiliation with Cooper Medical School of Rowan University.

Pavan Nathani
Boston University, United States

In silico analysis of CA3 replay prolongation and naturalistic sequence activity under pulsatile optogenetic stimulation

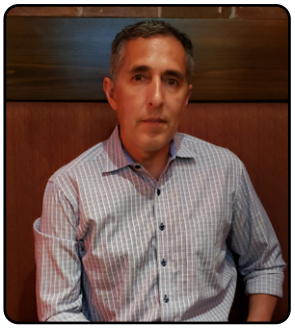
Optogenetic stimulation of hippocampal circuitry has been increasingly used to study sequence learning and memory (Geiller et al., 2023). Prolongation of spontaneously occurring sharp wave ripples (SPW-Rs) within the CA3 subregion of the hippocampus through optogenetic stimulation has been shown to improve memory during maze learning in vivo (Fernandez-Ruiz et al., 2019). However, while modulating neural activity through optogenetic stimulation, differences in the characteristics of light used introduce variability between experiments. Frequency, pulse duration, and waveform influence sequence learning and temporal distortion (Glickman et al., 2023). These parameters are standardized for single-pulse inputs (Wilmerding et al., 2022), but more complex inputs are better suited for inducing behavioral differences (Glickman et al., 2023). Here, we show the effects of waveform design, frequency, and duty cycling on prolonging replay to evoke a more reliable response. We performed a parameter sweep leveraging a rate-based neural model (Wilmerding et al., 2022) simulating a neural circuit exhibiting SPW-Rs between frequency 1-151 Hz and input duration 0-250 ms for a sinusoidal waveform and another parameter sweep between frequency 1-151 Hz and duty cycle 0-1 for square pulse waveforms. Within repeated square waves with a low maximum amplitude, we found the ideal duty cycle to be 30%-50%, while higher amplitude square waves exhibit lower temporal distortion at higher frequencies for duty cycles greater than 0.1. Sinusoidal waveforms with a low maximum amplitude and input durations between 110-130 ms best balance temporal distortion and sequence length; higher amplitude sinusoidals performed better with input durations between 50-55 ms across frequencies. We propose optimal frequency ranges for waveforms that prolong replay and minimize circuit disruption. Understanding optogenetic stimulation under a broader range of stimuli optimizes experimental methodology for in vivo translation.

Audience Take Away Notes:

- As optogenetics is a well known technique in the neuroscience community for studying various cognitive processes, the audience will be informed as to how to optimize their experimental procedures to yield reliable results by simulating them in silico first
- The scope of our research isn't just limited to sharp wave ripples in the CA3 subregion of the hippocampus. In fact, other circuits can be modeled in a similar fashion and can be used to find optimal optogenetic stimulation parameters for the type of input prior to the experiment
- Designers' jobs are made much more efficient as they are optimizing their experimental results without wasting any time/resources. Resultantly, accuracies may be improved for said outcomes depending on circuit/process is being studied
- Our results are specific to memory as the CA3 subregion is popularly studied for. For scientists interested in performing in vivo studies of memory, these parameters can be considered as a basis for obtaining favorable/significant results

Biography

Pavan studied Computational Neurobiology at Boston University in Boston, Massachusetts as part of the highly esteemed and selective Research in Science & Engineering (RISE) program. His team's work was completed under the guidance of Ph.D. student Ryan Senne at Boston University, Ph.D. student Karla Montejo at MIT Brain and Cognitive Sciences, and postdoctoral researcher Lucius (Kelton) Wilmerding who earned his Ph.D. in Neuroscience at Boston University.



Richard De La Garza[1*] II, Jason Batt[2]

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[2]Research, OwnLife Analytics Ltd, Dorset, United Kingdom

The effect of physical exercise on cognitive function in knowledge workers

OwnLife is a leadership development business that combines human analytics with executive coaching to help individuals optimize how they live and maximize their cognitive performance. We hypothesized that physical exercise which materially elevates the heart rate is associated with improved cognitive function in the subsequent 0-8 hours. Male and female adults (18-60 years) from various knowledge-worker industries (financial services/information & technology/media/data & analytics/healthcare) participated (total sample size=157).

