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VIRTUAL EVENT

Neurology and Neurological Disorders

&

Advances in Addiction Medicine and Mental Health

PEERS ALLEY MEDIA

PROGRAM-AT-A-GLANCE >>

YOUR FIRST CHOICE FOR RESEARCH INGENUITY

NEURO CONCLAVE 2024 & ADV. AMMH 2024

2024
JUNE 26 | WEDNESDAY

Scientific Program

BST - British Summer Time

06:00-06:20	**Opening Ceremony**

Topics: Neurology | Neurosurgery | Neuropsychiatry | Central Nervous System | Pediatric Neurology | Neurological Disorders | Sleep Disorders | Stroke | Movement Disorders | Parkinson's Disease | Epilepsy | Addiction Medicine | Addiction Rehabilitation | Addiction Psychiatry | Mental Health | Addiction Pharmacology | ADHD | Addictive Disorders | Alcoholism And Alcohol Abuse | Autism Spectrum Disorder (ASD) | Psychosomatic Medicine

Distinguished Speaker Talks

06:20-06:40	**Title: Brain injury and prison: Over-representation, prevention and reform** **Molly Townes O'Brien,** *Australian National University, Australia*
06:40-07:00	**Title: Maternal perception of spousal support in parenting, child attachment and associated brain structures in children with attention-deficit/hyperactivity disorder** **Ayaka Ishii-Takahashi,** *National Institute of Mental Health National Center of Neurology and Psychiatry, Japan*
07:00-07:20	**Title: Clinical feature and sural biopsy study in nitrous oxide-induced peripheral neuropathy** **Li Wang,** *The First Hospital of Tsinghua University, China*
07:20-07:40	**Title: Predicting academic success: Machine learning analysis of student, parental, and school efforts** **Xin JIN,** *School of Foreign Studies, Nanjing University of Posts and Telecommunications, China*
07:40-08:00	**Title: Online inferential processing among children with dyslexia during Chinese narrative comprehension: Evidence from eye-movement study** **Lin Fan,** *Beijing Foreign Studies University, China*
08:00-08:20	**Title: A study on efficacy and safety of tacrolimus, azathioprine and mycophenolate mofetil therapy for myasthenia gravis** **Li Yang,** *The Second Xiangya Hospital of Central South University, China*

Refreshment Break 08:20-08:30

08:30-08:50	**Title: Zebrafish as an emerging valuable model for studying neurodegenerative diseases** **Yanying Liu,** *Qingdao Huanghai University, China*
08:50-09:10	**Title: Suppression and working memory in auditory comprehension of L2 narratives: Evidence from cross-modal priming** **Shiyu Wu,** *Shanghai Jiao Tong University, China*
09:10-09:30	**Title: Study on the relationship between vertebrobasilar dolichoectasia and posterior cranial fossa space** **Yao Xiaolong,** *The Third People's Hospital of Hubei Province, China*
09:30-09:50	**Title: Leading the way in Anti-Parkinsonism drug discovery** **Judit Magdolna Ovádi,** *HUN-REN Research Centre for Natural Sciences, Hungary*
09:50-10:10	**Title: Curious case of paediatric one lung ventilation with two endotracheal tubes: A case report** **Lalit Jha,** *All India Institute of Medical Sciences, India*
10:10-10:30	**Title: Computational evaluation of a racetam congener- A new addition to the armamentarium of anti-epileptic drugs** **Chandrashekar Narayanan Rahul,** *Alagappa University, India*
10:30-10:50	**Title: Antibody-proteases as translational tools of the next step generation to be applied in personalized and precision neurology practice** **Sergey Suchkov,** *The Russian University of Medicine and Russian Academy of Natural Sciences, Moscow, Russia*
10:50-11:10	**Title: Bilateral localized bullous pemphigoid in a young adult patient** **Marwa Akhdar,** *Tehran University of Medical Sciences (TUMS), Iran*
Refreshment Break 11:10-11:20	
11:20-11:40	**Title: Personality characteristics of patients with coronary artery disease and sleep disorders** **Alexey Danilovich Ibatov,** *I.M. Sechenov First Moscow State Medical University of the Ministry of Health of the Russian Federation (Sechenov University), Russia*
11:40-12:00	**Title: Artificial intelligence in routine speech therapy care for Parkinson's disease: Constructing of a human- centered implementation approach** **Anika Thurmann,** *Hochschule für Gesundheit, Germany*

12:00-12:20	**Title: Recovery of spinal walking in paraplegic dogs using physiotherapy and supportive devices to maintain the standing position** **Gheorghe Solcan,** *University of Life Sciences, Romania*
12:20-12:40	**Title: Driving assessment for persons with dementia: How and when?** **Lara Camilleri,** *Saint Vincent De Paul Long Term Care Facility, Malta*
12:40-13:00	**Title: Challenges and solutions for design, integration and interoperability of intelligent and ethical health and social care ecosystems** **Bernd Blobel,** *Deggendorf Institute of Technology, Germany*
Lunch Break 13:00-13:30	
13:30-13:50	**Title: Environmental neurotoxins: Endocrine disrupters and pesticides in neurodevelopmental disorders** **Rebeca Mira Sánchez,** *Instiuto de Ciencias Medioambientales y Neurodesarrollo ICMYN, Spain*
13:50-14:10	**Title: Role of lipoprotein receptors in neuronal cholesterol homeostasis** **Maria Borrell,** *Institut de Recerca Sant Pau- Centre CERCA, Spain*
14:10-14:30	**Title: Alteration of glia in covid infection: Permanence of cognitive alterations and mood disorders. Clinical cases** **Concetta Mezzatesta,** *"Civico" Partinico Covid Hospital, Italy*
14:30-14:50	**Title: Association between iron deficiency anaemia and ischaemic stroke in adults** **Preethy Manoj,** *Royal College of Surgeons in Ireland, Ireland*
14:50-15:10	**Title: New Evidence for high prevalence of Renal Salt Wasting (RSW), identification of novel protein in RSW to simplify diagnosis of RSW and introducing new syndrome of RSW in Alzheimer's disease** **John K. Maesaka,** *NYU Grossman Long Island School of Medicine, USA*
Refreshment Break 15:10-15:30	
15:30-15:50	**Title: Foundational discoveries in cancer neuroscience: Elucidating nervous system–cancer interactions** **Tahmineh Azizi,** *University of Missouri St. Louis, USA*
15:50-16:10	**Title: Genetic and epigenetic resilience during aging** **Li Liu,** *Arizona State University, USA*
16:10-16:30	**Title: Novel lipid mediators responses in experimental therapeutics for Ischemic stroke** **Nicolas G. Bazan,** *Louisiana State University Health New Orleans, USA*

16:30-16:50	**Title: Theory and applications of EEG data analysis** **Ceon Ramon,** *University of Washington, USA*
16:50-17:10	**Title: Validation of self-efficacy questionnaire of online learning for students with disabilities in higher education** **Tuba Gezer,** *The Ohio State University, USA*
17:10-17:30	**Title: MicroRNA and metabolic arrest in brain** **Kenneth B. Storey,** *Carleton University, Canada*
17:30-17:50	**Title: Predictors of conversion to Dementia in patients with mild cognitive impairment: The role of low body temperature** **Kannayiram Alagiakrishnan,** *University of Alberta, Canada*
17:50-18:10	**Title: What role do neuropeptides play in mental health? A new target in psychiatric disorders** **Renata Lopes Fleming,** *Universidade Federal do Rio de Janeiro (UFRJ), Brazil*

Closing Remarks

PEERS ALLEY MEDIA

DISTINGUISHED SPEAKER TALKS

Virtual Event

Neurology and neurological disorders

&

Advances in addiction medicine and mental health

June 26, 2024
Virtual

NEURO CONCLAVE 2024

ADV. AMMH 2024

Brain injury and prison: Over-representation, prevention and reform

Molly Townes O'Brien

Honorary Associate Professor, ANU College of Law, Australian National University, Australia

Background: People who have suffered a brain injury are significantly over-represented in prisons around the world. Compared to the general population, people in prison are more than five times as likely to have had a brain injury. Brain injuries may have multiple ongoing symptoms which lead to the commission of criminal offenses and to inadequate presentation of defenses. Police, lawyers, judges and prison staff are largely unaware of an inmate's brain injury status. The silence of this unrecognized epidemic frequently leads to insufficient treatment and unnecessary and inappropriate disciplinary action.

Objective: The goal of this presentation is to increase the communication between medical staff and patient's families, carers and advocates. From the perspective of having had a severe traumatic brain injury, I recommend that before hospital release, each patient should be in the care of people who are aware of the patient's brain injury status and the effect(s) it may have on their Behaviour. I recommend that medical professionals provide more and better brain injury screening to the justice system. I further recommend that training be given to police, lawyers, judges and prison staff. People who deal with prisoners should be trained in how to identify and manage the deficits caused by brain injury. Human rights litigation may also be a tool to meet the needs of brain injured inmates. People with brain injuries should not be punished and forgotten.

Conclusion: Too many people with Traumatic Brain Injury are imprisoned. Justice officials' lack of understanding of the behaviour associated with brain brain injury may contribute to the over-representation in prison. Medical professionals may contribute to the education and solution.

Biography

Molly Townes O'Brien is an Honorary Associate Professor at the ANU College of Law. Molly has served on the law faculties of Emory University, University of Akron and University of Wollongong. Prior to entering the academy, she worked as a judicial clerk in the United States District Court and the Georgia Supreme Court before practicing law in Pennsylvania as a civil litigator and then as an Assistant Public Defender. She had a TBI in 2012 and wrote a book, *Nobody Home – My Brain Injury and Recovery* about her experience.

Maternal perception of spousal support in parenting, child attachment and associated brain structures in children with attention-deficit/hyperactivity disorder

Ayaka Ishii-Takahashi[1], Kaho Magami[1,2] and **Rio Yamaguchi[1]**

[1]Department of Developmental Disorders, National Institute of Mental Health, National Center of Neurology and Psychiatry, Japan
[2]Ear Institute, University College London, United Kingdom

The formation of secure attachment in children is crucial for their health and development and the support provided by the spouse of the primary caregiver plays a significant role in this process. This study investigates whether these dynamics apply to children with Attention-Deficit/Hyperactivity Disorder (ADHD), a group known to exhibit higher rates of insecure attachment patterns compared to typically developing (TD) children. Additionally, caregivers of children with ADHD often experience heightened stress levels compared to those raising TD children. However, it remains unclear whether the neural mechanisms underlying attachment formation in ADHD children are comparable to those in TD children.

To address these questions, we enrolled 34 TD children and 52 children with ADHD along with their mothers. We obtained T1-weighted brain images of the children and assessed their attachment scores to both mothers and fathers, as well as the level of spousal support reported by the mothers.

Our findings revealed a negative correlation between attachment scores and brain volumes in specific regions—bilateral putamen, bilateral parahippocampal gyrus and right inferior temporal gyrus—in both TD and ADHD groups. Notably, the bilateral putamen mediated the relationship between spousal support levels and children's attachment level to their mothers. Furthermore, we observed a significant effect of spousal support on maternal stress levels. Our study also highlighted that mothers of ADHD children experience higher levels of stress compared to TD mothers.

These results suggest that the neural mechanisms underlying attachment formation in ADHD children resemble those in TD children, with both benefiting from spousal support, potentially mediated by altered brain volumes. Additionally, spousal support emerges as a crucial factor in alleviating maternal stress.

Overall, our findings underscore the importance of spousal support in promoting attachment security

and reducing maternal stress, particularly among families raising children with ADHD. These insights emphasize the necessity of strengthening support systems for families with ADHD children.

Biography

Ishii-Takahashi graduated from Gunma University School of Medicine, trained in pediatrics, neuropsychiatry and child psychiatry and obtained three medical specialties and a PhD in Neurology from the University of Tokyo School of Medicine. Currently, she is the Section chief of department of Developmental Disorders, National Center of Neurology and Psychiatry. Her main research interests are in supporting children with attention deficit hyperactivity disorder and their parents, as well as how treatment affects the brain.

Clinical feature and sural biopsy study in nitrous oxide-induced peripheral neuropathy

Li Wang[1], Qian Wang[1], Sedine Marie Desiree Nina AGBO[1], Xiaohui Duan[2], Mingrui Dong[2], Fang Liu[1] and Renbin Wang[2]

[1]Department of Neurology, The First Hospital of Tsinghua University, China
[2]Department of Neurology, China-Japan Friendship Hospital, China

Objective: The objective was to analyze the clinical characteristics and pathological characteristics of sural biopsy in nitrous oxide N_2O -induced peripheral neuropathy.

Methods: We recruited 18 patients with N_2O abuse-induced neurological disorders and reported their demographic data, clinical manifestations, laboratory examinations and nerve conduction studies. Seven patients underwent sural nerve biopsy pathologic examination.

Results: All 18 patients had polyneuropathy, the nerve conduction results showed significant reductions in motor and sensory amplitudes, slowing of conduction velocities and prolongation of latencies in most tested nerves compared to the controls. Toluidine blue staining of semi-thin sections of sural nerve biopsy showed decreased myelinated nerve fiber density, increased thin myelinated nerve fiber density and axonal regeneration. Electron microscopy showed axonal degeneration and nerve regeneration (Fig 1.).

Conclusion: The main manifestations of peripheral nerve damage caused by the abuse of N_2O are lower limb weakness and distal sensory disorder. The nerve conduction study results demonstrated that mixed axonal and demyelinating neuropathy was the most common type of neuropathy. Sural biopsy showed the main pathological change was chronic axonal degeneration.

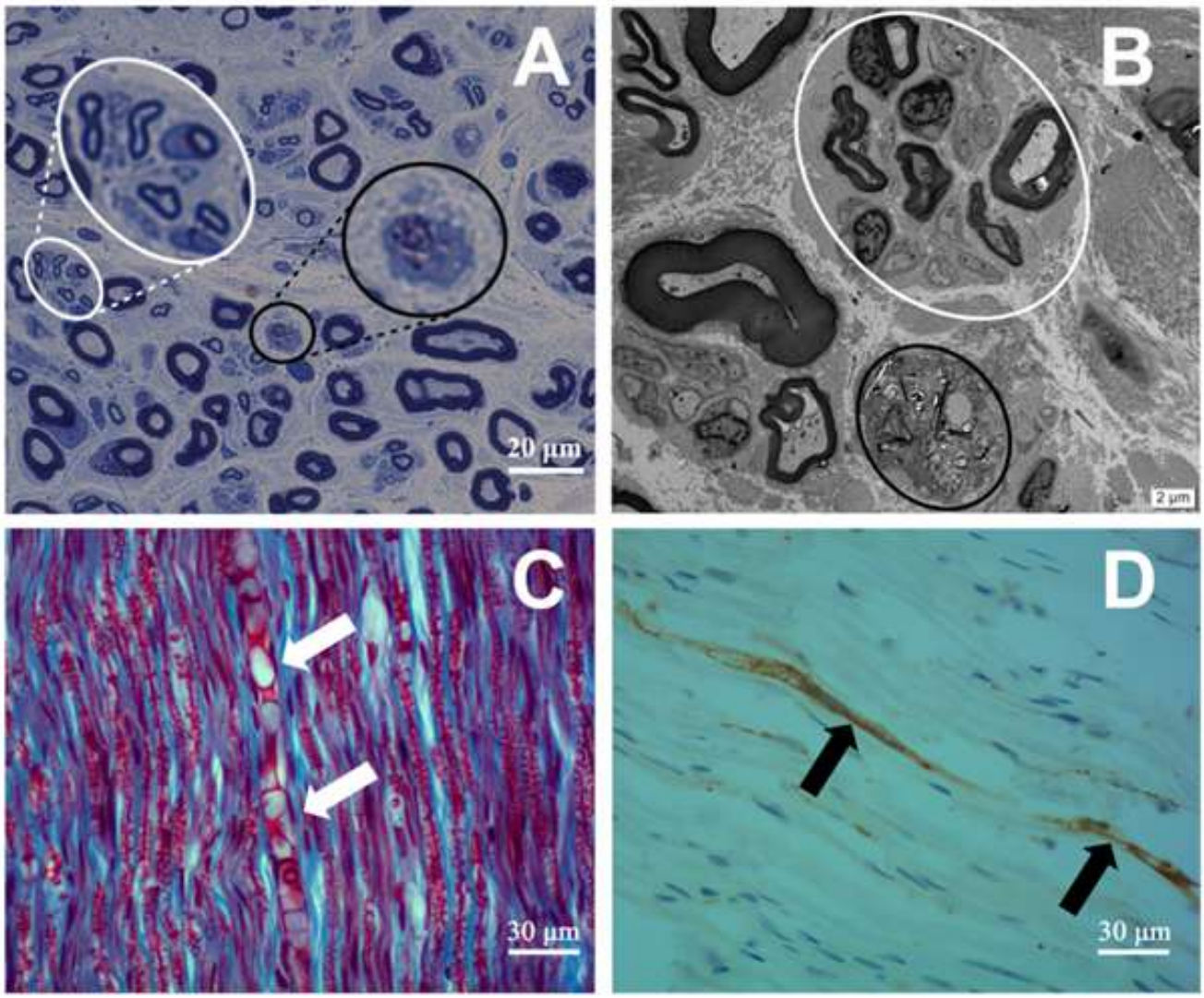


Fig 1. Spectrum of findings seen on sural nerve biopsies in N2O-induced peripheral neuropathy.
(A) Semi thin section stained with toluidine blue shows axon degeneration (black circle) and nerve regeneration (white circle). (B) Electron microscopy shows axon degeneration (black circle) and nerve regeneration (white circle). (C-D) Masson trichrome staining shows acute axonal degeneration and formation of myelin ovoid evident on longitudinal sections (white arrows). This patient had CD68-positive mononuclear cells within the fascicular.

Biography

Li Wang is the associate professor and postgraduate students' tutor of department of Neurology, The First Hospital of Tsinghua University.

In 2009 and 2012, I went to Kanazawa Medical University in Japan for research on Alzheimer's disease and depression. In 2016, I went to Mie University Hospital in Japan to study and engage in clinical research on movement disorders.

My research direction is the diagnosis and treatment of neurogenetic degenerative diseases, including: Parkinson's disease and Parkinson's syndrome, spinocerebellar ataxia, dystonia, involuntary movement. Neuropsychiatric impairment induced by nitrous oxide abuse.

Predicting academic success: Machine learning analysis of student, parental and school efforts

Xin JIN

School of Foreign Studies, Nanjing University of Posts and Telecommunications, China

Understanding what predicts students' educational outcomes is crucial to promoting quality education and implementing effective policies. This study proposes that the efforts of students, parents and schools are interrelated and collectively contribute to determining academic achievements. Using data from the China Education Panel Survey conducted between 2013 and 2015, this study employs four widely used machine learning techniques, namely, Lasso, Random Forest, AdaBoost and Support Vector Regression, which are effective for prediction tasks—to explore the predictive power of individual predictors and variable categories. The effort exerted by each group has varying impacts on academic exam results, with parents' demanding requirements being the most significant individual predictor of academic performance; the category of school effort has a greater impact than parental and student effort when controlling for various social-origin-based characteristics; and significant gender differences among junior high students in China, with school effort exhibiting a greater impact on academic achievement for girls than for boys and parental effort showing a greater impact for boys than for girls. This study advances the understanding of the role of effort as an independent factor in the learning process, theoretically and empirically. The findings have substantial implications for education policies aimed at enhancing school effort, emphasizing the need for gender-specific interventions to improve academic performance for all students.

Biography

Xin JIN has been serving as an Assistant Professor at the School of Foreign Studies, Nanjing University of Posts and Telecommunications (NJUPT) since 2023. With an academic background in Educational Research from Freie Universität Berlin, Germany, Xin JIN has expanded her academic pursuits by joining the Nanjing Center for Chinese Social Research as a Research Assistant in the same year.

Her scholarly work is characterized by a commitment to exploring the multifaceted aspects of educational inequalities, the dynamics of beliefs and emotions in education and the application of quantitative methods in empirical social research. Throughout her career, Xin JIN has been dedicated to bridging the gap between theoretical research and practical application, especially on how socio-economic factors and various efforts affect educational outcomes.

Online inferential processing among children with dyslexia during Chinese narrative comprehension: Evidence from eye-movement study

Lin Fan and **Yu Wang**

Beijing Foreign Studies University, China

The study aimed to investigate the cognitive mechanisms underlying reading deficits in Chinese children with developmental dyslexia (DD). Eye-tracking technology was used to measure participants' reading performance, specifically focusing on their ability to construct causal situation models during narrative comprehension. The sample for the study consisted of 80 Chinese-speaking children, including 26 children with DD, 28 age-matched readers and 26 reading level-matched readers. The study compared the participants' reading performance in explicit and inferential texts to examine their construction of causal representations.

The results of the study showed that the total reading time for the inference-evoking sentence was significantly longer than that in the explicit version. However, there was no significant difference in the reading time of the target words in comprehension questions between the two versions. This suggests that all three groups of participants were able to generate bridging inferences online during their Chinese narrative comprehension. Furthermore, the DD group consumed more processing resources in both types of texts compared to the age-matched control group. The DD group performed significantly worse in inferential processing, as indicated by indicators of reading speed, reading efficiency, first reading time, second reading time, total reading time, average reading time and fixation counts. However, the DD group exhibited similar performance to the reading level-matched control group.

These findings have implications for language intervention for children with DD. The study suggests that targeting inferential processing skills may be beneficial in improving reading abilities in children with DD.

Biography

Lin Fan, a professor in the Research Institute of Foreign Languages at Beijing Foreign Studies University, obtained her Ph.D. from Shandong University in 2006. She has published over 100 papers and authored 5 books. Her research centers around the intricate relationship between language and emotion, the cognitive

processes involved in discourse comprehension, as well as code-switching phenomena. Currently, her focus lies in investigating inferential processing patterns among elderly individuals and children diagnosed with dyslexia. Her dedication to these areas of study showcases her commitment to expanding our understanding of language and cognition.

Yu Wang holds a Ph.D. in Literature from Beijing Foreign Studies University. She specializes in psycholinguistics, particularly focusing on reading difficulties in dyslexia children. She is deeply committed to advancing dyslexia research by leveraging the power of eye-tracking technology. With a focus on language processing research, she actively seeks collaborative opportunities to contribute to the academic community.

A study on efficacy and safety of tacrolimus, azathioprine and mycophenolate mofetil therapy for myasthenia gravis

Li Yang, Jie Ma, Binghong Han, Tianxiang Yuan, Qing Yin and **Weifan Yin**

Department of Anesthesiology, The Second Xiangya Hospital of Central South University, China

Objective: This retrospective, prospective study compared the efficacy and safety of tacrolimus (TAC), azathiopride (AZA) and mycophenolate mofetil (MMF) in the treatment of patients with myasthenia gravis(MG).

Methods: A total of 202 adult-onset MG patients admitted to the Second Xiangya Hospital of Central South University in Hunan Province from January 2018 to September 2022 were selected. They were divided into TAC, AZA and MMF groups. Each patient was reviewed or followed up for at least 6 months and the time for each patient to reach minimal manifestation status (MMS) or better, the ADL score and QOL-15r score before and after treatment, recurrence and adverse events, etc., were recorded.

Results: 1 There was no significant difference in the proportion of patients who reached MMS at the end of follow-up (P=0.156). 2. After therapy, the improvement of ADL score (P=0.298) and QOL-15r score (P=0.126) in three group. 3.After treatment, the proportion of adverse effects in TAC group, AZA group and MMF group was 25.53%, 24.32% and 17.65%(P=0.687), respectively. 4.The time to first relapse in TAC group, AZA group and MMF group was 10 months, 9 months and 3 months (P=0.001*), but there was no significant difference in the overall recurrence rate at the end of follow-up(P=0.571). 5.It was found that the difference between the age of taking immunosuppressants and the age of MG onset in TAC group was an independent risk factor for recurrence by COX regression analysis.

Conclusions: 1 The treatment of MG with TAC, AZA and MMF are all effective treatments for myasthenia gravis and there is no significant difference in their effecacy. 2. TAC, AZA and MMF are safe in the treatment of MG patients and there is no significant difference in the safety. 3. Delay in treatment when taking TAC is an independent risk factor for relapse in patients with MG.

Biography

I am currently employed in the Department of Neurology at the second Xiangya Hospital of Central South

University as a chief physician and associate professor. Also I am a doctoral supervisor.

I have published multiple articles in the field of neurological diseases such as neuro immunogical decease, cerebrovascular disease and brain tumors, with a highest impact factor of 15.9 for a single article. I have led a National Natural Science Foundation general project and a Hunan Provincial Natural Science Foundation general project and also have obtained two national invention patents.

I have had multiple academic positions: member of the 8th Youth Study Group of the National Neurology Branch, deputy chairman of the Youth Committee of the Neurology Special Committee of the Hunan Medical Association and member of the 2nd Council of the Hunan Anti Epilepsy Association and so on.

Zebrafish as an emerging valuable model for studying neurodegenerative diseases

Yanying Liu

Qingdao Huanghai University, China

Most neurodegenerative diseases are common and incurable diseases with unclear etiology and pathogenesis in middle-aged and aged people, which brings a heavy burden to families and society. To simulate the state and elucidate the pathogenesis of diseases, the application of animal models provides a reliable experimental platform for research on the prevention and treatment of certain human diseases. The application of an ideal experimental animal not only connects the in vitro and in vivo studies but also has the characteristics of low cost and easy operation, bringing zebrafish, a new model animal, to the vision of researchers. Zebrafish has been widely used in the research of certain human diseases in recent years due to its biological characteristics that other vertebrates do not possess and the structure and function of the brain are highly similar to those of the human brain. Here, we have searched different databases and summarized the progress made in recent years in the research of zebrafish as models for neurodegenerative diseases such as Alzheimer's disease, Parkinson's disease, Huntington's disease, Amyotrophic lateral sclerosis and other neurological-related diseases. In addition to providing application data of zebrafish in the research of each disease mentioned above, we also analyzed and summarized the achievements of zebrafish in clarifying the causes of diseases and preventing and treating them. Finally, we confirm the advantages of zebrafish as animal models for studying neurological diseases and point out their shortcomings and limitations. These studies will lay a theoretical foundation for the better development and application of animal models for zebrafish disease research in the future.

Biography

Yanying Liu is a professor currently teaching Medical Pathogenic Microbiology and Parasitology, Immunology and Biochemistry at the Qingdao Huanghai University in China. She received her Ph.D. in Neurobiology from the Capital Medical University (China) in 2006. In the past decade or so, she has worked as a postdoc or research staff scientist engaged in scientific research related to neuroscience at SUNY Upstate Medical University or the University of South Dakota in the USA. Dr. Liu's research is related to several areas: Alzheimer's disease, Huntington's disease, stroke and stem cells. Her current research interests are the mechanism of the aging process, brain hypoxia and stroke.

Suppression and working memory in auditory comprehension of L2 narratives: Evidence from cross-modal priming

Shiyu Wu[1] and **Zheng Ma**[2]

[1]Shanghai Jiao Tong University, China
[2]Shanghai University, China

Using a cross-modal priming task, the present study explores whether Chinese-English bilinguals process goal related information during auditory comprehension of English narratives like native speakers. Results indicate that English native speakers adopted both mechanisms of suppression and enhancement to modulate the activation of goals and keep track of the "causal path" in narrative events and that L1 speakers with higher working memory (WM) capacity are more skilled at attenuating interference. L2 speakers, however, experienced the phenomenon of "facilitation-without-inhibition." Their difficulty in suppressing irrelevant information was related to their performance in the test of working memory capacity. For the L2 group with greater working memory capacity, the effects of both enhancement and suppression were found. These findings are discussed in light of a landscape model of L2 text comprehension which highlights the need for WM to be incorporated into comprehensive models of L2 processing as well as theories of SLA.

Biography

Wu Shiyu is a Professor and doctoral supervisor at the School of Foreign Languages, Shanghai Jiao Tong University. His research focuses on second language acquisition and psycholinguistics, especially in speech acquisition, speech perception, and sentence/text processing. He is a member of several international associations and has published extensively in his field. Wu is also recognized for her teaching excellence and contributions to general education..

Study on the relationship between vertebrobasilar dolichoectasia and posterior cranial fossa space

Yao Xiaolong[1], Kong Fanji[1], Ye Jianfeng1, Lai Li[1,2] and **Li Jun[1]**

[1]The Third People's Hospital of Hubei Province, China
[2]Medical School of Jianghan University, China

To investigate the correlation between vertebrobasilar dolichoectasia (VBD) and posterior cranial fossa (PCF) space. The medical records and imaging data of patients with VBD and control group were collected from June 2021 to June 2022 in the Third People's Hospital of Hubei Province. All patients with VBD were graded by CTA. The grading index was divided into two parts, including vertebral artery bifurcation height and offset degree. Taking the healthy adult subjects of matched age as the control group. The linear volume of posterior cranial fossa was measured by median sagittal CTA images. The volume of the PCF was calculated by 3Dslice software. The relationship between VBD and the volume of PCF was analyzed by SPSS23.0. The height diameter of posterior cranial fossa, sagittal diameter of posterior cranial fossa, transverse diameter of occipital foramen, clival length, supraoccipital length and space volume of PCF were 34.78 ±3.67mm, 85.49 ±4.15mm, 30.89 ±3.94mm, 44.53 ±5.36mm, 45.21 ±6.45mm, 171.08 ±15.81 cm3 in the case group. The linear volume of PCF and space volume of PCF were significantly lower than those in the control group ($P < 0.05$). Binary logistic regression analysis showed that the independent risk factors of VBD were height diameter of PCF, sagittal diameter of PCF, transverse diameter of occipital foramen, clival length, supraoccipital length and space volume of posterior cranial fossa. According to the classification, the height and diameter of PCF was significantly smaller than that in VBD. Under the standard of BA bifurcation degree, there were significant differences between different grades of VBD patients and age. The smaller volume of PCF may leading the greater possibility of VBD. Under the classification of VBD, the older, the longer the course of disease is, the higher degree of VBD classification is. Abstract should give clear indication of the objectives, scope, results, methods used, and conclusion of your work. One figure and one table can be included in your results and discussions.

Biography

09.2014- present

Hubei Zhongshan Hospital Affiliated to Jianghan University, Wuhan, China

Project1: PDCD10 and ADAM12 mediates EMT and cell migration, invasion and proliferation of glioma

Project2: Regulation of TLR4/NLRP3 signaling pathways in microglia after traumatic brain injury.

Leading the way in Anti-Parkinsonism drug discovery

Judit Ovádi, Attila Lehotzky, Tibor Szénási and **Judit Oláh**

Institute of Molecular Life Sciences, HUN-REN Research Centre for Natural Sciences, Hungary

With the aging of society, neurological disorders such as Parkinsonism, are causing serious socio-economic problems as there are, at present, only therapies that treat the symptoms. The disordered alpha-synuclein (SYN) and Tubulin Polymerization Promoting Protein (TPPP), which are expressed in neurons and oligodendrocytes of normal human brain, respectively, are hallmarks of these diseases. These hallmarks are co-enriched and co-localized in both cell types leading to the development of Parkinson's disease (PD) and multiple system atrophy (MSA). Known as 'chameleon' proteins, they have both physiological functions and pathological activities, which makes neither of them an ideal drug target. Following the recognition that the soluble homo- and hetero-oligomers of SYN and TPPP are the fatal species in the development of these diseases, different strategies have been suggested and tested to reduce the accumulated SYN/TPPP and to eliminate one of the partner proteins. These strategies include: i) stabilization of the microtubule network by preventing tubulin deacetylation; ii) depletion of the unwanted partner by miRNAs or siRNAs; iii) expression of the anti-SYN antibody by specific SYN fragment; iv) proteolytic degradation of SYN and/or TPPP using the PROTAC technology; v) targeting the interface of the homo-and hetero-associations of SYN. To achieve this innovative strategy, we have identified the segments of both proteins which are involved in their heteroassociation. The flexible core region (147-156) of TPPP straddled by the extended unstructured N- and C-termini, while the C-terminal segment of the SYN (126-140) have been identified as potential interacting binding domains. Surprisingly, the deletion of TPPP binding segment cannot abolish the complex formation due to its high conformational plasticity; however, the deletion of the SYN C-terminus counteracts the hetero-association. In addition, the SYN fragment inhibited the pathological assembly of the two hallmark proteins as visualized in living human cell experiments by immunofluorescence confocal microscopy. Our data have revealed that although targeting chameleon proteins is a challenging task; nevertheless, the validation of drug target can be achieved by identifying the interface of the complexes of the partner proteins existing at the given pathological conditions. The "interface-targeting strategy" for Parkinsonism could impede the pathological TPPP-induced SYN aggregation

as well and ensure the recovering of the physiological functions of both multifunctional proteins. Based on these recent findings, we suggest that the clinical PD/MSA research focuses on the neglected role of TPPP at pathological conditions in order to make possible the cure of the Parkinsonism.

Biography

Prof. Dr. Judit Ovádi, professor emerita has her expertise in Biochemistry, Molecular Biology and System Biology. She defined the metabolic channeling at microscopic and macroscopic levels as a powerful mechanism to control and direct metabolisms at crossroads. Her research team demonstrated the sensing characteristic of the microtubule pathway at system level. Her research team discovered a unique brain-specific protein denoted Tubulin Polymerization Promoting Protein (TPPP/p25) that displays two exciting characteristics: Intrinsically unstructured and enriched in brain inclusions of Parkinson's disease. The structural and functional feature of this protein has been characterized at different level of organizations as well as at physiological and pathological conditions. Recently, she proposed an innovative strategy for drug development when protein of multiple functions is targeted. She has been the Supervisor of several MS, PhD and DSc dissertations, Visiting Professor in Spain, Italy and USA, Invited Speaker at international meetings in several conferences organized in EU countries, UK, Japan, Israel, USA, South America, China etc; scientific activities:

https://vm.mtmt.hu/www/index.php?AuthorID=10000292

Curious case of paediatric one lung ventilation with two endotracheal tubes: A case report

Lalit Jha[1], Shagufta Naaz[1], George Paul[1] and **Sanjeev Kumar[2]**

[1]Department of Anesthesiology, All India Institute of Medical Sciences, India
[2]Department of Cardiothoracic and Vascular Surgery, All India Institute of Medical Sciences, India

One-lung ventilation (OLV) is essential for adequate visualization and exposure of surgical site during thoracic surgery. It is achieved with bronchial blockers, double-lumen endobronchial tube, single-lumen endotracheal tubes and Univent tube for infants and children. Fibreoptic bronchoscope is required for placing and confirming the correct position of these tubes. OLV creates a large intrapulmonary shunt as the non-ventilated lung is perfused without oxygenation. We report a perioperative management of safe conduct of one lung ventilation through C-MAC video laryngoscope guided two single lumen tubes. Both tubes were placed in parallel with one tube in right bronchus and another in trachea to achieve lung isolation for a 6-year child undergoing left lower lobe lobectomy in limited resource settings where paediatric-sized fibreoptic bronchoscope (FOB) is unavailable.

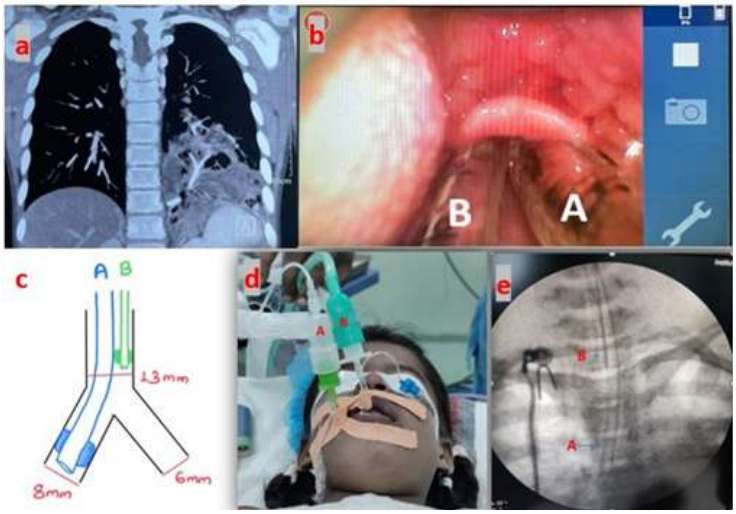


Fig. 1: (a) CT lung showing lobar pulmonary sequestrations of left lung (b) C-MAC video laryngoscope image of 2 endo tracheal tubes at level of epiglottis (c) Schematic diagram of position of tubes within airway (d) (tube A) 4.5mm ID micro cuff endotracheal tube in right bronchus, (tube B) 3.5mm ID cuffed endotracheal tube in trachea, (e) C-ARM image confirming the position of Tube A in right bronchus and tube B in trachea

Biography

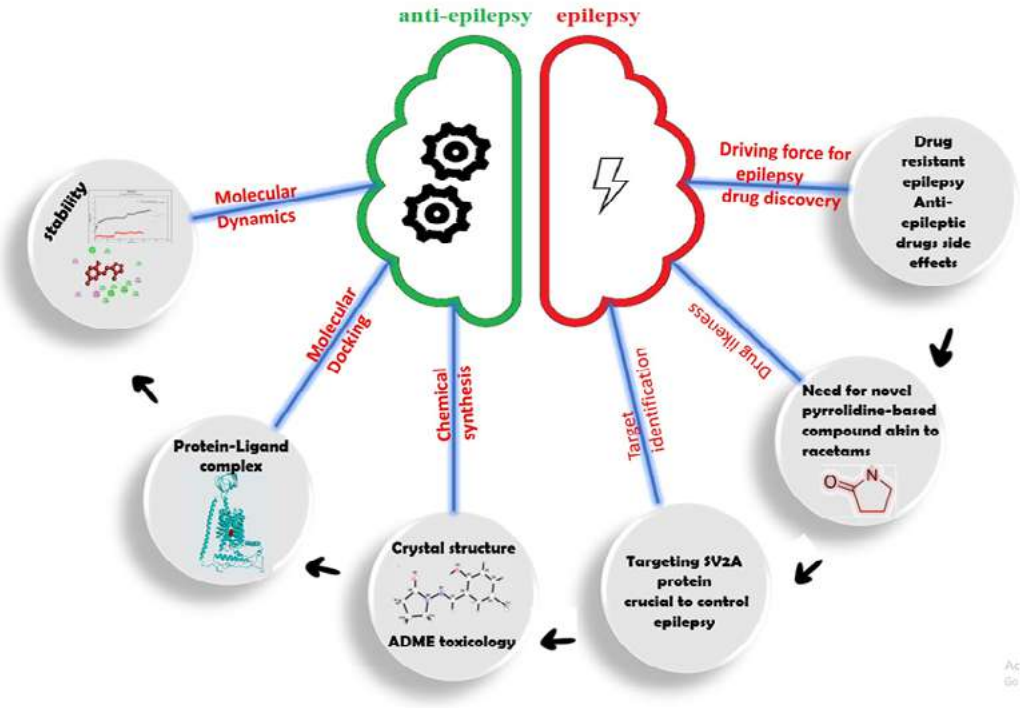
Dr. Lalit Jha has completed his MD in Anaesthesiology from Jawaharlal institute of postgraduate medical education and research, Puducherry, India in 2021 and diplomate of national board (DNB) in 2022. He is currently associated with All India Institute of Medical Sciences, Patna as senior resident. He has published multiple research papers and presented in national and international conferences with 5 years of research experience. He is recipient of 17th world congress of anaesthesiology scholarship, best research video articles at national airway conference 2023 and winner at 1st World Day of regional Anaesthesia and pain medicine.