Individuals provided self-report data via the 'OwnLife' app. Data were collected 4 times daily at 4-hour intervals for 2 consecutive weeks. At each collection point relative scores of Mental Clarity MC), Focus (MF), Stability (MS) and Energy (ME) were captured using a visual analogue scale.

Individuals wore Fitbit smartwatches to capture weighted medium and high intensity Physical Exercise (PE).

Results suggest that PE of >30 minutes is associated with a decreased Relative Risk (RR) of Low Cognitive Function (LCF) across all 4 measures (MC, MF, MS & ME). MC and MF were the most affected and participants who had completed >30 minutes PE had a RR of low MC and low MF of 0.6 and 0.59 respectively in the period 0-4 hours afterwards ($P<0.001$ for both). The results also suggest that (1) the RR of LCF in the subsequent 0-4 hours decreases steadily for increased levels of PE up to PE of 30 minutes for all 4 measures, (2) that for ME, the RR of low ME 0-4 hours after exercise plateaus after 30 minutes and then increases, but the RR of low MC and MF continue to decline up to 90 minutes as the level of PE increases (RRs when PE>90 minutes are 0.39/0.37 with $P=0.029/0.021$ respectively), and (3) PE of >60 minutes also significantly reduces the RR of LCF in the period 4-8 hours after exercise for all 4 measures, most significantly on MC with a RR of low MC of 0.37 ($P<0.001$).

Implications are that actively managing PE is a valuable consideration in helping knowledge workers optimize their cognitive function at work.

Further investigation is required to control for factors such as age, work hour and the time of exercise, and understand how hybrid working, a once in a generation disruption, is impacting other aspects of our ability to create well-structured, optimal routines.

We are releasing data on those important variables in the near future.

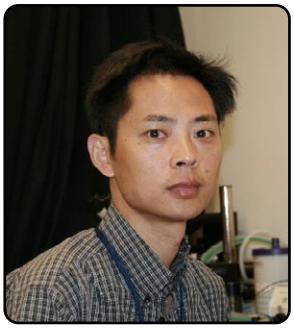
Audience Take Away Notes

- Measuring cognitive function using a time-series of self-report data offers a practical alternative to before & after cognitive assessments and could help improve efficiency in collecting larger scale data

- The two-sided visual analogue scale provides extra information to help classify positive or negative symptoms
- The design also allows for assessing effectiveness of multiple exposure levels simultaneously

Biography

Richard (Rich) De La Garza completed Ph.D in neuroscience at the University of Texas Medical Branch followed by postdocs at Harvard Medical School and Yale University School of Medicine. Currently, Dr. De La Garza is Professor in the Department of Psychiatry and Biobehavioral Sciences at the David Geffen School of Medicine at UCLA. Dr. De La Garza has published more than 120 peer-reviewed scientific articles. Rich has received numerous honors including being named a Distinguished Alumnus of his alma mater.



Rong Jin[1*], Min Wang1, Yuguo Lei[2], Dong An[1,3], Jiwen Du[1], Guohong Li[1]

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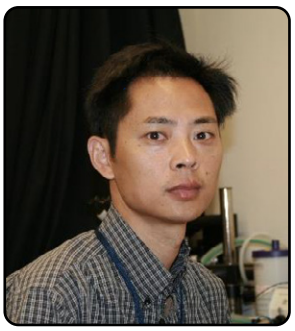
J147 treatment protects against traumatic brain injury by inhibiting neuronal endoplasmic reticulum stress via the AMPK/ SREBP-1 pathway