Computational evaluation of a racetam congener- A new addition to the armamentarium of anti-epileptic drugs

C.N. Rahul[2], N. Aiswarya[1], Gugan Kothandan[3], M. R. Prathapachandra Kurup[4], E. Manoj[4], P. Chandrasekaran[1], Jeyakanthan Jeyaraman[2] and **Kanagaraj Sekar[1]**

[1]Department of Computational and Data Sciences, Indian Institute of Science, India
[2]Structural Biology and Biocomputing Lab, Department of Bioinformatics, Alagappa University, India
[3]Biopolymer modeling and Protein chemistry laboratory and CAS in Department of Crystallography and Biophysics, University of Madras, India
[4]Department of Applied Chemistry, Cochin University of Science and Technology, India

The present investigation illustrates the conceptualization, synthesis, crystallographic analysis and computational assessment of a new racetam derivative with a pyrrolidone ring as the pharmacophore. The compound demonstrates drug-like characteristics similar to LEV, an approved anti-epileptic drug, indicating its potential for developing novel epilepsy drugs. Molecular docking and molecular dynamic simulations were used to evaluate the binding affinity between the compound and SV2A, a protein-ligand complex. The protein-ligand complex attained structural equilibrium in the final 50 nanoseconds of the 200 nanosecond molecular dynamics simulation. The analysis reveals that regions with higher flexibility are primarily located in the extramembrane regions of the protein. Intermolecular contact analysis reveals hydrogen bonding and hydrophobic interactions as the primary types of interactions. The Molecular Mechanics Poisson-Boltzmann Surface Area (MMPBSA) calculation highlights the energetic aspects of ligand binding and the participation of important residues in the binding pocket. Unique interactions like those involving bifurcated hydrogen bonding and novel pi-anion interaction makes the study significant. Quantum chemical calculations for the compound (LIG) done using DFT corroborates the protein-ligand interactions on the basis of Molecular Electrostatic Potential (MEP) maps. The study establishes the structure-activity relationship (SAR) of the newly developed pyrrolidone-based compound, identifying it as a promising lead molecule for epilepsy treatment.



Biography

Dr. C.N. Rahul, a post-doctoral fellow from the Indian Institute of Sciences (IISc), Bangalore, India. In brief, he worked on a malaria molecular epidemiological project from Indian field isolates during his PhD and worked on a malaria biochemistry project as a post-doc. Currently, he is contributing to bioinformatics and computational biology of infectious diseases (cancer and malaria) at IISc.

Antibody-proteases as translational tools of the next step generation to be applied in personalized and precision neurology practice

Sergey Suchkov[1,2,3], Aleks Gabibov[4] and Harry W. Schroeder[5]

[1]The Russian University of Medicine, Moscow, Russia
[2]Russian Academy of Natural Sciences, Moscow, Russia
[3]New York Academy of Sciences, USA
[4]Institute for Bioorganic Chemistry, Russian Academy of Sciences, Moscow, Russia

[5]Division of Clinical Immunology and Rheumatology, University of Alabama at Birmingham, USA

Biomarkers enable pre-early diagnosis, guide targeted therapy and monitor the active ty and therapeutic responses across the diseases. Multiple sclerosis (MS) is just one of the chronic tissuespecifi c autoimmune diseases resulting in a destruction of myelin by different tools, including autoAbs of very broad specifi city. Along with canonical Abs, some of the families proven to occur are Abs possessing with catalytic activity (abzymes), and thus to belong to Abs with functionality! Abs against myelin basic protein/MBP endowing with proteolytic activity (Ab-proteases with functionality) are of great value to monitor demyelination to illustrate the evolution of MS. AntiMBP autoAbs from MS patients and mice with EAE exhibited specifi c proteolytic cleavage of MBP which, in turn, markedly differed between: (i) MS patients and healthy controls; (ii) different clinical MS courses; (iii) EDSS scales of demyelination to correlate with the disability of MS patients to predict the transformation prior to changes of the clinical course.

Ab-mediated proteolysis of MBP was shown to be sequence-specifi c whilst demonstrating fi ve sites of preferential proteolysis to be located within the immunodominant regions of MBP and to fall inside into 5 sequences fi xed. Some of the latter (with the highest encephalitogenic properties) were proved to act as a specifi c inducer of EAE and to be attacked by the MBP-targeted Ab-proteases in MS patients with the most severe (progradient) clinical courses. The other ones whilst being less immunogenic happened to be EAE inducers very rare but were shown to be attacked by Ab-proteases in MS patients with moderate (remission-type) courses.

The activity of Ab-proteases was fi rst registered at the subclinical stages 1-2 years prior to the clinical illness. About 24% of the direct MS-related relatives were seropositive for low-active Ab-proteases from which 22% of the seropositive relatives established were being monitored for 2 years whilst demonstrating a stable growth of the Ab-associated proteolytic activity. Moreover, some of the lowactive Ab-proteases in persons at MS-related risks (at subclinical stages of MS), and primary clinical and MRT manifestations observed were coincided with the activity to have its mid-level reached.

The activity of Ab-proteases in combination with the sequence-specifi city would confi rm a high subclinical and predictive (translational) value of the tools as applicable for personalized monitoring protocols. Sequence-specifi c Ab-proteases have proved to be greatly informative and thus valuable biomarkers to monitor MS at both subclinical and clinical stages! And the translational potential of this knowledge is in the rational design of new diagnostic tools and new therapeutics based on principles of artificial biocatalysts and biodesign.

Ab-proteases can be programmed and re-programmed to suit the needs of the body metabolism or could be designed for the development of principally new catalysts with no natural counterparts. Of tremendous value in this sense are Ab-proteases directly affecting the physiologic remodelling of tissues with multilevel architectonics (for instance, myelin)., whilst securing the requests and standards of regeneration and remyelination.

So, further studies on Ab-mediated MBP degradation and other targeted Ab-mediated proteolysis may provide biomarkers of newer generations and thus a supplementary tool for assessing the disease progression and predicting disability of the patients and persons-at-risks.

Biography

Sergey Suchkov in 1980 graduated from Astrakhan State Medical University and was awarded with MD. In 1985, Suchkov maintained his PhD at the Sechenov Uni-versity and Institute of Medical Enzymology. In 2001, Suchkov maintained his Doc-tor Degree at the National Institute of Immunology, Russia.

At present, Dr Sergey Suchkov, MD, PhD, is:

- Professor and Chair of the Dept for Personalized Medicine, Precision Nutriciology & Biodesign of the Institute for Biotech & Global Health of RosBioTech and Profes-sor of the Dept of Clinical Immunology, A.I. Evdokimov Moscow State Medical and Dental University (MGMSU), Moscow, Russia
- Secretary General, United Cultural Convention (UCC), Cambridge, UK.

A member of the:

- New York Academy of Sciences, USA
- American Chemical Society (ACS), USA
- American Heart Association (AHA), USA
- European Association for Medical Education (AMEE), Dundee, UK
- EPMA (European Association for Predictive, Preventive and Personalized Medi-cine), Brussels, EU
- ARVO (American Association for Research in Vision and Ophthalmology)
- ISER (International Society for Eye Research)
- Personalized Medicine Coalition (PMC), Washington, DC, USA

Bilateral localized bullous pemphigoid in a young adult patient

Marwa Akhdar[1,2], Pedram Nourmohammadpour[1], Alireza Ghanadan[1], Amir Abbas Peymanfar[1], Fatemeh Saberi[1] and Mahsa Keshavarz-Fathi[1]

[1]Department of Dermatology, Razi Hospital, Tehran University of Medical Sciences (TUMS), Iran
[2]Department of Dermatology, Nabatieh Governmental Hospital, Lebanon

Bullous pemphigoid (BP) is the most common autoimmune subepidermal blistering disease. Localized bullous pemphigoid is a rare variant of BP, with only about 100 cases reported up to date. In this report, we describe a 32-year-old healthy male patient with bilateral hemorrhagic bullae and erosive lesions limited to the lower extremities. A biopsy for hematoxylin and eosin stain showing the presence of many eosinophils and direct immunofluorescence showing linear deposition of IgG antibodies in the basement membrane as seen in figure 1, established the diagnosis of BP. The blistering responded well to oral and topical steroids. Rarely, BP has been associated with autoimmune disorders. There has also been a significant association with neurological disorders, such as dementia, Alzheimer's disease, Parkinson disease and stroke. In literature, a case was reported in which it was assumed that the immune dysfunction in the hemiplegic side of the patient may be causative, possibly owing to local alteration in neurotransmitter concentrations and neuropeptide balances. As it can be noticed, almost all the cases reported previously had a probable inducing factor such as UVA-light, postsurgical procedures, post cerebrovascular accident and venous stasis, while our case occurred in a healthy young male with no previous medical or drug history. As a conclusion, we can deduce that maybe immobility after hemiplegia makes the limbs prone to micro traumas and causes some sort of insufficient or decreased blood flow throughout the extremities and venous stasis induces a local inflammatory process that, in its entity, exposes BPAGs and causes local BP lesions. These observations support the need for future studies in order to elucidate the immunological mechanisms responsible for these comorbidities.

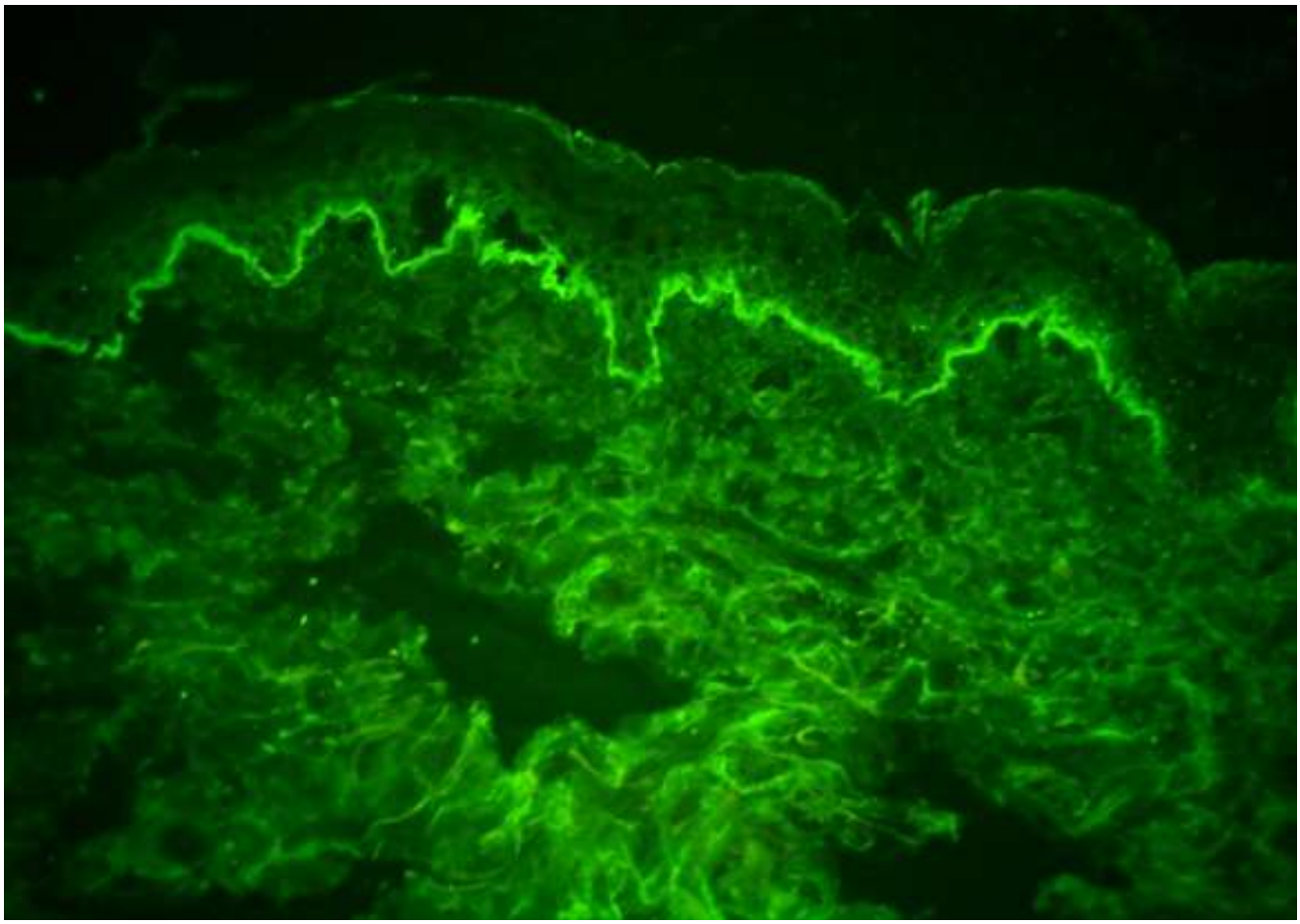


Figure 1. Direct immunofluorescence of the perilesional skin showing continuous linear deposition of IgG and C3 along the dermo-epidermal junction. IgG: immunoglobulin G.

Biography

Marwa Akhdar, M.D, a current dermatologist at Nabatiyeh Governmental University Hospital. She obtained her medical doctorate and dermatology residency training at Tehran University of Medical Sciences, Razi Hospital, with an emphasis on general, surgical and cosmetic dermatology. She has published numerous articles in various medical journals throughout her career. She acquired the Professional Diploma of Dermoscopy in 2020 and was offered a membership to the Skin Cancer Institute at the Healthcert Community. She was also awarded the first place in the best-case report presentation competition at the 19th Annual congress of the Iranian society of dermatology in 2020. She has a keen interest in managing challenging cases and enjoys spending her free time with her family and reading.

Personality characteristics of patients with coronary artery disease and sleep disorders

A.D.Ibatov and **Yu.V. Shkurenko**

Federal State Autonomous Educational Institution of Higher Education, I.M. Sechenov First Moscow State Medical University of the Ministry of Health of the Russian Federation (Sechenov University), Russia

Purpose: To study personality characteristics and of patients with coronary artery disease (CAD) and sleep disorders (SD).

Methods: 244 patients with CAD at the age of 36 to 76 years were examined. Patients are divided into two groups. The first group included 113 patients with SD (18 points and lower on the sleep quality questionnaire). The second group included 62 patients without SD (22 points and higher on the sleep quality questionnaire). The level of anxiety and depression was investigated by the Hospital Anxiety and Depression Scale (HADS), personality characteristics - by the MMPI questionnaire. Data are presented as mean and standard deviation.

Results: The level of anxiety and depression were in the 1st group accordingly - 9.2 ± 3.5 and 7.7 ± 3.7 scores, in the 2nd group accordingly - 5.9 ± 2.9 ($p < 0.001$) and 3.9 ± 2.8 ($p < 0.001$) scores. MMPI test parameters in the first and second group were, accordingly: on scale of Hypochondriasis – 59.8 ± 8.7 and 53.4 ± 6.5 ($p < 0.001$) T-scores; on scale of Depression – 57.5 ± 12.4 and 45.8 ± 8.9 ($p<0.001$) T-scores; on scale of Hysteria – 57.5 ± 7.2 and 49.8 ± 4.7 ($p < 0.001$) T-scores; on scale of Psychopathic Deviate – 47.6 ± 9.7 and 44.1 ± 8.5 ($p < 0.05$) T-scores; on scale of Paranoia – 55.6 ± 11.3 and 48.3 ± 10.8 ($p<0.001$) T-scores; on scale of Psychasthenia – 53.1 ± 11.3 and 47.0 ± 2.1 ($p<0.01$) T-scores; on scale of Schizophrenia – 50.7 ± 12.0 and 47.0 ± 8.9 ($p > 0.05$) T-scores; on scale of Hypomania – 49.6 ± 9.4 and 44.9 ± 9.2 points ($p < 0.01$) T-scores.

Conclusions: Patients with sleep disorders had more expressed personality characteristics, more high level of anxiety and depression and that should be considered in treatment and rehabilitation of this of patients.

Biography

Ibatov A.D. is a specialist in the field of psychovegetative and psychosomatic relationships in patients. The area of research interests of Ibatov A.D. is sleep medicine, psychiatry, neurology, cardiology and therapy.

Artificial intelligence in routine speech therapy care for Parkinson's disease: Constructing of a human- centered implementation approach

A. Thurmann, F. Dörr and **K. Bilda**
Hochschule für Gesundheit, Germany

90% of patients with Parkinson's disease (PD) develop symptoms of speech intelligibility disorder (dysarthria), which requires high-frequency therapy [1,2]. Cognitive speech recognition using artificial intelligence (AI) can enable personalized, high-frequency speech therapy [3]. As part of a human-centered implementation approach, the HUMAINE joint project is investigating which strategies are essential for the transfer of AI-based systems into routine speech therapy care. Using the example technology ISi-Speech, an AI- supported speech assistance system for patients with PD, this was trialed in a clinical feasibility study. Based on explorative surveys with speech therapists n=20, workflows and needs for the use of AI-based systems in routine care were first determined. From this, implementation strategies for the use of ISi-Speech could be derived. These were evaluated in practice as part of a feasibility study by speech therapists (n=4) on PD patients (n=10) using qualitative surveys. It became clear from the workflow and needs assessments that there are uncertainties and fears when dealing with AI-supported systems. These are attributed to a lack of application knowledge. From the participants' point of view, the acquisition of digital skills and standardized application guidelines are elementary for safe handling. For this reason, an application-oriented introductory workshop for speech therapists with ISi-Speech was held at the start of the feasibility study. They also received comprehensive manuals, counseling guidelines and checklists for the use of the system in Parkinson's complex therapy. In subsequent qualitative individual interviews, the workshop and the additional material were rated as informative and helpful and a high level of acceptance and openness towards smart technologies in the routine care of PD was also emphasized. The results of the study serve as the basis for a best-practice model in which processes and requirements for the successful implementation of AI-based assistance systems in routine care are defined.

Biography

Anika Thurmann received her speech therapy training in Schwerin in 2003, after which she ran a speech therapy practice in the Hanseatic city of Wismar until 2016. In 2018, she completed a Bachelor of Science in Therapy Science in Hamburg. Anika Thurmann completed her Master of Science in Therapy Science at the Fresenius University of Applied Sciences in 2020. In 2018, she worked as a research assistant at University Fresenius Hamburg. Since 2021, Anika Thurmann has been working in the funded project "humAine - human centered AI network" by the federal ministry of education and research as a research assistant for the University of Applied Sciences for Health and the Ruhr University Bochum.

Recovery of spinal walking in paraplegic dogs using physiotherapy and supportive devices to maintain the standing position

Gheorghe Solcan, Mădălina Elena Henea, Eusebiu Viorel Șindilar, Liviu Cătălin Burtan, Mariana Grecu and **Alina Anton**

Faculty of Veterinary Medicine, University of Life Sciences, Romania

Paraplegic patients have always been ideal candidates for physiotherapy due to their body's inability to recover on its own. Regardless of the cause that led to the onset of paraplegia (traumatic or degenerative), physiotherapy helps these patients with devices and methods designed to restore their proper functioning of the motility, as well as quality of life.

60 paraplegic dogs without deep pain on hindlimbs caused by discal hernia or thoraco-lumbar fractures have undergone physiotherapy sessions: manual therapy (massage), electrostimulation (10-20 minutes, with possible repetition on the same day), ultrasound therapy, laser therapy, hydrotherapy and assisted gait in supportive devices or on treadmill to stimulate and relearn walking, this being the main focus of the study. To maintain the standing position over time, we developed different devices adapted for each patient, depending on the degree of damage and the possible associated pathologies. Concurrent pathologies (skin wounds, urinary infections etc.) were managed concomitantly. After 125 to 320 physiotherapy sessions, 35 dogs (58.33%) developed the spinal walking, being able to walk without falling or falling sometimes in case of quick look, with a lack of coordination between the thoracic and pelvic limbs, difficulties in turning especially when changing direction but with recovery of the quadrupedal position in less than 30 seconds.

Biography

Prof. Gheorghe SOLCAN, DVM, PhD in Veterinary Medicine

University of Life Sciences Ion Ionescu De La Brad from Iași, Romania

Faculty of Veterinary Medicine

8, M Sadoveanu Aley, 700490 Iasi, Tel. 0040745302684,

E-mail: gsolcan@uaiasi.ro

https://iuls.ro/medicina/en/wp-content/uploads/2022/07/Solcan-CV-europass-_en.pdf

https://orcid.org/0000-0002-3067-9574

1986 graduated the Faculty of Veterinary Medicine from Iasi,

1998 finalized the PhD thesis in Veterinary Medicine

Professional experience: 2005-to date, Professor of Internal Medicine, PhD coordinator in Veterinary Medicine (Internal Medicine)

2000- 2004 and 2008-2012, scientific ViceDean of the Faculty of Veterinary Medicine from Iasi, organizing the main scientific events of the faculty and each year a Congress with international participation, selecting the papers for publication in the yearbook of the faculty.

Director of 5 national research projects, and responsible for 3 partnership projects in veterinary medicine and biotechnology fields.

79 ISI publications, Hirsch in Web of Science 10 and 283 citations

https://scholar.google.com/citations?hl=en&user=bhv8YPgAAAAJ

Driving assessment for persons with dementia: How and when?

Lara Camilleri[1] and **David Whitehead**[2]

[1]Saint Vincent De Paul Long Term Care Facility, Malta
[2]Department of Gerontology, University Hospital of Wales, UK

Dementia is a progressive neurodegenerative disease leading to deterioration in cognitive and physical skills. Driving is an important instrumental activity of daily living, essential for mobility and self-sufficiency. However, this is a complex skill which can be affected by dementia. A moving vehicle can be a dangerous tool in the hand of someone who cannot maneuver it properly. As a result, the assessment of driving capacity should be part of dementia management.

Aims and Objectives: Dementia comprises of different etiologies and stages consisting of different signs and symptoms. This increases the complexity of driving assessment. This study aims to identify driving behaviors common in dementia and compare different assessment methods.

Method: A literature search was performed using the PRISMA checklist as a framework.

Results: A total of forty-four observational studies and four meta-analysis were identified. Study characteristics varied greatly with regards to methodology, population, assessments and outcome measures used. Drivers with dementia performed generally worse than cognitively normal drivers. Poor speed maintenance, lane maintenance, difficulty managing intersections and poor response to traffic stimuli were the most common behaviors identified in drivers with dementia. Naturalistic driving, standardized road assessments, neuropsychological tests, participant self-rating and caregiver rating were the most common driving assessment methods used. Naturalistic driving and on-road assessments had the highest predictive accuracy. Results on other forms of assessments varied greatly. Both driving behaviors and assessments were influenced by different stages and etiologies of dementia at varying degrees.

Conclusion: Methodology and results in available research are varied and inconsistent. As a result, more good quality research is required in this field. Like with any other form of assessment in geriatric medicine, a multidisciplinary, holistic and patient centered assessment is the suggested approach when assessing driving competence in dementia.

Biography

Lara Camilleri obtained her MD from the University of Malta in 2014. After which, she worked in several Hospitals in Malta during her Foundation training. She completed Basic Specialist Training in General Medicine in 2018. She obtained her Specialization in Geriatric Medicine in January 2023 and she have a special interest in Cognitive Impairment and Dementia Care. This research was part of her theses for her MSc degree in Care of the elderly done with the University of Wales Trinity Saint David. She obtained her MSc degree in 2022.

Challenges and solutions for design, integration and interoperability of intelligent and ethical health and social care ecosystems

Bernd.Blobel

[1]Medical Faculty, University of Regensburg, Germany
[2]First Medical Faculty, Charles University Prague, Czech Republic University of Genoa, Italy
[3]Faculty European Campus Rottal-Inn, Deggendorf Institute of Technology, Germany

Advancing from phenomenological, evidence-based, person-centered and personalized care, health and social care systems currently undergo a transformation towards personalized, preventive, predictive, participative precision medicine (5PM), supported by technology. It considers individual health status, conditions, genetic and genomic dispositions in personal social, occupational, environmental and behavioral context, understanding the pathology of diseases and turning health and social care from reactive to proactive. Thereby, we have to enable communication and cooperation between all actors from different knowledge spaces, representing different disciplines, using different methodologies, perspectives, intentions, languages, etc. Therefore, the knowledge-based, multidisciplinary, highly complex and dynamic 5PM ecosystem must be consistently and formally represented. The outcome is a system-theoretical, architecture-centric, ontology-based, policy-driven approach for designing and managing intelligent and sustainable 5PM ecosystems.

Biography

Prof. Blobel studied Mathematics, Technical Cybernetics and Electronics, Theoretical Physics, Biocybernetics, Informatics and Medicine at different universities in East Germany. He received the PhD degree in Physics, a habilitation in Medicine and a habilitation in Medical Informatics. He was Head of the Physical Laboratory in Environmental Medicine at the Medical University Magdeburg and thereafter Head of the Medical Informatics Department and then Director of the Institute For Biometrics and Medical Informatics at the Medical Faculty of the Otto-von-Guericke University Magdeburg. In 2004, he became Founder and Head of the Health Telematics Project Group at Fraunhofer Society, Institute of Integrated Circuits (IIS), Erlangen and thereafter Head of the German National eHealth Competence Center (eHCC) at the University of Regensburg. He is author of more than 450 scientific publications.

Environmental neurotoxins: Endocrine disrupters and pesticides in neurodevelopmental disorders

Rebeca Mira Sánchez[1,2], Juan Antonio Marín Martínez[2] and **Juan Felipe Bermeo Losada[3]**

[1]Universidad de Murcia, Spain.
[2]Instiuto de Ciencias Medioambientales y Neurodesarrollo ICMYN, Spain
[3]Centro Nacional de Energías Renovables CENER, Spain

In recent years, environmental epidemiology and toxicology have seen a growing interest in the environmental factors that contribute to the increased prevalence of neurodevelopmental disorders, with the purpose of establishing appropriate prevention strategies.

A comprehensive review is performed, between 2000 and 2019, in electronic databases PubMed and Medline, covering the topic of endocrine disruptors and neurodevelopmental disorders were found, focusing on polychlorinated biphenyls, polybrominated diphenyl ethers, bisphenol A and pesticides.

To address this issue, the following research questions were formulated:

(1) How does maternal and infant thyroid function affect neurodevelopment?

(2) How does altered thyroid function contribute to neurodevelopmental disorders?

(3) How do endocrine disruptors modify thyroid function and thus possibly promote neurodevelopmental disorders?

(4) How do pesticides disrupt thyroid function and possibly increase neurodevelopmental disorders?

This study contributes to analyzing their effect on the molecular mechanism in maternal and infant thyroid function, essential for infant neurodevelopment and whose alteration has been associated with various neurodevelopmental disorders.

The results show scientific evidence associating endocrine disruptors and pesticides with different neurodevelopmental disorders. This research contributes to a better understanding of neurodevelopmental disorders and to the establishment of appropriate measures for the prevention of exposure to these environmental factors in the general population.

Biography

Rebeca Mira Sánchez is Postgraduate: "Expert in Neurogastroenterology and Digestive Motility", Official Master's Degree in Bioethics by the International University of Valencia VIU, Spain (2019). Final Master's Thesis in Bioethics: “Environmental factors in neurodevelopment. Econeurotic approach".Currently student of the PhD program in Biolaw: Bioethics, health and human rights, at the International Doctoral School EIDUM of the University of Murcia, Spain.

Role of lipoprotein receptors in neuronal cholesterol homeostasis

M. Borrell

Cardiovascular Program, Institut de Recerca Sant Pau- Centre CERCA, Spain

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.

Alteration of glia in covid infection: Permanence of cognitive alterations and mood disorders. Clinical cases

Concetta Mezzatesta[1], Mario Tambone Reyes[2], Vincenzo Provenzano[3], Davide Brancato[4] and **Francesca Provenzano[5]**

[1]psychologist psychotherapist Neurocovid unit coordinator P.O. "Civico" Partinico Covid Hospital, Italy
[2]Chief Long Covid Center P.O. "Civico" Partinico Covid Hospital, Italy
[3]Past Chief P.O. "Civico" Partinico Covid Hospital, Italy
[4]Endocrinologist diabetologist Acting Head of Internal Medicine, Department PO Partinico Covid Hospital, Italy
[5]Diabetologist Covid Hospital, Italy

The COVID-19 pandemic has resulted in multiple investigations into its neurological impact, revealing a remarkable association between the virus and cognitive impairment, as well as mood disorders. our research, which lasted 3 years in the covid medicine department of the Partinico OP, delves into the alterations observed in glial cells, particularly in astrocytes and microglia, in inpatients and home patients infected with COVID-19. Through the exploration of clinical cases, this study elucidates the persistence of cognitive deficits and mood disorders related to glial cell dysfunction after COVID-19 recovery. Furthermore, it highlights the need for further research to understand the mechanisms underlying these alterations and to develop targeted therapeutic interventions to mitigate the long-term neurological consequences of the virus.

Aim: To evaluate the relationship between gliotic alterations, neuropsychological consequences and mood disorders of Sars-Cov 2 infection in sampled patients in order to construct an integrated and targeted clinical-pharmacological-psychological-psychotherapeutic intervention.

Methods: To evaluate the possible neuro-psychological consequences of Sars-Cov 2 infection in patients subject to sample:

- Anamnesis and first psychological evaluation;
- MRI analysis

- Administration of the following tests: State-Trait Anxiety Inventory Y1-Y2 (STAI-Y); Impact of Event Scale – Revised;
- neuropsychological protocol (Mini Mental State Exmination (MMSE), Immediate and deferred Rey figure, Frontal assessment battery (FAB)

Results: 63% of subjects have gliotic alteration in the frontal and prefrontal, parietal and temporal lobes.

in 21% there is a microgliotic alteration to the limbic lobe and arcuate nucleus88% of subjects tested with the neuropsychological protocol showed cognitive impairment.

52% of the sample reported a potentially traumatic event related to Sars-Cov 2, among these 58% obtain a highly significant score for a PTSD and 54% comorbidity had a clinically significant anxiety disorder. the treatment with the EMDR method of critical PTSD cases has allowed a substantial remodulation of both the post-traumtic picture.

Conclusions: longitudinal study showed a correlation between gliotic alterations, cognitive and mood disorders in covid patients. Doctors wonder whether progressive changes in astrocyte and oligochondrocyte cells leading to 'covirus-induced dementia' will occur in the future.

Biography

Concetta Mezzatesta is a Psychologist, Psychotherapist,Sexuologist, Traumatic Disaster Manager and Coordinator of neurocovid Psychologists unit of Partinico Covid Hospital in Sicily Italy. She is working with Prof. Vincenzo Provenzano and very important clinical team. For about two years he has followed covid patients during hospitalization (Head of the "End of Life" therapeutic project) and in the Long covid clinic dealing with psychotherapy to support psychic pathologies and neuropsychological evaluations and neuropsychological rehabilitation, a neuroscience sector that deals with the rehabilitation of people suffering from focal or diffuse brain diseases that determine the impairment of one or more cognitive and / or behavioral functions. She has dealt with the "end of life" of patients suffering from neurodegenerative diseases and family members. He carries out research on issues related to: psychiatric, neurodegenerative and Neuro long covid pathologies.

He has held numerous positions as Professor and Adjunct Professor of Clinical Psychology, Psychopathology and Psychometrics at various public facilities: including the University of Palermo, Trapani and Messina and Scientific Clinical Institutes Clinical Work and Cognitive Rehabilitation.

Association between iron deficiency anaemia and ischaemic stroke in adults

Preethy Manoj[1,2], Sherly George[1], Linda Nugent[1], Pinar Avsar[1], Fiona Boland[1], Eamon Dolan[2] and Rosemarie Derwin[1]

[1]Royal College of Surgeons in Ireland, Ireland
[2]Connolly Hospital, Ireland

Background and purpose: Acute stroke is defined as the onset of focal neurological findings in a vascular territory because of underlying cerebrovascular disease. Stroke results in the destruction of almost two million brain cells every minute resulting in a permanent brain damage, cognitive and functional disabilities and death. According to WHO reports, 30% of the world's population is affected with Iron-deficiency anaemia (IDA) which is the most treatable form of anaemia. The cause of stroke remains unknown in 30% of cases, despite the fact that there are both modifiable and non-modifiable risk factors. A small number of case studies have reported IDA as an underlying cause for stroke in young adults. This study aims to explore the association between IDA and ischaemic stroke.

Method: This study comprised retrospective chart review of 459 patients who had had their first ischemic stroke and had no previous history of stroke. Any potential association between IDA and treatment outcomes in patients with ischemic stroke were explored using both unadjusted and adjusted regression analysis.

Results: The incidence of IDA, anaemia and no anaemia in this study were 9.37%, 29.63% and 61% respectively. IDA was not associated with severity of stroke ($p = 0.571$), mild cognitive impairment ($p = 0.999$), moderate cognitive impairment ($p = 0.671$), severe cognitive impairment ($p = 2.999$) and case fatality rate (CFR) ($p = 0.728$). There was significant evidence of an association between discharge to nursing home post stroke and IDA ($p = 0.041$), severe disability post stroke ($p = 0.001$), increased length of hospital stay > 29 days ($p < 0.001$), > 36 days ($p = 0.034$), > 43 days ($p = 0.012$), > 50 days ($p < 0.001$) and those who "died" post stroke ($p = 0.003$) compared to the no anaemia group.

Conclusion: IDA is a possible risk factor for stroke. However, more robust studies are necessary to authenticate these findings.

Biography

- PhD scholar, Royal College of Surgeons in Ireland, 123 Saint Stepen's Green, Dublin2, Ireland.
- Registered nurse with the Nursing and Midwifery board of Ireland.
- Has twenty-eight years of experience in Nursing.
- Currently working as Clinical Nurse Manger 2.
- Possess MSc in Gerontological Nursing.
- Presented the study at several national and international conferences, both orally and through posters.
- Has published 4 manuscripts
- Recipient of RCSI Clinical Scholarship.

New Evidence for high prevalence of renal salt wasting (RSW), identification of novel protein in RSW to simplify diagnosis of RSW and introducing new syndrome of RSW in Alzheimer's disease

John K. Maesaka and **Louis J. Imbriano**

Division of Nephrology and Hypertension, Department of Medicine, NYU Langone Hospital Long Island, NYU Grossman Long Island School of Medicine, USA

Backround: Cerebral/renal salt wasting (RSW) is considered rare and presents with identical parameters as SIADH that creates a diagnostic and therapeutic dilemma, to fluid-restrict water-logged patients with SIADH or administer saline to dehydrated patients with RSW. We previously demonstrated the presence of a natriuretic protein (NP) in the plasma of RSW neurosurgical patients and in patients with Alzheimer's disease (AD).

Methods: We utilized a new algorithm to determine the different causes of hyponatremia and identified the NP in an RSW patient with subarachnoid hemorrhage (SAH) and another with AD by the same rat clearance methodology.

Results: Of 62 hyponatremic patients, (A) 17 patients (27%) had SIADH, (B) 19 patients (31%) had a reset osmostat (RO), (C) 24 patients (38%) had RSW, 21 without clinical evidence of cerebral disease (D) 1 patient had Addison disease and (E) 1 patient (1.6%) due to hydrochlorothiazide.

The normonatremic SAH and AD sera had identical robust dose-dependent increases in FE (fractional excretion) sodium and FElithium, lithium serving as a marker of proximal tubule sodium transport. The NP in the SAH and AD sera was identified as haptoglobin related protein without signal peptide (HPRWSP).

Conclusions: RSW is common. HPRWSP may be the NF in RSW, can serve as a biomarker to differentiate RSW from SIADH on first encounter and introduces a new syndrome of RSW in AD that occurs early in AD and becomes more dehydrated as the dementia worsens. RSW is common in normonatremic patients.

Biography

John Maesaka, professor of medicine at NYU Grossman Long Island School of Medicine and Chief Emeritus, Division of Nephrology and Hypertension at the NYU Langone Hospital Long Island. He received a BA degree Harvard University, MD degree Boston University School of Medicine and trained at Barnes Jewish Hospital Washington University in St. Louis and Mount Sinai Hospital and Medical School N.Y. He spent 5 years in a physiology laboratory at Mount Sinai Medical Center, which prepared him for his future research endeavors. He spent many years studying hyponatremic conditions, especially renal salt wasting and identifying the protein that causes it.

Foundational discoveries in cancer neuroscience: Elucidating nervous system–cancer interactions

Tahmineh Azizi

University of Missouri St. Louis, USA

Cancer neuroscience encompasses a multidisciplinary field that investigates the intricate interactions between the nervous system and cancer biology, particularly within the context of tumorigenesis, metastasis and therapeutic responses. This burgeoning area of research explores the bidirectional communication between cancer cells and neural tissues, ranging from the molecular and cellular mechanisms to the clinical implications for cancer diagnosis, prognosis and treatment. Key aspects of cancer neuroscience include elucidating the role of neurotrophic factors, neurotransmitters and neuropeptides in tumor growth and metastasis, as well as characterizing the neural circuits and microenvironmental cues that influence cancer progression. Additionally, cancer neuroscience encompasses the study of neuroinflammatory responses, neuroimmune interactions and neuroplasticity in the context of cancer-related neurologic complications and therapeutic resistance. Moreover, advances in neuroimaging technologies and computational modeling have enabled the visualization and analysis of neural networks and tumor dynamics, offering insights into the spatiotemporal dynamics of cancer spread and response to therapy. Integrating knowledge from neuroscience, oncology and neurology, cancer neuroscience holds promise for the development of innovative diagnostic biomarkers, targeted therapies and personalized interventions to combat cancer progression and improve patient outcomes. This abstract provides an overview of the diverse facets of cancer neuroscience and highlights its potential impact on understanding and managing cancer-related neurologic disorders.

Biography

Tahmineh Azizi, a highly innovative and accomplished faculty at University of Missouri St. Louis with extensive understanding and more than eight years' experience of presentations, development of novel models and tools, and computational analysis to quantitatively bridge the gap between *in-vitro* experiments and in-vivo endpoints. Her research has been directed towards areas including mathematical biology, dynamical systems theory, computational analysis, mathematical modeling, statistical modeling, Neuroscience, epidemiological models, topological data analysis, fractional calculus and fractal geometry, multiscale modeling.

Genetic and epigenetic resilience during aging

Li Liu[1], Jingmin Shu[2] and **Richard Caselli[2]**

[1]Arizona State University, USA
[2]Mayo Clinic Arizona, USA

A myriad of genetic, environmental and life-style factors affects an individual's risk of developing Alzheimer's disease (AD). However, only a minority of AD patients have a recognized disease driving mutation and the interplay among genetic and non-genetic factors remain elusive. Our computational modeling revealed that excessive homozygosity at numerous genomic loci was associated with early age of onset of AD, implying that the missing inheritability may reside in common, ostensibly benign variants distributed across all chromosome. This observation aligns with the established evolutionary fitness theories, which proposes that inbreeding diminishes fitness while genetic diversity bolsters resilience against diseases. Our study also uncovered that protective DNA methylation barriers, which prevent the epigenetic silencing of gene promoters, tend to deteriorate with age and as AD progresses. This loss occurs on a genome-wide scale and predominantly affects genes associated with stress responses, hinting at a broad epigenetic vulnerability in the aging genome. These findings collectively suggest that genetic and epigenetic resilience are crucial in combating the deterioration that accompanies aging and the progression of AD. However, the precise mechanisms through which these myriad factors intertwine remain largely unknown, underscoring the need for further research to unravel the complex biological tapestry underlying Alzheimer's disease.

Biography

Tahmineh Azizi, a highly innovative and accomplished faculty at University of Missouri St. Louis with extensive understanding and more than eight years' experience of presentations, development of novel models and tools, and computational analysis to quantitatively bridge the gap between *in-vitro* experiments and *in-vivo* endpoints. Her research has been directed towards areas including mathematical biology, dynamical systems theory, computational analysis, mathematical modeling, statistical modeling, Neuroscience, epidemiological models, topological data analysis, fractional calculus and fractal geometry, multiscale modeling.