Endoplasmic Reticulum (ER) stress is recognized as a crucial contributor to the progression of Traumatic Brain Injury (TBI) and represents a potential target for therapeutic intervention. This study aimed to assess the potential of J147, a novel neurotrophic compound, in alleviating ER stress by modulating related signaling pathways, thereby promoting functional recovery in TBI. To this end, adult mice underwent Controlled Cortical Impact (CCI) injury to induce TBI, followed by oral administration of J147 one hour post-injury, with daily dosing for 3 to 7 days. Multiple behavioral assessments were conducted over 35 days, revealing a significant, dose-dependent improvement in neurofunctional recovery with J147 treatment. Neuropathological analysis demonstrated reduced acute neurodegeneration (observed at 3 days through FJC staining), enhanced long-term neuron survival (H&E and Nissl staining), and improved neuroplasticity (Golgi staining) at 35 days post-TBI. At the molecular level, TBI induced AMP-Activated Protein Kinase (AMPK) dephosphorylation, Sterol Regulatory Element Binding Protein-1 (SREBP-1) activation, and upregulation of ER stress marker proteins, including phosphorylated eukaryotic Initiation Factor-2□ (p-eIF2a), Activating Transcription Factor 4 (ATF4), and C/EBP Homologous Protein (CHOP) in perilesional cortex neurons at 3 days post-injury. Notably, J147 treatment significantly attenuated AMPK dephosphorylation, SERBP-1 activation, and expression of the ER stress markers. In summary, this study reveals the therapeutic promise of J147 in mitigating secondary brain damage associated with TBI and improving long-term functional recovery by modulating ER stress pathways.

Keywords: J147; AMPK; SREBP; ER Stress; Traumatic Brain Injury.

Biography

Dr. Rong Jin earned his PhD from Capital Medical University, China, in 2006. He then joined Tiantan Hospital in Beijing until 2008. From 2008 to 2014, he conducted postdoctoral research at LSU-HSC in Shreveport. Following this, he served as an assistant professor at LSU-HSC in Shreveport from 2014 to 2016. Subsequently, from 2016 to 2022, he worked as an assistant professor at Penn State-Hershey Medical Center, and in 2022, he was promoted to associate professor at the same institution. Dr. Jin's research focuses on ischemic stroke and traumatic brain injury, and he has published over 30 research articles.



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mir30c-mimic ameliorates acute ischemic stroke in mice by reducing thromboinflammation and attenuating neuronal ER stress

Decreased expression of endogenous miR-30c has been linked to numerous pathological conditions in both patients and animal models, including various cancers, hyperlipidemia, atherosclerosis, hyperglycemia, and diabetes. Systemic administration of a miR-30c mimic has been demonstrated to reduce hyperlipidemia and atherosclerosis. Conversely, inhibition of hepatic miR-30c with anti-miR-30c increased hyperlipidemia and atherosclerosis in animal models. These findings suggest that miR-30c could be an attractive target for therapeutic interventions. However, its role in regulating cerebral ischemia/reperfusion injury remains poorly understood. This study explores the potential impact of miR-30c in reducing post-stroke thrombotic and inflammatory responses by inhibiting PAI-1 expression in brain endothelial cells and reducing neuronal cell ER stress, thus mitigating brain damage from stroke. To this end, adult old mice underwent 45 minutes of Middle Cerebral Artery Occlusion (MCAo) followed by reperfusion. miR-30c mimic was intravenously administered three hours post-ischemia. The results showed that systemic administration of the miR-30c mimic reduced infarct size and improved functional outcomes on day 3 after stroke in a dose-dependent manner (0.5 to 5 mg/kg). The neuroprotective effects were associated with: 1) decreased thrombosis and improved cerebral perfusion by reducing intravascular fibrin and platelet deposition through the inhibition of PAI-1 expression in brain microvascular endothelial cells, and 2) reduced stroke-induced ER stress, thereby preventing apoptosis. In summary, our results indicate that elevating miR-30c could be a novel strategy for protecting against cerebral ischemia/reperfusion injury by modulating neurovascular functions across multiple cell types in both blood and brain.

Keywords: miR30c, Thromboinflammation, ER Stress, Ischemic Stroke.

Biography

Dr. Rong Jin earned his PhD from Capital Medical University, China, in 2006. He then joined Tiantan Hospital in Beijing until 2008. From 2008 to 2014, he conducted postdoctoral research at LSU-HSC in Shreveport. Following this, he served as an assistant professor at LSU-HSC in Shreveport from 2014 to 2016. Subsequently, from 2016 to 2022, he worked as an assistant professor at Penn State-Hershey Medical Center, and in 2022, he was promoted to associate professor at the same institution. Dr. Jin's research focuses on ischemic stroke and traumatic brain injury, and he has published over 30 research articles.

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Awareness to action: Enhancing autism healthcare access

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder defined by impairments in communication and social skills, restricted interests, and repetitive activities and behaviors. The prevalence of ASD has continued to rise, with 2020 statistics showing that around 1 in every 36 children in the United States has a diagnosis of ASD. The purpose of this brief is to analyze the current healthcare landscape for individuals with autism, explore factors that cause a decrease in access to care from childhood to adulthood, as well as propose solutions that will allow individuals with ASD to obtain healthcare throughout their lifetimes.

The proposed solutions include supporting families in the transition from youth to adulthood. Provide transition training to pediatricians, who are often at the center of care for these families. Additionally, the paper explores how to increase the number of adult providers who treat ASD. Extension for Community Healthcare Outcomes (ECHO) videoconferencing model of education connects specialists to primary care physicians, equipping and educating them to provide evidence-based care to individuals with ASD.

The findings of the paper show that transition planning increases healthcare utilization, population health, and independence in youth with special needs. The ECHO model has previously allowed patients to feel more comfortable with their physicians and physicians to feel more confident when treating patients. Continuing evidence-based interventions in adults with ASD lead to improved health and communication, reduced repetitive behaviors, higher education, and meaningful employment. Lack of healthcare has negative effects on functioning into adulthood; delays in treatment increase the use of resources in adulthood, including increased number of acute destabilizations and emergency service use. Furthermore, models such as ECHO are already helping decrease disparities faced in underserved ASD communities, and transition care planning is successfully being used in other youth with special needs, such as ADHD.

Audience Take Away Notes

- The audience will learn why continued care of adults with ASD is important
- The audience will learn about limitations to healthcare access faced by individuals with ASD
- The audience will learn about methods to expand healthcare access to adults with ASD, including models of education currently in use

Biography

Sabrina Martinez is a current medical student at FIU HWCOM in Miami, Florida. Sabrina is expected to earn M.D. degree in May of 2025. The overseeing attending is Dr. Yanko Enamorado, an autism specialist at Mount Sinai Medical Center in Miami, FL.

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Protoplasmic astrocytoma: An analysis of demographic and socioeconomic factors

Background: Protoplasmic Astrocytoma (PA) is an extremely rare subtype of astrocytoma composed of malignant cells similar to protoplasmic astrocytes. Although rare, the slow-growing course of PA can often delay diagnosis and treatment, worsening survival rates. Radiologically, PA's tendency to mimic the presentation of other non-malignant diseases such as neurosarcoidosis and Wegener's, resulting in further delay of diagnosis and treatment. Given the difficulty of diagnosing PA, valuable insights into PA's epidemiology can be gleaned from diagnostic trends. Here, the demographic factors of protoplasmic astrocytoma were determined by analyzing data from the National Cancer Database

Methods: In this retrospective cohort analysis, demographic factors (age, sex, race, Hispanic status, insurance status, and Charles/Deyo score) of patients diagnosed with protoplasmic astrocytoma (N=61) were analyzed by descriptive statistics. This was done utilizing data from the 2004-2020 NCDB and ICD-O-3 code 9410.