Novel lipid mediators responses in experimental therapeutics for Ischemic stroke

Nicolas G. Bazan

Neuroscience Center of Excellence, Louisiana State University Health New Orleans, USA

Despite their adverse environment, photoreceptor cells (PRCs) and retinal pigment epithelial cells (RPECs) remain functionally unchanged for decades in healthy eyes. We have defined the molecular cascade by which bioactive derivatives of docosahexaenoic acid (DHA) sustain cell protection through TXNRD1 and GPR120. The synthesis of Neuroprotectin D1 (NPD1) and Elovanoids (ELVs) is activated at the onset of damage, setting in motion gene clusters that promote homeostasis and cell integrity. We have shown that the uptake and metabolism of DHA in rods and cones in the human retina is mediated by receptor signaling that is impaired in the human retina of age-related macular degeneration (AMD) patients, especially in females, suggesting that failure in the pathway for ELV synthesis in rods leads to retinal degeneration. ELV-N34 targets TXNRD1 and GPR120 to protect PRC and RPE integrity. We have found that GPR120, a G-protein receptor, is targeted by ELVs in the RPE and that ELVs target TXNRD1 at the initiation of ferroptosis and oxidative stress regulation in RPEs. Moreover, ELVs contribute to RPEC/PRC resiliency and integrity by epigenetic modulation of specific pro-inflammatory and pro-homeostatic pathways. Using our Adiponectin receptor 1 (AdipoR1) global knockout (KO), membrane frizzled-related protein (MFRP) (rd6) and single-cell genomics, we are defining signaling pathways that are required to sustain RPEC and PRC homeostasis and functional integrity promoted by the lipid mediators. Our data will set the parameters and define avenues to contribute new therapeutic strategies to slow down or delay the progression of AMD.

Biography

"A true Renaissance man," Dr. Bazan is an innovative scientist, effective mentor, community leader, creative author, arts patron, entrepreneur and influencer in implementing a knowledge-based local economy. His pioneering research continuously opens conceptual in-roads in neuroscience, ophthalmology and medicine by uncovering signaling mechanisms and novel molecular principles of successful aging, cell survival, neuroprotection in stroke, traumatic brain injury and neurodegenerative diseases as part of his ongoing quest to contribute to a challenge to civilization: the growing incidence of the loss of cognition and sight.

He is also the author of Una Vida: A Fable of Music and the Mind (Screenplay Co-writer of the film Of Mind and Music) and The Dark Madonna: A Fable of Resiliency and Imagination – novels exploring his intellectual quest to understand the beauty and complexity of brain function. At the same time, he aims to remove the stigma surrounding Alzheimer's disease and other forms of dementia.

Theory and applications of EEG data analysis

Ceon Ramon

Department of Electrical & Computer Engineering, University of Washington, USA

In this talk, I will briefly introduce EEG and how to measure and analyze EEG data. Recent advances in EEG data analysis with applications to epilepsy and human cognition will also be included. Nowadays, EEGs are measured with 11-256 channel EEG systems. Higher electrode numbers provide a better spatial resolution of the brain activity and also help in better localization of the sources in the brain. The spatiotemporal behavior of EEG power, phase slips and phase cone formations during resting state, visual cognition and epileptogenic activity was studied from the 256-channel EEG data. The analytic phase is extracted after taking the Hilbert transform of the EEG data. After unwrapping and detrending, one can see large phase slips that relate to the cortical phase transitions. The spatiotemporal profiles of EEG and phase slip rates (PSRs) during the stimulus and poststimulus period were examined in detail to study the visual evoked potentials and different stages of visual object recognition in the visual, language and memory areas. It was found that the activity areas of PSR were different compared to EEG activity areas during the stimulus and poststimulus periods. Different stages of the insight moments during the covert object naming tasks were examined from PSRs and it was found to be about 512±21 ms for the 'Eureka' moment. Similarly, the phase cone activities were extracted from the EEG data of adult patients. The spatiotemporal plots exhibited dynamical formation of phase cones which were higher in the seizure area as compared with the nearby surrounding brain areas. Overall, these results indicate that PSR derived from EEG can be used as a potential biomarker to study the brain's cognitive behavior and epileptogenic activity.

Biography

Ceon Ramon obtained his B.E.(Hons.) in Electrical Engineering from the Indian Institute of Science, Bangalore in 1966 and his Ph.D. in 1973 from the University of Utah with specializations in lasers and quantum optics. After graduation, his research interest shifted to biomedical engineering. Since the 1990s his work has been in modeling the electrical activity of the brain and EEG data analysis with applications to epilepsy and visual cognition. He has about 45 years of research and teaching experience and about 250 research publications. He has held faculty positions at SUNY/Stony Brook, the University of Washington and Reykjavik University in Iceland. He retired in 2018 as an emeritus professor but is still very active in research. Currently, he is an affiliate professor in the Department of Electrical and Computer Engineering and is also associated with the Regional Epilepsy Center at the University of Washington.

Validation of self-efficacy questionnaire of online learning for students with disabilities in higher education

Tuba Gezer[1], Stella Kim[2] and **Othelia EunKyoung Lee[2]**

[1]The Ohio State University, USA
[2]University of North Carolina at Charlotte, USA

Considering the rise of online education and an increasing number of students with disabilities in higher education, examining the validity of the Self-efficacy Questionnaire for Online Learning (SeQoL) for students with disabilities is warranted. The purpose of this study is to examine the reliability and validity of (SeQoL; Shen et al., 2013) for students with disabilities in higher education. We analyzed the internal structure, convergent validity, criterion validity and reliability of SeQoL. A sample of 278 students with disabilities responded to an online survey in Spring 2021. Most of our sample were female, White and undergraduate students. We used confirmatory factor analysis, correlation, multivariate analysis of variance and Cronbach's alpha to analyze the data. Our results indicated that data fit the five factors model with 25 items. Students who preferred online or hybrid courses had significantly higher online learning self-efficacy than face-to-face courses. students with disabilities could prefer online education because of its flexibility (Verdinelli & Kutner, 2016), so the implication of this study is important for instructors to assess students with disabilities' readiness for online learning and college students for self-assessment. Second, the validity of SeQoL for students with disabilities in higher education is crucial because, in addition to students who registered at disability service, there are students who received special education in high school but did not register for disability services in higher education (Newman & Madaus, 2015).

Biography

Tuba Gezer, Ph.D. is a postdoctoral fellow at Ohio State University. She worked at the Institute for Education Policy, Johns Hopkins University. She completed her Ph.D. in Educational Research, Measurement and Evaluation from the University of North Carolina at Charlotte. Her dissertation examined providing equal educational opportunities to English learners in the United States. She is passionate about equity and equality in educational settings. Her research interests are English learners, English learners with disabilities, academic achievement, structural equation modeling, research methodology, digital citizenship and the digital divide. Dr. Gezer has presented widely, including annually, at the American Educational Research Association conference, as well as at conferences such as the Association for Educational Communication and Technology and the EdMedia World Conference on Educational Media and Technology. She is the recipient of the Excellent Research on Inclusion and Accessibility in Education Assessment by American Educational Research Association.

MicroRNA and metabolic arrest in brain

Kenneth Storey

Department of Biology, Carleton University, Canada

Unlike the brains of humans, animal brains are subject to extremes of environment – and must keep neural function intact during and after extreme conditions. 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 re-organization 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 signalling, 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]. For deeper analyses, please see: http://www.kenstoreylab.com/

Biography

Ken Storey, PhD, FRSC, is a Professor of Biochemistry at Carleton University in Ottawa and holds the Canada Research Chair in Molecular Physiology. He graduated from University of Calgary (BSc 1971) and University of British Columbia (PhD 1974). Ken’s field of interest is biochemical adaptation; in particular, mammalian hibernation and freeze tolerance are core topics in his over 1000 refereed publications. Ken won the 2010 Flavelle medal from the Royal Society of Canada, “CryoFellow” of the CryoBiology Society in 2012 and the 2011 Fry medal from the Canadian Society of Zoologists. For more information visit http://www.kenstoreylab.com/

Predictors of conversion to Dementia in patients with mild cognitive impairment: The role of low body temperature

Kannayiram Alagiakrishnan, Prabhpaul Dhami and **Ambikaipakan**

Senthilselvan, University of Alberta, Canada

Introduction: Subjects with mild cognitive impairment (MCI) can progress to dementia.

Methods: The objectives of this retrospective study in elderly subjects at the University of Alberta Hospital are to assess the prevalence of MCI, the rate of conversion to dementia and association of clinical risk factors with conversion from MCI to dementia over 5 1/2 years.

Results: The prevalence of MCI at baseline was 25.6% and 43% of the MCI subjects converted to dementia. Regression analysis showed family history of dementia (OR: 3.52, 95% CI: 1.62, 5.38, p<0.001), abnormal clock drawing (OR: 1.95, 95% CI: 1.00, 3,37, p< 0.05), MoCA score (OR: 0.92, 95% CI: 0.86, 0.99, p<0.05) and temperature of 36C or below (OR: 4.14, 95% CI: 3.19, 25.66, p < 0.001) are associated with the progression to dementia.

Conclusion: This study would help the clinicians to identify patients with MCI who are at risk of converting to dementia.

Biography

Dr. Kannayiram Alagiakrishnan is the Professor of Medicine in the Division of Geriatric Medicine at the University of Alberta, Edmonton, Canada. He is the site service chief for Geriatric Services at the University of Alberta Hospital.

What role do neuropeptides play in mental health? A new target in psychiatric disorders

Renata Fleming

Universidade Federal do Rio de Janeiro (UFRJ), Brazil

Psychiatric disorders represent a relevant social and economic burden in contemporary society. A better understanding of physiopathology is crucial to development new diagnostic test and therapeutic approaches ultimately to improve patients life quality. Neuropeptides (NPs) were described 40 years ago and since then their role in regulation of central nervous system has been demonstrated. However, the last years have brought light to a new role of this molecules in central nervous system pathophysiology. Implications of NPs in dementia, mood disorders and anxiety disorders has been shown. NPs has emerged as an underinevstigated relevant potential target for new therapeutic. This section will discuss the new data regarding the role of NPs in psychiatric disorders and the potential application of this molecules as disease biomarkers and therapeutic targets.

Biography

Renata Fleming is MD/PhD who has been working as assistant physician and researcher for the past 18 years. She believes that research is the source of valuable knowledge that can shape a sharpen medical mind and promote the best care for patients. She got her medical degree and her PhD at Federal University of Rio de Janeiro (UFRJ). After she finished her medical training, she was invited for a research fellow position at MGH/ Harvard Medical School. After 6 years of an outstanding scientific training in USA, she is back to her roots. Currently she is in Brazil as assistant professor at UFRJ. Her aims are to promote local science and improve worldwide collaboration that could bring light to new knowledge and ultimately benefit patients.

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Evidentiary significance of routine EEG in refractory cases: A paradigm shift in psychiatry

Ronald J. Swatzyna
Houston Neuroscience Brain Center, USA

Over the past decade the Diagnostic and Statistical Manual's method of prescribing medications based on presenting symptoms has been challenged. The shift toward precision medicine began with the National Institute of Mental Health and culminated with the World Psychiatric Association's posit that a paradigm shift is needed. This study supports that shift by providing evidence explaining the high rate of psychiatric medication failure and suggests a possible first step towards precision medicine. A large psychiatric practice began collecting electroencephalograms (EEGs) for this study in 2012. The EEGs were analyzed by the same neurophysiologist (board certified in electroencephalography) on 1,233 patients. This study identified four EEG biomarkers accounting for medication failure in refractory patients: focal slowing, spindling excessive beta, encephalopathy and isolated epileptiform discharges. Each EEG biomarker suggests underlying brain dysregulation, which may explain why prior medication attempts have failed. The EEG biomarkers cannot be identified based on current psychiatric assessment methods and depending upon the localization, intensity and duration, can all present as complex behavioral or psychiatric issues. The study highlights that the EEG biomarker identification approach can be a positive step toward personalized medicine in psychiatry, furthering the clinical thinking of 'testing the organ we are trying to treat.'

Anatomy of Skull Base

Jyoti Mago
University of Nevada, USA

The current presentation aims at discussing the anatomical landmarks of the anterior, middle and posterior cranial fossa on Cone Beam Computed Tomography scans. The presentation will also focus on the structures that pass through that foraminas such as cranial nerves.

Biography

Dr. Jyoti Mago is an Oral and Maxillofacial radiologist working as an Assistant Professor inthe Department of Clinical sciences at the University of Nevada, Las Vegas. She obtained her M.S. in Dental Sciences and completed her residency training in oral & maxillofacial radiology at the University of Connecticut, School of Dental Medicine. She worked as a faculty member at the University of Iowa prior to her appointment at the University of Nevada Las Vegas. Dr. Mago has also completed her Masters in Oral Medicine and Radiology from India at Maharishi Markandeshwar University. Dr. Mago has her speciality licence to practice Oral and Maxillofacial Radiology in the state of Nevada. Her keen interest is in the advanced Radiology, dosimetry and radiation safety and protection. She has presented at local, national and international meetings and has an active involvement in outreach education in radiology.

Brain increased Cholesterolemia induces memory loss, cognitive dysfunction and Alzheimer's disease in ApoE-PON1 KO diabetic mice

Dinender K Singla and **Chandrakala Aluganti Narasimhulu**

Division of Metabolic and Cardiovascular Sciences, Burnett School of Biomedical Sciences, College of Medicine, University of Central Florida, USA

Aim: Diabetic hyperlipidemia leads to cognitive dysfunction, which is of major concern. The underlying mechanisms of the pathophysiology of diabetic brains are entirely unknown. Therefore, we investigated whether hypercholesterolemia induces cell death, memory loss and cognitive dysfunction in diabetic apolipoprotein E (APOE)-paraoxonase 1 (PON1) double knockout (DKO) mouse brains.

Hypothesis: We hypothesize that diabetes induces increased hypercholesterolemia, leading to cell death, cognitive dysfunction and Alzheimer's disease.

Methods: ApoE-PON1 DKO mice (6±2 months) were treated with streptozotocin with appropriate controls. Animals were examined for brain function, hyperglycemia and serum lipids. Echocardiography was performed to determine heart function and mice aortas were isolated to examine lipid deposition. Brain samples were taken to confirm cell death, molecular biology and structural alterations using RT-PCR, immunohistochemistry and histologically.

Results: We observed a significant ($p<0.05$) hyperglycemia, serum lipids, increased lipid deposition in aortic lesions, as well as significantly upregulated cholesterol loading and cell death markers in the brains of diabetic mice as compared to the control. A significant reduction in reverse cholesterol transport and HDL-associated proteins was evident. A significant ($p<0.05$) decrease in brain weight, size and brain function was observed in diabetic mice. Furthermore, a significant ($p<0.05$) increase in apoptotic negative regulator protein PTEN and a decrease in AKT levels were observed in diabetic mice. In addition, an important ($p<0.05$) increase in Alzheimer's specific markers was also observed, suggesting cognitive dysfunction leading to Alzheimer's disease.

Conclusion: Considering our aim to understand the mechanism and pathophysiology of diabetic brains, our data strongly suggest that hyperlipidemia induces apoptosis in neuronal cells, memory loss and cognitive dysfunction. This further contributes to the development

of Alzheimer's in diabetic ApoE and PON1 DKO mice. These findings underscore the need for further therapeutic approaches to target hyperlipidemia in diabetic brains, a crucial area of research in metabolic and cardiovascular sciences.

Biography

Dr. Dinender Singla is a translational scientist. Our team investigates the role of stem cells and its derivative exosomes in anti-cancer drug induced cardiac toxicities and diabetes induced muscle myopathy and cardiomyopathy.

He is continuously serving to review the grants for various NIH, AHA, ministry of Italian health and Hong Kong study sections. He is an Academic Editor for PLos one, Associate Editor for Canadian Journal of Physiology and Pharmacology as well as he is serving on the Editorial board member for different journals such as American Journal of Physiology: Heart and Circulatory. He served as a chair, TPIG committee and American Physiology Society. He served as a general secretary for North American section of the International Academy of Cardiovascular Sciences. He is a President for the international society for adaptive Medicine (ISAM). He is a fellow international academy of cardiovascular sciences, American Physiological Society and American Heart Association. He is a reviewer for different journals. He served as a chair for various scientific sessions throughout the world. He has also organized a scientific conference. He has published a book on stem cells and is an author/ coauthor for more than 100 peer reviewed papers.

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Dhruva Gulur

Medical Arts Associates in Bellevue, USA

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Biography

Dhruva is a board-certified family doctor and has over 25 years of experience in the medical field. He is a Mindfulness-Based Stress Reduction (MSBR) course-certified mindfulness expert and a certified life coach. He is an award-winning preferred provider with high patient satisfaction ratings of > 95% of the 275 patient reviews he has online. He has seen over 110,000 patients in his career and counting! Dhruva has seen patients worldwide, including multiple mission trips to Haiti and underserved work in India. He has resigned from his full-time corporate medicine career to dedicate his focus to his passion so other physicians do not suffer as he did. Today, Dr. Dhruva Gulur serves as a family physician in a correctional facility to serve patient populations that are judged and misunderstood to maintain his clinical skill set along with his startup business – Mind Hygiene™ eutopia.

Diagnosis of autism spectrum disorder based on functional brain networks and machine learning

Caroline L. Alves[1] and **Francisco Aparecido Rodrigues**[2]

[1]*Aschafenburg University of Applied Sciences, Germany*
[2]*University of São Paulo (USP), Brazil*

Autism is a multifaceted neurodevelopmental condition whose accurate diagnosis may be challenging because the associated symptoms and severity vary considerably. The wrong diagnosis can affect families and the educational system, raising the risk of depression, eating disorders and self-harm. Recently, many works have proposed new methods for the diagnosis of autism based on machine learning and brain data. However, these works focus on only one pairwise statistical metric, ignoring the brain network organization. In this paper, we propose a method for the automatic diagnosis of autism based on functional brain imaging data recorded from 500 subjects, where 242 present autism spectrum disorder considering the regions of interest throughout Bootstrap Analysis of Stable Cluster map. Our method can distinguish the control group from autism spectrum disorder patients with high accuracy. Indeed the best performance provides an AUC near 1.0, which is higher than that found in the literature. We verify that the left ventral posterior cingulate cortex region is less connected to an area in the cerebellum of patients with this neurodevelopment disorder, which agrees with previous studies. The functional brain networks of autism spectrum disorder patients show more segregation, less distribution of information across the network and less connectivity compared to the control cases. Our workflow provides medical interpretability and can be used on other fMRI and EEG data, including small data sets.

Biography

Caroline L. Aves has a Ph.D. in Computer Science and Computational Mathematics from the University of São Paulo (USP). In addition, she has a Master's in Computer Science and Computational Mathematics from the University of So Paulo (USP) and a Bachelor's in Physics and Biomolecular Sciences from the same university (USP). Her Ph.D. project, titled: "On the Application of Machine Learning and Complex Networks to Neuroscience," involved applying machine learning and deep learning algorithms (mainly convolutional neural networks and long short-term memory architectures) and complex networks analysis of patients with mental illness as an autism spectrum disorder and schizophrenia.

She is working on several projects, including complex network and machine learning analysis of ECG of patients with arrhythmia and ischemia in partnership with the Hospital of Hanau, brain connectivity analysis of EEG data from dystonia patients in partnership with Einstein Hospital in Brazil, a multiclass classifier for fMRI mental diseases patients and an epidemiological model analysis of COVID in Aschaffenburg using a deep learning approach, complex network analysis for evaluated of Brain consciousness altered states of the Brain due to psychedelics, among others.

A transistor model for the cystic fibrosis transmembrane conductance regulator—with and without blockers

William D. Hunt[1] and **Nael A. McCarty**[2]

[1]*School of Electrical and Computer Engineering Georgia Institute of Technology, Georgia*
[2]*Department of Pediatrics Emory University School of Medicine, Georgia*

The Cystic Fibrosis Transmembrane conductance Regulator (CFTR) is a member of the ATP-binding cassette (ABC) transporter superfamily that has uniquely evolved to function as a chloride channel. It binds and hydrolyzes ATP at its nucleotide binding domains NBD1 and NBD2 to form a pore which provides a conductive pathway—predominantly for chloride and bicarbonate ions. The dysfunction of CFTR, induced by mutations, is responsible for the disease cystic fibrosis. While much is known about the functional aspects of CFTR, significant gaps remain in our knowledge and understanding. Paths towards a fuller understanding of this membrane channel include structural studies, molecular dynamics simulations and single channel patch clamp studies of function that may be enhanced using modeling approaches as described here. We present here an experimentally verified transistor circuit model for CFTR, based on single channel patch clamp recordings, which seeks to describe the operation of CFTR both in wild type and the G551D clinically relevant mutant. The circuit architecture is configured so that the function and as much as possible the form, faithfully represents what is known about CFTR from Cryo-electron microscopy and molecular dynamics. The model is a mixed Analog-Digital topology with an AND gate receiving the input from two separate ATP-NBD binding events. The computational efficiency and complexity of circuit simulation tools, such as LTspice® and Cadence®, facilitate the investigation of WT-CFTR and its mutants. Further, we will present recent extensions to the circuit which model the effect of blockers (e.g. arylaminobenzoates NPPB and DPC) and new details on how flicker noise can be predicted based on nuanced changes to the front end AND gate of the circuit. The approach taken here may prove useful towards a greater understanding of membrane channels central to much of neurology.

Biography

William D. Hunt is a Professor of Electrical and Computer Engineering at Georgia Tech with research interests that has included analog integrated circuits, biosensors and electrophysiology. Nael A. McCarty is the Marcus Professor of Cystic Fibrosis at the Emory University School of Medicine and is the Director of the Emory and Children's Healthcare of Atlanta Cystic Fibrosis Center of Excellence. In 2022-2023 they published two papers in Biophysical Reports [1,2] related to the subject of this talk.

1. Hunt, W.D., McCarty, N.A., Marin, E.M., Westafer, R.S., Yamin, P.R., Cui, G., Eckford, A.W. and Denison, D.R.: 'A transistor model for the cystic fibrosis transmembrane conductance regulator', Biophysical Reports, 2023, 3, (2)
2. Moffett, A.S., Cui, G., Thomas, P.J., Hunt, W.D., McCarty, N.A., Westafer, R.S. and Eckford, A.W.: 'Permissive and nonpermissive channel closings in CFTR revealed by a factor graph inference algorithm', Biophysical Reports, 2022, 2, (4)

QI² - An interactive tool for data quality assurance

Simon Geerkens[1], Christian Sieberichs[1], Alexander Braun[1] and **Thomas Waschulzik[2]**

[1]University of Applied Sciences Düsseldorf, Germany
[2]Siemens Mobility GmbH, Germany

The importance of high data quality is increasing with the growing impact and distribution of ML systems and big data. Not only do forthcoming regulations such as the EU AI Act establish demanding legal prerequisites, but safety-critical applications such as medicine and healthcare inherently necessitate high data quality. Our novel approach enables the verification of explicitly defined quantitative quality requirements in a compressed, visual and lossless manner. Our method QI² quantifies the complexities of input-output relationships within subsets of a given dataset by measuring non-linearities between input and output. These complexities are visually represented in a Scaled Histogram of Local QI² (SHLQI²). The tool's mathematical approach to comparing input and output distances makes it suitable for a wide range of applications due to simply adapting the distance metric.

The SHLQI² allowed us to investigate the well known MNIST Handwritten Digits dataset in a deep manner. Overall, the dataset is well-structured according to first investigation. However, upon closer examination, we discovered approximately 900 outliers that applied to our defined quantitative requirements of having at least 25 nearest neighbors of one different class. Those outliers are difficult or impossible to classify. In Addition to that we found that the structure is not as greatly clustered as assumed previously. The distribution of the digit 'nine' is particularly non-homogeneous locally. Only two points in this class met our defined quantitative requirements for homogeneity of having at least 300 next neighbors of the same class.

The proposed tool allows for an interactive and comprehensive data quality assurance process based on distinct quantitative requirements. Besides that, the visualization gives direct clues about anomalies and malicious structures within the data. By having traceable mathematical operations, we can pinpoint the cause of certain quality aspects and violations.

Biography

Simon Geerkens completed his bachelor's degree in electrical engineering through a dual system of vocational education and academic studies in cooperation with Siemens (09/2015 - 08/2019), as well as his master's degree in electrical engineering (09/2019 - 11/2021). During this time he was deeply interested in topics of AI and Data Sciences. Since 01/2022, he has been employed as a PhD student at the Düsseldorf University of Applied Sciences on the "safe.trAIn" project in the field of safe and explainable AI.

Schrödinger's what is life?—complexity, cognition and the city

Juval Portugali

Professor of Human Geography, Department of Geography and the Human Environment, Head of the City Center —Tel Aviv University Research Center for Cities and Urbanism Tel Aviv University, Israel

The aim of this talk is twofold: Firstly, to draw attention to four central concepts in Schrödinger's [1] 'What is Life?' that have not, as yet, received sufficient attention in the domain of complexity theory: delayed entropy, free energy, order out of order and aperiodic crystal. Secondly to demonstrate the important role the four elements play in the dynamics of complex systems by elaborating on their implications for cities as hybrid complex systems [2]. In the latter elaboration links will be made to Laland's et al [3] Niche Construction Theory, Friston's [4] free energy Principle and Simon's [5} Sciences of the Artificial.

1. Schrödinger, E. What is Life; Cambridge University Press: Cambridge, UK, 1944.
2. Portugali, J. What makes cities complex? In Complexity, Cognition Urban Planning and Design; Portugali, J., Stolk, E., Eds.; Springer: Berlin/Heidelberg, Germany, 2016; pp. 3–20.
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5. Simon, H.A. The Science of the Artificial; MIT Press: Cambridge, MA, USA, 1969.

Biography

Juval Portugali, Professor of Human Geography at the Department of Geography and the Human Environment Tel Aviv University. Head of the City Center –Tel Aviv University center for cities and urbanism. Juval Portugali received his BA degree from the Hebrew University of Jerusalem, did his MA studies at the Technion Haifa and received a London University PhD from The London School of Economics and Political sciences. His research integrates complexity and self-organization theories, environmental-spatial cognition, urban dynamics and planning in modern and ancient periods. His publications include more than 100 research articles and 20 scientific books.

A new class of epigenetic biomarkers determine enhancing and silencing of disease driver-genes

Asaf Hellman
The Hebrew University-Hadassah Medical School, Israel

Common multifactorial diseases including metabolic, cardiovascular, autoimmune, neurological and cancer illnesses affect hundreds of millions of people around the globe. A main barrier on the road to control these diseases is the lack of effective means to elucidate and control the genetic and environmental factors that generate between-patient heterogeneity in the time of onset, course of development, symptoms, severity and treatment response. We have developed a new method to locate key regulatory DNA methylation sites across large gene regulatory-domains. Utilizing the new method, we have uncovered complex cis-regulatory networks, which determine gene expression by summing the effects of positive and negative transcriptional inputs. In these networks, DNA methylation may induce both enhancing and silencing effects, depending on the context. Disease-prediction models based on this novel class of biomarkers significantly overpower best currently-available models. The revealed mechanism sheds light on the regulatory role of DNA methylation, explains inter-individual gene-expression variation and opens the way for monitoring the driving forces behind deferential courses of various diseases.

Biography

Professor Asaf Hellman is the chair of the Program for Competitional Medicine at the Hebrew University-Hadassah Medical School, based in Jerusalem, Israel. He was educated at the Hebrew University of Jerusalem, The Whitehead Institute, Massachusetts Institute of Technology and Harvard Medical School. Since 2007 he is leading a research team focusing on the epigenetic source of phenotypic diversity.

5-Month crossfit training plan improves neuromuscular, physiological, perceptual and performance assessments in elite national crossfit athletes

Arthur Zecchin[1], **Daniel Boullosa**[2,3] and **Enrico Fuini Puggina**[1,4]

[1]*School of Physical Education and Sport of Ribeirao Preto, Brazil*
[2]*Faculty of Physical Activity and Sports Sciences, University of León, Spain*
[3]*Human Movement and Sports Performance Analysis (AMRED), University of León, Spain*
[4]*Medicine School of Ribeirao Preto, University of Sao Paulo, Brazil*

This study was designed to investigate the effects of a 5-month CrossFit training program on physiological, neuromuscular and perceptual assessments. Eleven national CrossFit athletes were participated in this study (age: 30.8 ± 7.3 yrs; BMI: 22.7 ± 3.6; back squat 1RM: 166.8 ± 57.2 kg; training experience: 4.6 ± 0.9 yrs). The training plan was analyzed in detail and physiological, neuromuscular and perceptual assessments and three different CrossFit training sessions were applied pre- and post- training plan. The CrossFit training plan shown to vary in intensity and volume over the 5 months.

Participants reported improved well-being scores, increased neuromuscular performance and improvements in two of three training outcomes following the training plan. This is the first study to examine the effect of a long-term CrossFit training plan on neuromuscular, physiological and perceptual assessments and three CrossFit training sessions in national CrossFit athletes. In conclusion, the meaningful variation in physiological, neuromuscular, perceptual and performance ratings can be observed over the course of the season and these changes can be partially explained by the load imposed.

Biography

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Co-designing restrictive practice elimination: A systems thinking approach with mental health service users and practitioners in rural/regional Australia

S.L. Bennetts[1,2], G. Pepin[1,3], S. Moylan[2], R. Carolin[2], T. Forrester-Bowling[2,3], James McLure[2] andrew D. Brown[1,3] and **J.J. Lucas[1,3]**

[1]School of Health and Social Development, Deakin University, Australia
[2]Change to Improve Mental Health (CHIME)Translation Research Partnership, Barwon Health & Deakin University
[3]Institute for Health Transformation, Deakin University, Australia

Elimination of restrictive practices (physical/mechanical restraint and seclusion) from adult acute mental health care services has been demanded internationally for many decades. This study aimed to: (1) Identify priority issues in the elimination of and use of alternative approaches to restrictive practices (seclusion and physical/mechanical restraint) in rural/regional acute adult mental healthcare services, as told by mental healthcare service users and practitioners, (2) Identify the community-based, system-level feedback loops that enhance or reduce the use of restrictive practices and viable alternatives and, (3) Identify potential action areas to improve system structures to increase regional mental healthcare services' ability to eliminate restrictive practices and use alternative approaches. Group model building (GMB) workshops were held with a small group (n = 9) of mental healthcare practitioners and service users with lived experience of restrictive practice use. This participatory approach enables exploration and visual mapping of local structures causing behaviour patterns of practitioner and service user concern over time – in this case, the barriers and enablers to alternative approaches to restrictive practices in adult acute mental healthcare services within the Geelong-Barwon region. This is the first study that specifically applies GMB in the discussion of the elimination of restrictive practices in mental health in the non-metropolitan regional/rural context. Participants identified four key priorities in relation to eliminating restrictive practices: (1) self-advocacy, (2) continuity of care, (3) early intervention and (4) safety for all. The study findings were distilled into a novel preliminary set of mental healthcare practitioner and service user action ideas.

Biography

Stephanie Bennetts is a nationally accredited Podiatrist with clinical practice experience in the areas of diabetes foot health and geriatric podiatry. Her research interests lie at the intersection of mental health, lived experience and a systems approach to delivering translational practice into mental health care. Stephanie's current PhD is a collaboration between Deakin University and Barwon Health and is in response to the Victorian Royal Commissions into Mental Health Care Reform. The project aims to use co-design to facilitate the reduction and ultimate elimination of restrictive practices, more specifically restraint and seclusion, in adult acute mental healthcare services.

Neuroprotective and antioxidant effects of cronassial in experimental autoimmune encephalomyelitis: Insights into oxidative stress and immune factors

H. Zanginyan, G. Ghazaryan and **L. Hovsepyan**
Institute of Molecular biology NAS of Armenia, Armenia

Objectives: In recent years, the pathogenetic role of oxidative stress in damaging myelin cells, a precursor to the development of myelin-related diseases such as multiple sclerosis, has gained increasing significance. Experimental autoimmune encephalomyelitis (EAE) in rats serves as an experimental model for human multiple sclerosis.

Our study aimed to investigate the factors contributing to the development of oxidative stress, such as lipid peroxidation, oxidative modification of proteins, the content of nitric oxide (NO) and sulfhydryl groups in the brains and spinal cords. Additionally, we explored humoral immune factors (IL-1β, IL-6, TNFα) in blood plasma, homogenates of the brain and spinal cord, circulating immune complexes (CICs) in serum and conducted histological analysis with Bcl2 staining in experimental autoimmune encephalomyelitis and its treatment. The therapeutic agent used was Cronassial, containing mono-, di-, tri-sialyl gangliosides.

Results: The results of our research revealed that experimental animals exhibited oxidative stress with an increase in the investigated parameters. Elevated concentrations of the examined interleukins and CICs were observed, along with positively stained Bcl2 cells in the white matter tissues of the brain and spinal cord. Upon administering Cronassial, the consequences of oxidative stress were normalized and the formation of reactive oxygen species was suppressed.

Conclusion: Consequently, the data obtained underscore the neuroprotective and antioxidant effects of Cronassial when administered to animals with autoimmune encephalomyelitis.

Biography

Zanginyan Hasmik, scientific worker of the Laboratory of Experimental biology of the Institute of Molecular Biology of NAS RA. In 2013, she defended her thesis and received her PhD in Biological Sciences.He is the author of more than 35 works published in various journals and conferences.

Elaboration of patogenetic model of Alzheimer Disease on rats

A.A. Mekhtiev, A. Ya. Bakhshaliyeva and **G.G. Rahimova**
Academician Abdulla Garayev Institute of Physiology, Azerbaijan

Last years, the considerations concerning participation of collapsin-response mediator protein 2 (CRMP2), as autophagy active regulator, in full-scale development of Alzheimer's disease are put forward. On the 1st stage of studies, blood samples were taken from the Alzheimer's patients (n=14) and healthy volunteers (n=14) into the sample tubes containing 5% EDTA as an anticoagulant and platelets and serum were saved. With application of indirect ELISA-test downregulation of CRMP2 in the platelets and sharp downregulation of natural anti-CRMP2 autoantibodies in the serum of the Alzheimer's patients were revealed. In the 2nd stage the studies were carried out on sazan fish, which were divided into 2 groups: 1) control group (n=10) – administration of inactive CRMP2 (water bath at 60^{0}C during 35 min); 2) experimental group (n=10) – administration of CRMP2. The preparations were administered intra-cerebrally at a dose of 10 μg. All animals were put into containers with fresh water containing neonicotinoid insecticide actara at a sublethal dose of 400 mg/L. After 24 h all animals in the experimental group died, while in the control group 7 specimens survived. In the 3rd series the studies were carried out on Wistar male rats. The animals were culled into 2 groups: 1) intact group (n=8) and 2) experimental group (n=8). The animals of the experimental group received 1/20 part of sublethal concentration of actara with food during 75 days. On 30th and 75th days blood samples were taken from the animals into the sample tubes with 5% EDTA and platelets and serum were saved. With application of indirect ELISA-test significant downregulation of CRMP2 in the platelets and prominent downregulation of anti-CRMP2 autoantibodies in the serum of the experimental group rats on 75th day was revealed. The conclusion on high pathogenetic similarity of Alzheimer model on the rats to this pathology in humans is made.

Biography

Arif Aliovsad oglu Mekhtiev was born in 1955 y. In 1978 y. he graduated from Azerbaijan State Medical Institute. In 1986 y. in P.K.Anokhin Institute of Normal Physiology (Moscow) he defended a thesis to getting degree of Candidate of Medical Sciences (PhD) on the theme: "Study of the brain-specific non-histone chromosomal proteins *Np*3.6 and *Np*8.6 in mechanisms of defensive behavior". In 2007 y. in the Academician A.Garayev Institute of Physiology (Baku) he defended a thesis to getting degree of Doctor of Sciences.

Presently, he is a head of the Department "Molecular Basis of Integrative Activity" and is dealing with studies of engagement of serotonin-regulating proteins in formation of conditioned behaviors and of elaboration of immunochemical correction of drug addiction. He is an author of more than 200 scientific publications, issued mostly abroad, including one patent and one monograph. He was a manager of 5 international scientific projects supported by the US funds.

Transcranial electric field treatment produce Alzheimer's disease modifying properties in mouse model

Jong-Ki Kim[1], Younshick Choi[1], Won-Seok Lee[1] and **Jaemeun Lee[2]**

[1]Daegu Catholic University, School of Medicine, South Korea
[2]Korea Institute of Toxicology, South Korea

Iron accumulation in the brain accelerates disease progression and is hypothesized as a key driving factor of inflammatory bridging to tauopathy in Alzheimer's disease. To cure iron toxicity and tauopathy, we assessed the therapeutic effects of noncontact transcranial electric field stimulation to the brain on toxic iron deposits in either the Aβ fibril structure or pathogenic iron-sequestrating bodies including protein aggregates, ferritin and ferritin-laden microglia in a mouse model of Alzheimer's disease (AD). Treatment of capacitive electrode-based alternating electric field (AEF) on a magnetite-bound Aβ-fibril or AD mouse showed the degradation of the Aβ fibril or the removal of iron deposition and the Aβ-plaque burden from e-Fenton effects in field intensity-dependent and frequency-specific manner. Western blot analysis and immunohistochemistry revealed downregulating inflammatory response such as ferroptosis, active microglia, reactive astrocytes and preventing tau aggregation and the results of the behavioral tests suggest correlated improvement in cognitive impairment after single AEF treatment. Tissue clearing and 3D-imaging analysis revealed no induced damage to the neuronal structures of normal brain tissue following AEF treatment. In conclusion, our results suggest that the effective degradation of insoluble iron deposit together with iron-sequestrating pathogenic bodies play a role in promoting Alzheimer's disease-modifying properties and offers a potential molecular-targeting electroceutical treatment option for AD.

Biography

Dr Kim was awarded a PhD in Biophysics from the State University of New York at Buffalo, New York, USA, 1992, followed by spending at Memorial-Sloan Kettering Cancer Center, New York as a Fellow. Prof Jong-Ki Kim is based at Daegu Catholic University, School of Medicine, Biomedical Engineering and Radiology, Korea since 1995. In 2012-13, he was visiting professor at UC Berkeley, Bioengineering department. Current research subjects of his laboratory are nanomedicine including drug delivery using nanostructured materials, pioneering work on high-Z nanoradiator proton/heavy ion stimulation therapy in neurodegenerative diseases. Recently, he discovered a novel iron-deposit targeting electroceutical treatment for Alzheimer's disease and set up a startup company for the treatment of various neurodegenerative diseases as CEO of Neurospear. He is serving presently or served formerly as committee member or president in professional scientific societies like RAON (heavy ion facility), KOMAC (proton) and Korean Photodynamic association.

Arachnoiditis Ossificans: A challenging diagnosis

Massimo Donalisio
CID (Centre Imagerie Diagnostique), Switzerland

Arachnoiditis ossificans (AO) represents a rare entity characterized by the ossification of the arachnoid membrane, stemming from chronic meningeal inflammation. Distinguishing AO from asymptomatic calcified meningeal plaques, largely documented in literature, necessitates careful consideration of accompanying symptoms and clinical context. Although initial manifestations typically include non-specific symptoms like back pain and radicular symptoms, severe cases may manifest with neurological deficits, such as lower extremity weakness or sphincteric dysfunction. While CT is the preferred modality for identifying ossified plaques, MRI often serves as the primary imaging modality for assessing back pain. However, diagnosing of AO based solely on MRI findings is challenging due to variations in the appearance of calcifications depending on their chemical composition. This presentation will underscore the diagnostic utility of Dixon sequences in MRI and the pivotal role of the radiologist who can suspect AO based on MRI findings and recommend further evaluation with CT to confirm the diagnosis.

Biography

Dr. Massimo Donalisio is a musculoskeletal radiologist trained in Italy, Switzerland, Argentina and Brazil. After completing his medical studies in Turin, Italy, he underwent radiology residency at Lausanne University Hospital, before completing a Musculoskeletal Imaging Fellowship in the same Institution. He continued his training in musculoskeletal radiology at Hospital Aleman, Buenos Aires, Argentina and Hospital do Coraçao, Sao Paulo, Brazil. Since April 2024, he has been a consultant radiologist at multiple private clinics and hospitals in the Geneva region, Switzerland. His areas of interests are sports imaging, musculoskeletal regenerative medicine, orthobiologics and osteoarthritis prevention. Originally from Italy, he speaks fluent English, French, Spanish and Portuguese, reflecting his passion for foreign languages.