Results: A total of 61 patients were identified in the NCDB database with the diagnosis of PA. The average age of diagnosis was 40.2 years (SD=18.4, range-3-88 years) with a male preponderance (64%). The majority of the patients (76%) were insured with either private insurance (56%) or Medicaid (20%). Approximately 86% of patients were non-Hispanic and 90% were white. The majority of patients (76%) lived in metropolitan areas. A higher percentage of patients reported residence in metropolitan counties with a population of 1 million or more (52%). Most patients (89%) had no comorbidities and a Charlson-Deyo score of 0. The top primary sites were the frontal lobe (48%), temporal lobe (25%), and the parietal lobe (10%). The average tumor size was 48.25 millimeters (SD=14.86, Range=31-67 millimeters). Most individuals (87%) had surgical excision of the tumors. The most common specified surgical procedures were biopsy followed by gross excision of the lesion (12%), local tumor excision (10%), and photodynamic therapy (10%). 54% received radiation therapy and 33% received chemotherapy as their primary treatment. The survival rates were found to be 75% at two years and 64% at five years.

Conclusions: This is the first NCDB analysis on protoplasmic astrocytoma and therefore offers valuable insight into demographic and socioeconomic factors affecting diagnosis and treatment. The majority of patients diagnosed with PA did not have comorbidities and were found to be non-Hispanic, white, and male. The primary sites for PA were the frontal, temporal and parietal lobes, consistent with previous literature. Socioeconomic characteristics of patients showed that individuals with PA were more likely to have private insurance and live in metropolitan counties. In terms of treatment, patients receive surgical excision with adjunct combination therapies. Additional research is needed to determine the effect of demographic socioeconomic factors on diagnosis, staging, ability to promptly receive treatment, and survival.

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Stroke after pediatric traumatic brain injury and its association with outcome at hospital discharge- A retrospective chart review

Introduction: Childhood stroke is associated with high mortality and serious morbidity for the survivors. Traumatic Brain Injury (TBI) has been reported to be a possible cause of childhood stroke or Post Traumatic Cerebral Infarction (PTCI). The precise frequency of cerebral ischemia, however, is often debated in adult TBI, and even less is known about its frequency in pediatric TBI. It is generally believed that post-traumatic cerebral ischemia is an important contributing factor to secondary injury and, consequently, to poor outcome. We hypothesize that cerebral infarction following traumatic brain injury is one such risk factor and associated with poor outcome. Primary objective of this study will be to calculate the incidence of post traumatic cerebral infarction in children. Secondary objectives will be to find out the association between post traumatic cerebral infraction and outcome at hospital discharge.

Methods: This is a retrospective chart review (January 2016 to August 2021). All pediatric patients <18 years with isolated Traumatic Brain Injury (TBI) admitted to a tertiary care hospital are included. Data collection included, demographic data, clinical details like diagnosis at admission and outcome at discharge. Diagnosis at admission is categorised as isolated skull fracture, isolated Extradural Hematoma (EDH), subdural hematoma, cerebral contusion and Diffuse Axonal Injury (DAI). Outcome at discharge is determined as per King's Outcome Score for Childhood Head Injury (KOSCHI) (Appendix 1). Diagnosis of PTCI was made by a neuro-radiologist on non-enhanced CT scan based on a well-demarcated or fairly discernible region of hypo-density following specific vascular territory.

Results: Four hundred and fourteen patient charts meeting the inclusion and exclusion criteria were reviewed. Eight charts were excluded from analysis for missing data. Average age of patients is 10.4+/-5.1 years. Male to female ratio is 300/106. Incidence of post traumatic cerebral infarction in pediatric patients was 8.84%. PTCI in patients was associated with poor outcome as determined by chi square test ($p<0.00001$). Odds of having a poor outcome (KOSHI <3) in patients with PTCI is 45.5 (95% CI 12.9 to 160.4, $p<0.0001$). (Narrow CI indicates precise estimate). Two forty eight patients had data on the type of head injury at the time of admission. Of these 64 patients had complicated head injury such as subdural hematoma and or contusion and or diffuse axonal injury. Whereas 184 patients had simple injury like skull fracture and or extradural hematoma. Complicated head injury in pediatric patients is associated with poor outcome ($p<0.00001$) and development of PTCI ($p=0.0006$) as determined by chi square test. Odds of having a poor outcome (KOSCHI <3) in patients with serious head injury is 5.6 (95% CI=2.93 to 10.7, $P<0.0001$). Odds of having PTCI in patients with serious head injury is 3.2 (95% CI=1.59 to 6.44, $P=0.001$).