Digital Interventions in Neuro-Rehabilitation: Gotcha! trial of an app-based therapy for proper name anomia in people with dementia

Aygun Badalova[1,3], Catherine Doogan[4],George O'Neill[5],Josh Stott[6] and Alex Leff [1,2,3]

[1]UCL Queen Square Institute of Neurology, University College London, UK
[2]University College London Hospitals NHS Trust, UK
[3]Institute of Cognitive Neuroscience, University College London, UK
[4]St George's, University of London
[5]Department of Neuroscience, Physiology and Pharmacology, University College London, UK
[6]ADAPTlab, Research Department of Clinical, Educational and Health Psychology

Background: Proper name anomia is a common experience that can become unpleasantly amplified in people with dementia (PWD). The Gotcha! app aims to provide practice-based therapy for PWD enabling them to spontaneously retrieve the names of key people in their lives. It has been developed using the principles of errorless learning and spaced retrieval pioneered by Clare et al, (2000, 2003), but packaged in an app to support self-management.

Methods: Gotcha! is a digital confrontation naming therapy app. PWD supply images and names of the people they want to be able to name and train on one face per day for six weeks. We employed a single-case experimental design with weekly testing of free-naming in both six-week blocks (pre therapy and during therapy). A novel speech verifier was used to provide real-time feedback (Barbera et al. 2020). PWD also had an MEG scan before and after the therapy block where they attempt to name pictures of familiar (trained) and famous (untrained) faces. We interrogated the behavioural data in two ways: 1) a within-subject non-parametric analysis using Tau-U metric (Parker et al. 2011); 2) a parametric group analysis using an ANOVA. MEG data were analysed in SPM. We measured source localised gamma-band (30-80 Hz) power 0-1000 ms after the onset of a face. We ran a group-based 2x2 factorial analysis on the resultant images (familiar vs. famous; pre- vs. post-therapy) using a repeated-measures ANOVA to look for changes in power.

Results: The trial is ongoing (target = 45 PWD). Results from the first 20 PWD to complete the trial demonstrate:

1) Tau-U. 80% showed a positive trend with better naming during the training phase with 8/20 reaching statistical significance.

2) ANOVA showed a significant effect at the group level of training>baseline phase, $F(1,19)=13.18$, $p=0.01$

Results from the MEG analysis of 14 PWD: We identified a large cluster of 813 voxels situated in the left ventral temporal lobe (MNI: -50 -28 -26, F=9.19, p=0.004) where gamma reduction was associated with training (pre-post) of familiar faces, but not (untrained) famous faces.

Conclusion: Gotcha! app-based therapy for proper name anomia works for the majority of PWD in our trial thus far. This is the first study to demonstrate that the left ventral temporal lobe region supports practice-based retrieval of familiar face-name associations in PWD. Being able to freely produce the name of a relative or loved one has a big impact on people's lives.

Dynamic causal modelling of MVC-normalised isometric wrist extension and wrist flexion using high-resolution EEG

Abdul-Khaaliq Mohamed and **Vered Aharonson**
[1]*University of Witwatersrand, South Africa*

Motor control information extracted from electroencephalography (EEG) can be used by a brain-computer interface (BCI) to control a bionic hand. This could assist individuals who have lost hand functionality. Interpreting the neural control information associated with wrist extension (WE) and wrist flexion (WF) movements is particularly challenging and currently limited. Dynamic causal modelling (DCM) was thus used in this study to elucidate the underlying control mechanisms of WE and WF motor tasks. The neural control of the WE and WF and the neural mechanism of their differentiation, were hypothesised to rely on linear and non-linear, cross-frequency, causal communication between seven brain regions, using the full EEG frequency spectrum. These regions included: the hand homunculi of the primary motor cortex (M1-H), the ventral premotor cortices (PMv), the prefrontal cortices (PFC) and the supplementary motor cortex. A 128-channel EEG dataset was recorded from 14 participants while they performed repetitions of isometric WE and WF, normalised by their maximum voluntary contractions. The EEG data was fitted to 12 DCM architectures, which were compared using Bayesian model selection. The best performing model suggested that the control of the wrist motor tasks and their differentiation, involved cross-frequency, bilateral couplings, both linear and nonlinear, involving all seven regions and the full EEG spectrum. Furthermore, DCM revealed that bilateral PMv, bilateral PFC and the high-gamma band played a significant role in the control and differentiation of the wrist motor tasks. The results suggest that future BCI and neurophysiological studies, involving WE and WF, or other hand movements, include a broad range of brain regions and frequencies in their analysis.

Biography

Abdul-Khaaliq is a 39-year old engineer, inventor, researcher, educator and entrepreneur, with 15 years of experience in biomedical research and development. He graduated Cum-Laude with a BSc in Information/Electrical engineering, obtained an MSc in Biomedical and control engineering; and a PhD in the Biomedical Engineering in area of EEG analysis.

He conducts research in the field of biomedical signal processing and computational intelligence. He heads a research project aimed at assisting amputees, stroke victims and other people afflicted with neuro-motor impairments. The goal of this project is to provide functional, low-cost robotic prosthetic and orthotic hands controlled neutrally via the brain or via residual muscles of the human body.

Something as simple as the movement of our hands to hold a cup is something we take for granted. Abdul-Khaaliq aims to return some of the convenience of this blessing to those who have lost it.

Development and validation of the self-rating suicide risk screening questionnaire

Dong Hun Lee[1], Hwa Jung Lee[1] and **Hong Jin Jeon[2]**

[1]Department of Education, Traumatic Stress Center, Sungkyunkwan University, Republic of Korea
[2]Department of Psychiatry, Depression Center, Samsung Medical Center, Sungkyunkwan University School of Medicine, Republic of Korea

Since suicide is one of the major health problems worldwide, the goal of the present study is to develop a psychometrically sound suicide risk screening tool named Suicide Screening Questionnaire- Self-Rating (SSQ-SR) to quantify the risk of suicidal behavior. The development process includes item generation, item revision and refinement and validation. A total sample of 2,238 adults in South Korea was used for analysis. The results of factor analysis showed that the SSQ-SR, containing 25 items, supported a three-factor model: "Situational factors," "Negative self-perceptions and mental health factors," and "Suicidal thoughts and behaviors." Also, SSQ-SR showed satisfying internal consistency, concurrent validity and discriminant validity. Lastly, the results of ROC analysis showed a cut-off point of 33.5 for the low-risk group and 36.5 for the high-risk group. Considering these results, the current results demonstrate the SSQ-SR is a valid scale and therefore can contribute to future suicide-related studies and prevention.

The psychosomatic experiences of women who had intrauterine foetal death in rural South Africa

Martha Kharivhe[1], Mary Maluleke[2], Thingahangwi Masutha[2], Takalani Thabathe[2], Duppy Manyuma[2], Ndivhaleni, Lavhelani[2], Muofheni Nemathaga[2], Muvhango Ramovha[2], Mutshinyalo Netshikweta[2]and **Mulatedzi Mulaudzi[2]**

[1]Louis Trichardt Hospital, South Africa
[2]University of Venda, Department of Advanced Nursing Science. School of Health Sciences, South Africa

Background: Intrauterine foetal death (IUFD) is a traumatic event leading to substantial grief reactions with a variety of experiences in an expectant woman. After delivery, these experiences have shown to impact the mother's psychological well-being, where she experiences post-traumatic stress, sadness, anxiety and depression. The psychosomatic experiences before labour commenced are not known.

Objectives: This study explored the psychosomatic (mind–body connection) experiences of women who had an IUFD before labour commenced in rural areas of Limpopo province, South Africa.

Method: A qualitative approach with an explorative descriptive design was carried out among 10 consented participants who were selected using a purposive sampling technique. The sample consisted of women who delivered an IUFD as reflected by the hospital register from the selected hospitals. Data were collected at the participants' homes through in-depth individual interviews guided by one open-ended central question as follows, 'Please share with me your experiences of IUFD before you went into labour' and analysed using Tesch's open coding method.

Results: Two themes reflecting the psychosomatic (mind–body connection) experiences of women who had an IUFD emerged from the analysis. The themes are danger alerts and emotional responses.

Conclusion: This qualitative study revealed that women could relate a lack of or decreased foetal movement as the danger alert or warning sign that the baby was in danger before labour commenced. Upon noticing that something was wrong with the baby, a message was sent to the women's minds, which equally affected and activated their emotional dimensions. An investigation regarding the kind of support needed by women after being informed of an IUFD

is recommended.

Biography

Dr. Martha Lufuno Kharivhe is a Registered Nurse in Louis Trichardt Hospital maternity unit, located in a small town of Limpopo Province, South Africa. I graduated PhD at University of Venda, Limpopo Province, South Africa, researching about the experiences of women who had intrauterine fetal death in rural areas of Limpopo Province and published the research in peer reviewed accredited journal. I am committee member of Limpopo Provincial Health Research Committee, Board member of the Optometry and Dispensing Opticians of the Health Professions Council of South Africa and Committee member of the Professional Practice of Optometry and Dispensing Opticians. I am also a supporting author in four other published research in peer reviewed accredited journals, as reflected in my Orcid details.

Relationships of domestic violence with bullying, silencing-the-self, resilience and self-efficacy: Moderating roles of stress-coping strategies

C. Karakuş and **A. Göncü-Köse**
Çankaya University, Turkey

The present study aimed to investigate the relationships of Child Exposure to Domestic Violence (CEDV) with bullying, silencing-the-self (STS) behaviors, resilience and self-efficacy. In addition, moderating effects of stress-coping strategies in the relationships of CEDV with the outcome variables were examined. Data were collected from 569 adolescents aged between 14 and 17. The findings showed that CEDV was positively related to bullying and STS and it was negatively associated with resilience, overall self-efficacy, academic and emotional self-efficacy. Optimistic style and seeking social support moderated the relationship between CEDV and resilience. Also, the self-confident style, seeking social support and optimistic style moderated the associations between CEDV and self-efficacy. Findings are discussed in terms of theoretical and practical contributions as well as directions for future research.

Biography

Cansu Karakuş (M.S. in Social/Organizational Psychology) completed her undergraduate studies in the Psychology department of Çankaya University in 2016. During her undergraduate studies, she participated Erasmus + projects and served as a mentor in multiple countries. In 2017, she began working as a psychologist at the Violence Prevention and Monitoring Center (VPMC), Ministry of Family and Social Services of the Republic of Turkey. She remained dedicated to academia and obtained a master's degree in Social/Organizational Psychology from Çankaya University. Currently, she works as a psychologist at the Psychological Counseling and Guidance Center of Çankaya University, providing support to university students. Also, she remains engaged in peer-reviewing and editorial work for psychology journals.

Utilizing therapeutic stories when working with children experiencing psychological trauma

Gamze Mukba

Van Yüzüncü Yıl University, Educational Faculty, Psychological Counseling and Guidance Department, Turkey

This study aims to suggest the use of therapeutic stories when working with children experiencing the psychological trauma. This research is theoretical. A child who is experiencing trauma such as mourning for a loved one may fall into a deep despair in her/his life story. The crowded voices saying "there's nothing we can do now" may feed the schema of helplessness in a grieving child. Through the technique of therapeutic storytelling, an individual's schema of helplessness related to trauma and grief may change and the individual can feel that they are on an adventure that opens to a beautiful life after foggy days, along with themselves and other significant people in their life. The narratives in the story provide the following in terms of inner cognitive benefits: processing of acquired information, increase in life motivation, increase in interest and long-term memory transfer. All these cognitive processes lead to positive changes in brain functions and can be reinforced with the compassion felt from the story. In the context of conducted research, therapeutic stories that carry the experiences of others' pains often may "evoke compassion" in the listener and thus, can positively change the listener's amygdala responses (such as fear associated with trauma and negative bodily sensations). After experiences of trauma, individuals' understanding of trauma experiences can occur in individual, relational and cultural forms with cognitive, emotional and behavioral responses. Everyone has their own stories in experiencing and interpreting their traumatic events. The role of the lost part of the human or emerged emotions related to the traumatic event and the relationship of the surviving person with these issues may be significant. When working with children, therapeutic storytelling techniques may be utilized and relational and inter-contextual dynamics might also be used. In the therapeutic story created by the therapist relating to the child's trauma, for instance based on a grief story; the role of the lost person and the relationality with the living child and her/his sources may be processed within the story and thus, the child may feel self-compassion towards the hero in the story listened to and may reprocess her/his own grieving process and re-narrate her/his own experiences. In this process of re-narration, the therapist can follow these steps: opening the story (creating a hero similar to the troubles experienced by the child), the hero experiencing similar troubles and grief as the child, processing the hero's relationship with the lost person, reprocessing the meaning

attributed to the lost person during the grieving process (e.g., the belief that the deceased watches over the living person from the stars) and encountering a wise person during this process, the hero using resources similar to the child's strength sources, summarizing new experiences. After such storytelling for the child, systemic circular questions can be directed to the child (e.g., what would the hero say if they could see you? What would you say?) and the child may reveal their experiences towards numerous cognitive and emotional unique outcomes, such as feeling that they are not helpless or victims, just as they may feel sad and then happy for the other hero.

Biography

2003-2007: Celal Bayar University, Manisa/Turkey, Undergraduate, Faculty of Education, Department of Primary Education Classroom Teaching Program

2008-2010: Anadolu University, Eskişehir/Turkey, MA with Thesis, Institute of Educational Sciences, Department of Primary Education

2011-2013: Van Yüzüncü Yıl University, Van/Turkey, Master of Science with Thesis, Department of Educational Sciences, Department of Guidance and Psychological Counseling

2015-2020: Ph.D., Çukurova University, Institute of Social Sciences, Department of Educational Sciences/ Guidance and Psychological Counseling Program, Adana/Turkey.

Job Experience

2022- Continuation: Van Yüzüncü Yıl University Psychological Counseling, Research and Application Center Manager, Van/Turkey

2021- Continuation: Dr. Instructor Member, Van Yüzüncü Yıl University, Faculty of Education, Department of Educational Sciences, Department of Guidance and Psychological Counseling, Van/Turkey.

2014-2021: Lecturer, Van Yüzüncü Yıl University, Faculty of Education, Department of Educational Sciences, Department of Guidance and Psychological Counseling, Van/Turkey.

2012-2013: AÇEV (Mother Child Education Foundation)- Long-Term Response to Post-earthquake Trauma Project, Van/Turkey.

2010-2012: Van Şemsibey Primary School, Van/Turkey.

Sydenham Chorea

TM. Mukba, B. Arslan and **A. Erseçkin, M. Çetin**

Van Yüzüncü Yıl University, Dursun Odabaş Medical Center, Department of Child Health and Diseases, Turkey

Sydenham Chorea (SC) or rheumatic chorea is one of the most significant clinical indicators of Acute Rheumatic Fever (ARF) and represents the most commonly acquired form of chorea in childhood. Chorea is characterized by involuntary, brief, random and irregular movements of the extremities and face, accompanied by emotional variability and hypotonia. The incidence of ARF and SC has significantly decreased in developed countries since the early 1920s due to improvements in living conditions and routine antibiotic use for Group A Streptococcus (GAS) infections. However, it remains a significant public health concern in resource-limited and developing countries. SC is most frequently observed in individuals aged 5-13, with females being affected more than males at a ratio of 2:1. It is less common in adults, particularly in males. Families with a history of chorea exhibit a rheumatic fever history in up to 30% of cases. Despite being clearly associated with Group A streptococcal (GAS) infection, the pathogenesis of Sydenham chorea is not fully understood. It is believed that antibodies developed against a portion of the GAS bacterium cross-react with host antigens in susceptible individuals, emphasizing the role of molecular mimicry. In ARF, antibodies are produced against the immunodominant carbohydrate antigen of GAS, N-acetyl-beta-D-glucosamine. In SC, these antibodies bind to lizogangliosides on the surface of neuronal cells, triggering a signaling cascade. These antibodies also recognize intracellular tubulin. The genes encoding these antibodies are similar to those encoding antibodies involved in the pathogenesis of motor neuropathies. Therefore, tubulin appears to be an important neuronal target in the pathogenesis of SC. From a pathophysiological perspective, current data suggest the involvement of basal ganglia and cortical structures. Magnetic resonance imaging (MRI) studies conducted during and after acute SC attacks have shown reversible abnormalities in the striatum and positron emission tomography and single-photon emission computed tomography (SPECT) imaging have demonstrated striatal hypermetabolism and hyperperfusion. In our presentation, we examined a 17.5-year-old case in whom Sydenham chorea, a rare late complication of ARF, developed. Conclusion: Sydenham chorea is a highly rare reversible neurological complication of acute rheumatic fever. This case, due to its age group and presentation, responded to Haloperidol treatment and has been closely monitored by our clinic.

Biography

Job Experience

2020-2024: Van Yüzüncü Yıl University ,Dursun Odabaş Mecial Center ,Department of Child Health and Diseases, Van/Turkey

2019 -2020: Muradiye State Hospital, Muradiye/Van/Turkey

2011-2019: Private Lokman Hekim Hospital, Van/Turkey

Educational Information

2003-2010: Eskişehir Osmangazi University, Faculty of Medicine, Eskişehir/Turkey

2020-Continued: Van Yüzüncü Yıl University, Dursun Odabaş Mecial Center ,Department of Child Health and Diseases , Research assistant, Van/Turkey

Brain tumor analysis using deep learning and VGG-16 ensembling learning approaches

Ayesha Younis[1], Li Qiang[1], Charles Okanda Nyatega[2,3], Mohammed Jajere Adamu[1] and **Halima Bello Kawuwa[1,4]**

[1]School of Microelectronics, Tianjin University, China
[2]School of Electrical and Information Engineering, Tianjin University, China
[3]Department of Electronics and Telecommunication Engineering, Mbeya University of Science and Technology, Tanzania
[4]School of Precision Instrument and Opto-Electronics Engineering, Tianjin University, China

A brain tumor is a distorted tissue wherein cells replicate rapidly and indefinitely, with no control over tumor growth. Deep learning has been argued to have the potential to overcome the challenges associated with detecting and intervening in brain tumors. It is well established that the segmentation method can be used to remove abnormal tumor regions from the brain, as this is one of the advanced technological classification and detection tools. In the case of brain tumors, early disease detection can be achieved effectively using reliable advanced A.I. and Neural Network classification algorithms. This study aimed to critically analyze the proposed literature solutions, use the Visual Geometry Group (VGG 16) for discovering brain tumors, implement a convolutional neural network (CNN) model framework and set parameters to train the model for this challenge. VGG is used as one of the highest-performing CNN models because of its simplicity. Furthermore, the study developed an effective approach to detect brain tumors using MRI to aid in making quick, efficient and precise decisions. Faster CNN used the VGG 16 architecture as a primary network to generate convolutional feature maps, then classified these to yield tumor region suggestions. The prediction accuracy was used to assess performance. Our suggested methodology was evaluated on a dataset for brain tumor diagnosis using MR images comprising 253 MRI brain images, with 155 showing tumors. Our approach could identify brain tumors in MR images. In the testing data, the algorithm outperformed the current conventional approaches for detecting brain tumors (Precision = 96%, 98.15%, 98.41% and F1-score

= 91.78%,92.6% and 91.29% respectively) and achieved an excellent accuracy of CNN 96%, VGG 16 98.5% and Ensemble Model 98.14%. The study also presents future recommendations regarding the proposed research work.

Biography

Ayesha Younis is a driven and accomplished researcher with a background in computer engineering and signal processing. Born in Faisalabad, Pakistan, she has pursued her academic journey across multiple institutions and countries.