Discussion and conclusion: PTCI in children is associated with poor outcome and incidence of PTCI is higher in pediatric patients who sustained SDH or cerebral contusion or DAI. Future prospective studies are required to determine the risk of PTCI in children with head injury.

KOSCHI category	Definition
1.Death	
2. Vegetative	The child is breathing spontaneously and may have sleep/wake cycles. He may have non purposeful or reflex movements of limbs or eye. There is no evidence of ability to communicate verbally or non verbally or to respond to commands
3. Severe disability	a) The child is atleast intermittently able to move part of the body/eyes to command or make purposeful spontaneous movements; for example, confused child pulling at nasogastric tube, lashing out at carers, rolling over in bed. May be able to communicate but not yet able to carry out any self activities such as feeding
4. Moderate disability	a) The child is mostly independent but needs a degree of supervision/ actual help for physical or behavioral problems. Such a child has overt problems; for example, 12 year old with a moderate hemiplegia and dyspraxia insecure on stairs or needing help with dressing b) The child is age appropriately independent but has residual problems with learning/ behavior or neurological sequelae affecting function. He probably should have special needs assistance but his special needs may not have been recognized/met. Children with symptoms of post-traumatic stress are likely to fall into this category.
5. Good recovery	a) This should only be assigned if the head injury has resulted in a new condition which does not interfere with the child's well being and/or functioning ; for example Minor headache not interfering with social or school functioning Abnormalities on brain scan without any detectable new problem Prophylactic anticonvulsants in the absence of clinical seizures Unsightly scarring of face/head likely to need cosmetic surgery at some stage Mild neurological asymmetry but no evidence of affect on function of limb. Includes isolated change in hand dominance in young child b) Implies that the information available is that the child has made a complete recovery with no detectable sequelae from the head injury

Audience Take Away Notes

- To know the incidence of post traumatic cerebral infarction in pediatric patients
- Clinicians may anticipate PTCI in pediatric patients
- Prospective study can be conducted
- To allocate resources appropriately as PTCI carries a poor prognosis in paediatric patients

Biography

Dr. Sparna Bharadwaj is a neuroanesthesiologist by profession. Dr. Sparna clinical responsibilities include anesthestising patients in operating room and caring for patients in neuro critical care. Dr. Sparna is an additional professor. After basic anesthesia training, Dr. Sparna pursued a three year subspecialty course in neuroanesthesia and later completed fellowships in neuroanesthesia and neurocritical care from Canada and Cambridge United Kingdom. Dr. Sparna has more than 50 scientific publications to her credit.

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Generalized tremulousness and stuttering speech: An atypical sequelae of a pontine stroke (case report)

Background: Pontine strokes present a unique set of challenges in diagnosis and management as the clinical presentation can vary significantly. Along with the classic symptoms of dizziness, dysarthria, dysmetria, and weakness of the legs, there have been numerous case reports of unusual manifestations in pontine strokes such as restless leg syndrome and tremulousness.

Methods: Here, we present a case of a 72-year-old woman with an atypical sequelae of symptoms following an acute left pontine cerebrovascular accident.

Results: A 72-year-old woman with a history of meningioma and breast cancer on tamoxifen presented to the ED complaining of difficulty speaking. The night prior to presentation, the patient reported that she began experiencing dizziness, nausea/vomiting, as well as difficulty with word-finding. She reported falling and hitting her head secondary to dizziness. After the fall, she went to bed and woke up the next morning still experiencing significant difficulty with word-finding, new-onset stuttering, and difficulty ambulating at which point she was driven to the ED by family. Physical examination was remarkable for a flushed/erythematous appearance to the skin, profound generalized tremulousness, significant dysarthria with profound stuttering, vertical nystagmus, left internuclear ophthalmoplegia, and right upper limb dysmetria. Motor function and sensation were grossly intact. NIH Stroke Scale was 3. MRI brain with and without contrast revealed an acute infarct in the parasagittal left dorsal pons. Upon initial presentation the patient's significant tremulousness, stuttering, and flushed appearance were attributed to anxiety given acute onset of stroke-like symptoms; however, upon review of imaging and cursory review of literature, these unusual symptoms were determined to be rarely reported sequelae of her infarct.

Conclusion: This case presentation adds to existing literature on the unique presentations of pontine stroke. The acute behavioral changes including restlessness and facial flushing that were initially thought to be secondary to acute anxiety rather than a neurological impairment exemplifies the range of presentations that can be misdiagnosed due to incongruence in comparison to typical stroke-like symptoms. This case highlights the importance of ensuring that medical professionals are aware of the more unusual presentations that may accompany pontine stroke to decrease patient complications and improve outcomes.

Audience Take Away Notes

- Typical presentations of pontine strokes and warning signs to look for?
- How to recognize the unique sequela of a pontine stroke including symptoms mimicking psychological or behavioral causes?
- How to avoid the representativeness heuristic to expand potential differential diagnosis in the identification of stroke-like symptoms?

Biography

Yasmina Sirgi is a fourth-year medical student at Georgetown University School of Medicine. She will be applying for residency in Internal Medicine this fall and looks forward to continuing her medical education. She is originally from Denver, CO and went to Lehigh University in Bethlehem, PA for college. She earned a Bachelor of Science in Biomedical Engineering with a certificate in Biomechanics. She then moved to Washington, DC where

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The associations between gaming motivation and internet gaming disorder: Systematic review and meta-analysis

Background: Interest in examining Internet Gaming Disorder (IGD) and its association with gaming motivation has surged. Eleven studies were conducted between 2018 and 2021 with a sample size of 4,065 individuals across various cultural contexts.

Methods: Utilizing the Online Gaming Motivation Questionnaire, this study explores the differential impacts of several motivations on IGD. It aims to (1) quantitatively synthesize the body of literature to systematically examine the discrepancies in the magnitude of associations between various components of gaming motivation and IGD and (2) examine the moderating role of cultural dimension on the association between escapism gaming motivation and IGD.

Results: The findings reveal that “Escape” and “Coping” motivations exhibit significant correlations with higher IGD levels, identifying them as potential risk factors. In contrast, “Social,” “Skill Development,” and “Recreation” motivations show weaker links to IGD, underscoring the nature of gaming behaviors. Notably, no significant moderating effects of country groups on these relationships was found, indicating a universal pattern across various cultural contexts.

Conclusions: This meta-analysis highlights the importance of acknowledging the discrepancies among the different components of gaming motivation with respect to their role in the development of IGD and the potential cultural variations in the strength of such associations.

Keywords: Gaming Motivation; Internet Gaming Disorder; Escapism; Culture; Cross-Cultural Comparison.

Biography

Ruoyu Zhou is currently a third-year Ph.D. student at the Graduate School of Comprehensive Human Sciences, Human Care Science Program at Tsukuba University, Japan. Specializing in the field of Internet Gaming Disorder (IGD), Zhou's research primarily focuses on identifying the multifaceted factors associated with IGD and exploring effective intervention methods. With a keen interest in the psychological and social dimensions of gaming, Zhou aims to contribute to the understanding and treatment of gaming disorders through comprehensive research. Zhou's work integrates quantitative and qualitative methodologies to assess the impact of gaming behaviors, aiming to develop evidence-based strategies for the prevention and management of IGD. Through Zhou's research, Zhou seeks to bridge the gap between gaming disorder theories and practical, real-world applications, ultimately enhancing the well-being of affected individuals.

BOOK OF ABSTRACTS

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