Ayesha received her Master of Science degree in Computer Engineering from the University of Agriculture Faisalabad, Pakistan, in 2017. Her quest for knowledge led her to Tianjin University of Technology and Education in Tianjin, P.R. China, where she completed her Master's degree in Signal and Information Processing in 2020. Currently, Ayesha is pursuing a Ph.D. in the School of Microelectronics at Tianjin University, Tianjin, P.R. China. Her research interests focus on the cutting-edge fields of intelligent signal processing and AI system design. Ayesha's dedication to exploring these areas demonstrates her commitment to pushing the boundaries of technology and contributing to the advancement of knowledge in her field. With her strong academic background and passion for research, Ayesha Younis is poised to make significant contributions to the world of signal processing and artificial intelligence.

She has published more than 11 research articles in SCI journals.

Bilateral subconjunctival haemorrhage in spinal cord injury: A case report

Junqing Zhong, Xinlong Ma and **Weisheng Ye**
Rehabilitation Department, Tianjin Hospital, China

Neurogenic lower urinary tract dysfunction is a common symptom after spinal cord injury. Here, the case of a 45-year-old male patient who was treated with indwelling urinary catheter during spinal surgery for a fall fracture injury of the T12 thoracic vertebra, associated with decreased muscle strength of both lower extremities, is described. During hospitalization in the rehabilitation department, conventional anticoagulation therapy was administered and the urinary catheter was removed with the patient urinating by increasing abdominal pressure. At 8 days following urinary catheter removal, the patient was found to have a slight subconjunctival haemorrhage of the left eye, which gradually developed into massive subconjunctival haemorrhage in both eyes. After re-indwelling the urinary catheter, the bilateral subconjunctival haemorrhage gradually improved. No abnormal indicators were found during re-examination of coagulation function and platelet count and the results of ophthalmological examination were normal. For patients with neurogenic bladder dysfunction associated with spinal cord injury, the risk of bleeding during the anticoagulation period should be carefully assessed to eliminate possible underlying bleeding risk factors (including past medical history and appropriate use of anticoagulant drugs) when considering spontaneous urination through the mode of abdominal pressure.

Biography

With nearly two decades of experience in orthopedics and orthopedic rehabilitation, I am the Deputy Director of the Rehabilitation Department at Tianjin Hospital in Tianjin City. I specialize in the diagnosis and treatment of common orthopedic conditions through an integrated approach of traditional Chinese and Western medicine. My expertise includes the management of limb fractures, sports injuries and degenerative diseases in the elderly. I have contributed significantly to the field through numerous publications in both national and international journals. My research focuses on areas such as rapid rehabilitation in the perioperative period of orthopedic surgery, acupuncture intervention mechanisms in osteoarthritis and the treatment of post-spinal cord injury muscle spasms using traditional Chinese medicine.As a certified Exercise Prescription Doctor by the American College of Sports Medicine (ACSM), I am actively involved in several professional committees. My roles include serving on the Integrated Traditional Chinese and Western Medicine Rehabilitation Committee.

Adventitia layer-focused microsurgical flow reconstruction for long-segment tubular stenosis of the cervical segment (C1) internal carotid artery: Clinical valuable experience in 20 cases

Mehmet Erkan Ustun[1] and **Efecan Cekic**[2]

[1]*Department of Neurosurgery, Private Clinic, Turkey*
[2]*Department of Neurosurgery, Polatli Duatepe State Hospital, Turkey*

To evaluate the efficacy of perivascular sympathectomy in managing adventitia layer related long-segment tubular stenosis of cervical segment (C1) internal carotid arteries (ICAs) in a cohort where conventional medical and endovascular interventions were not viable options, we retrospectively analyzed 20 patients (8 males, 12 females, aged 41–63 years) who underwent perivascular sympathectomy for long-segment (>5 cm) tubular cervical ICA stenosis (non-atherosclerotic, non-intima related and non-dolichoarteriopathic) between 2017 and 2023. The procedure aimed to alleviate symptoms such as hemiparesis, pulsatile tinnitus and migraines associated with transient ischemic attacks (TIAs). Preoperative and postoperative symptoms were assessed and patient follow-up was conducted by MR angiography and perfusion studies. Postoperatively, 10 out of 11 migraine sufferers (90.9%) reported complete cessation of symptoms, while one patient (9.09%) experienced reduction in frequency and intensity. In cases of tinnitus, six out of nine patients (66.6%) reported complete resolution, two (22.2%) had reduced symptoms and one (11.1%) saw no change. Regarding motor function, all 12 patients (100%) with initial hemiparesis (30–40% loss of motor function) showed complete recovery postoperatively. There was no TIA attack among the patients after the procedure in the mean two-year follow-up. Perivascular sympathectomy has shown promising results in alleviating symptoms and preventing recurrent cerebrovascular events in long-segment tubular stenosis of cervical ICAs

Biography

Completing my medical education at Hacettepe Üniversity, School of Medicine in 1986, I began my career education in the field of Neurosurgery at Ankara Üniversity, Avicenna Hospital and completed in 1992.In this hospital there were the famous masters of functional neurosurgery and I learned a lot from them. In 2009 I got the title of Professor in Neurosurgery and in 2011 completed my doctoral education in the field of Anatomy and got the title of PhD.I have more than 50 published articles and over 500 citations. Now beside standard neurosurgical procedures, I also perform functional neurosurgical operations, where the aim of the surgery is to restore the lost or destroyed function.

Mild phenotypes of gyrate atrophy in a carrier with one variant allele of OAT

Yuqiao Ju[1,2], **Yuan Zong**[1,2] and **Xin Huang**[1,2]

[1]*Department of Ophthalmology and Vision Science, Eye and ENT Hospital of Fudan University, China*
[2]*Key Laboratory of Myopia of State Health Ministry and Key Laboratory of Visual Impairment and Restoration of Shanghai, China*

Objectives: Gyrate atrophy of the choroid and retina (GACR) is a rare autosomal recessive metabolic disease caused by ornithine aminotransferase (OAT) deficiency. In addition to ocular manifestations, GACR patients also have elevated serum ornithine levels, not yet fully understood genetic and clinical entity. This study aimed to identify whether gyrate atrophy of the choroid and retina (GACR) heterozygous individuals have possible clinical manifestations and to explore the potential pathogenic mechanism.

Methods: This study diagnosed and identified two patients with GACR harboring OAT gene nonsense mutations in a Chinese family. Ophthalmologic examinations, genetic and hematological tests were performed. Real-time fluorescence quantitative OPCR (RT-qPCR) was conducted utilizing peripheral blood to detect the relative mRNA quantitation of OAT.

Results: The 19-year-old daughter carrying compound heterozygous mutations (OAT: c.1186C>T; p.R396*; OAT: c.748C>T; p.R250*) had bilateral diffuse gyrate atrophy, pathological myopia, foveal retinoschisis and a series of metabolic abnormalities including elevated hematological ornithine (257.92μM), whose best corrected visual acuity was only 60/200 bilaterally. The 54-year-old mother carrying a heterozygous mutation (OAT: c.1186C>T; p.R396*) had unilateral pathological myopia and focal gyrate atrophy with mildly elevated hematological ornithine (102.08μM). RT-qPCR results showed that the relative expression levels of OAT cDNA in the daughter and the mother were only about 29% and 46% compared to that of normal individuals.

Conclusion: Our study reported the carrier of autosomal recessive conditions with clinical manifestations of GA for the first time, suggesting that family members of GACR should be aware of possible involving by the disease. Spectrum of GACR mutations was extended. Triggering CFTR mRNA degradation by nonsense-mediated mRNA decay (NMD) may be one of the causative mechanisms in GACR.

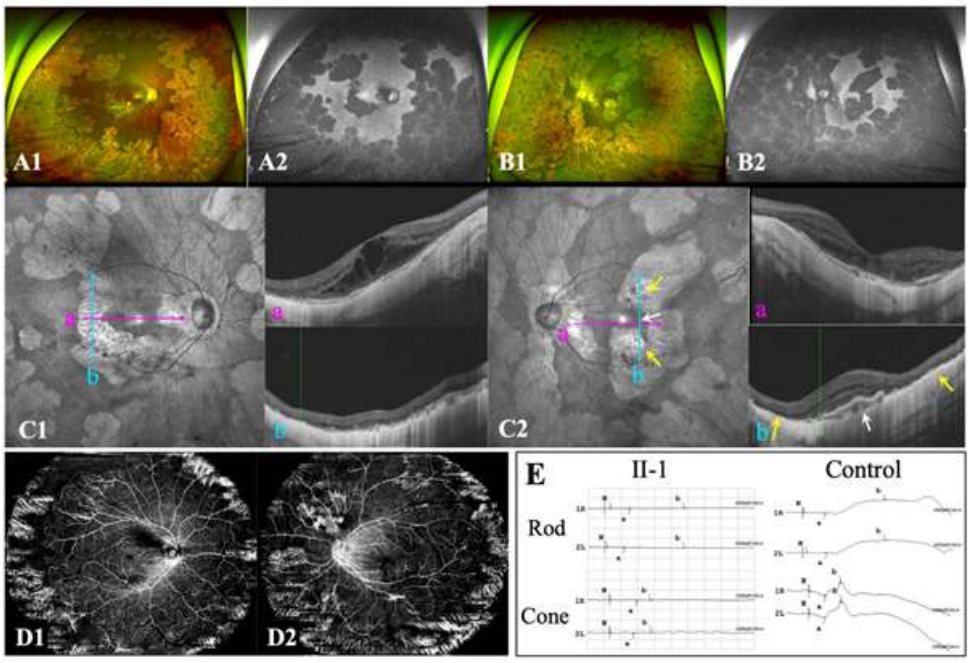


Figure 1. Ocular characteristics of F-II1. A-B: Ultra-widefield fundus images, including colour fundus and autofluorescence imaging. C: Optical coherence tomography (OCT) reveals macular abnormalities (C1a and C2a) as well as retinal and choriocapillaris atrophy (C1b and C2b) in both eyes. An OCT B-scan of the left eye reveals deposits below the retinal pigment epithelium cells and choroidal atrophy (C2b,). D: Wide angio-OCT (OCTA) images of F-II1 in the right (D1) and left eye (D2). E: Electroretinography of F-II1 cells and normal controls. Yellow arrows indi-cate retinal and choriocapillaris atrophy. White arrows indicate deposits below the retinal pig-ment epithelium cells.

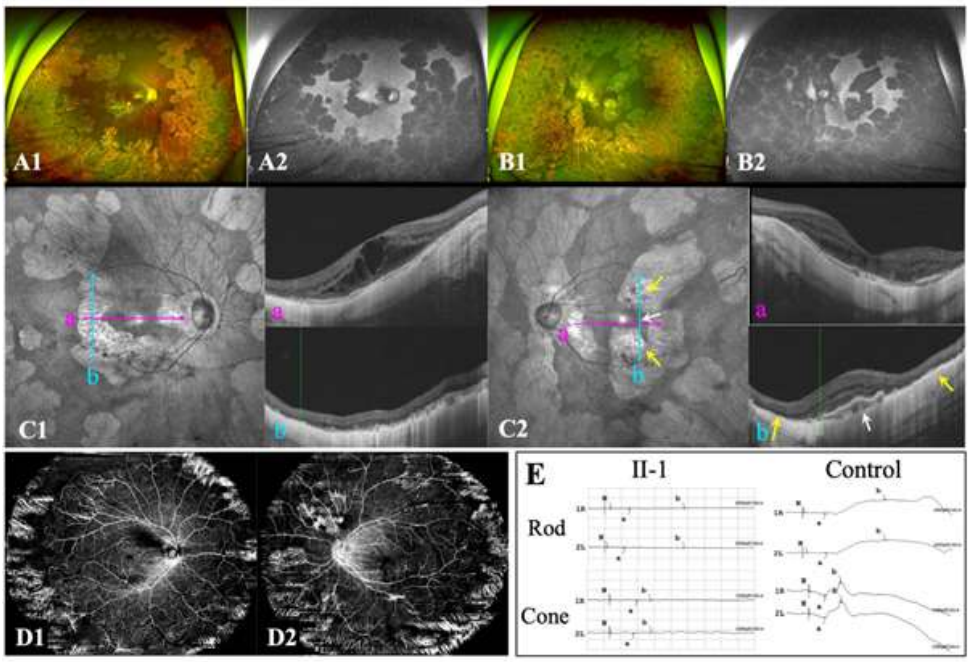


Figure 2. Ocular characteristics of F-I2. A-B: Ultra-widefield fundus images include both colour fundus and autofluorescent images. C: Optical coherence tomography (OCT) B-scan (Ca, b) and B-ultrasound

(Ca') of the left eye reveal inferior posterior staphyloma (PS) with retinoschisis. D: OCT B-scan (Dc, f) and B-ultrasound (Dc') of the right eye reveal a wide macular PS. OCT B-scan of the right eye reveals focal circular areas of retinal atrophy and choriocapillaris atrophy locat-ed in the region adjacent to the disc (Dc, d) and the supertemporal vascular arcade (De, f), with pigment epithelial detachment (PED) close to the retinal atrophy lesion (Df). Yellow arrows refer to focal circular areas of retinal atrophy and choriocapillaris atrophy. Yellow dotted squares in-dicate the site of PS. White arrows indicate PED.

The UAE and gulf countries' cultural characteristics and their influence on autism

Omniah AlQahtani and **Maria Efstratopoulou**
UAEU, UAE

Autism spectrum disorder (ASD) can affect individuals from different backgrounds, cultures and heritages. Many cultural factors may change the individuals' ASD experience in daily life. It also impacts how autism is tackled, interpreted and acknowledged in various communities. Cultural perceptions about ASD and other disabilities may prevent people from seeking the help they need. Factors like gender, language, religion, economic status, nationality, beliefs and values can lead to cultural differences even within the same ethnic group. The Gulf region has unique characteristics, such as religious beliefs, cultural and traditional interpretations and social repercussions, which might impact early ASD diagnosis and intervention. This paper aims to discuss the impact of cultural aspects of the UAE and other GCC countries on the ASD situation.

Biography

Dr. Omniah Al-Qahtani, from the Special and Gifted Education department, the Education College of United Arab Emirates University, focuses her research on the assessment and education of students with determination, with a specific emphasis on Autism Spectrum Disorder. Dr. Omniah has authored academic papers, contributed to book chapters and penned a children's stories like "Thirsty" and "I like to sing" that centers around children with determination.

As a mother of a child with Autism Spectrum Disorder, she possesses a strong motivation to positively impact the education and future prospects of learners with ASD. She firmly believes that persistent research efforts and publishing are fundamental steps toward achieving this goal.

What does Turkey big data say about the preventability, pathogenesis and risk management of Alzheimer's disease

Talip Yiğit
IIstanbul 29 Mayıs University, Turkey

The primary objective of this study is to explore the intricate interplay between Alzheimer's disease (AD) and other dementias (D). With this aim, the relationship of AD and D with various biological and sociodemographic factors has been investigated in terms of time, intensity and connectivity. In this context, the data of people over the age of 65 who were diagnosed with Alzheimer's and other dementia diseases in 2020 were retrospectively scanned. The data of 243,073 people identified were analyzed on a total of 35 variables. Secondly, logistic regression (LR) analysis has been made with numerous variables for AD and D. The LR models shows that while “sex” and “age” variables have a small rate on the risk of developing AD/D, it is detected that being a foreigner increase the risk of AD and D as 69.8% and 88.5% respectively. Besides, the model outputs show that variables related to physical conditions and diagnosis from different clinics are relatively more influential than preprocess illnesses. Additionally, we used the parallel coordinates graphs method within the R Studio to visualize the AD/D relationship with various chronic illnesses. The findings of this investigation strongly suggest that AD/D don’t stand as isolated conditions, but rather stem from intricate interactions and progressive processes involving diverse chronic diseases over time. Notably, ailments including hypertension, coronary artery disease, diabetes, hyperlipidemia and psychological disorders, contribute substantially to the emergence of both AD and D. This study highlights that the fight against AD/D can only be possible with next-generation prophylactic interventions that can predict and manage risks. Additionally, instead of generalized diagnostic criteria, the appearance and boundaries of AD in society can be determined with specialized technology-based smart systems and ultimately, by predicting the pathogenesis process of AD on a person-specific basis, data-based high-impact openings can be developed for prophylactic interventions.

Biography

Talip Yiğit continue his academic studies and project-based research on complexity science. After receiving his PhD degree from Hacettepe University in 2016, he started working as a full-time faculty member at Istanbul 29 Mayıs University. During this time, he published many books and book chapters, national and international research and articles. He currently have a new book about to be published called Sociobrain: Harmonious Difference. Apart from

this, he have been working institutionally as a researcher of the Turkish Ministry of Health for 3 years. In this context, we focus on discovering new approaches and scientific knowledge from big data for diseases. We are trying to predict and model diseases, especially before they reach the pathological stage and also to reveal the connectivity between diseases holistically. While doing this, we also take into account the parameters corresponding to social life patterns over disease biomarkers. So far, he continues his studies on familial hyperlipidemia, alzheimer's and dementia, the effects of various drugs on diseases, autoimmune diseases and cancer. While carrying out these studies, he use methods and techniques such as data mining, advanced statistical methods, machine learning, random forest, etc.

S-Ketamine: Is it a ride worth taking? adverse effects associated with S-ketamine use as an adjuvant or single agent drug

Tafadzwa P. Mawere-Mubvumbi
The First Affiliated Hospital of Xi'an Jiaotong University, China

S(+)-ketamine, more commonly referred to as s-ketamine or esketamine has proven to be an important addition to the clinical anaesthesia field and beyond. Its usage is rapidly moving beyond the operating room as an anaesthetic agent and analgesic into other fields of medicine. Notably, studies have shown that it is an efficacious anti-depressant. The potential to treat multiple perioperative complications with the same agent is an exciting field of research. However, its use may prompt a wide range of adverse effects including dizziness, nausea, vomiting, increased airway secretions, increased heart rate and increased blood pressure. Multiple factors such as age, gender and dosage have an impact on the occurrence and severity of these adverse events. A thorough understanding of these influences is essential to counteracting them. This discussion will be centred on recently published data concerning the adverse effects and complications elicited by the clinical application of s-ketamine. It will also highlight how these side effects vary in incidence and severity across diverse settings. We will also discuss how despite the potential for multiple side effects the clinical value of esketamine is likely to stay on the rise.

Materials and Methods: Comprehensive searches of the literature limited to only the English language and published between January 2013 and February 2023 were conducted using three databases. Namely PubMed, ScienceDirect and Scopus.

Conclusions: To surmise, the versatility and efficacy of s-ketamine cannot be denied. While its use may elicit a wide range of adverse events, the data we have so far indicates that these are not so severe that they outweigh the advantages of administering this drug. Minimising esketamine related adverse events by applying it in the most advantageous drug regimens and dosages will ensure that its clinical value is fully realised.

Biography

Dr. Mawere-Mubvumbi was born and raised in Harare, Zimbabwe. She holds a degree in clinical medicine and is currently working towards a master's degree in anaesthesiology. Her current main areas of interest centre around pain medication and how it can be applied to improve the often neglected psychological health of surgical patients.

Drug and alcohol abuse in patients with intractable epilepsy

Raafat A. Abdeldayem
Emeritus Prof, Emergency Hospital, Faculty of Medicine Mansoura University, Egypt

Background: Seizures often occur in substance abusers.

The aim of the present work: is to study the etiology of non-response to antiepileptic drugs by estimating their serum levels and screening of drugs and substance abuse in patients with resistant epilepsy.

Materials & Methods: this study was conducted on 924 patients with intractable epilepsy were included. All assays run on the system use of homogenous immunoassay technique EMIT (Enzyme Multiplied Immunoassay Test) and confirmed by GC/MS (gas Chromatography/Mass Spectrum).

Results: Confirmed Positive results for drugs and substances abuse were detected in 246 of 924 patients (26.62%) by GC/MS. Cannabis was the first abused drug (29.27%), 17 patients show serum level of antiepileptic drugs (carbamazepine, valproate and phenytoin) within therapeutic range, but 169 patients' levels were below it and 60 patients with levels above it.

Conclusions: Substances abuse may be the cause of resistant epilepsy as they are epileptogenic by themselves or due to drug-drug interaction with the antiepileptic.

Biography

- PhD, MSc and 2 diplomas from Mansoura University colleges of Science and Medicine
- Specializes in toxicology & forensic chemistry, water pollution, in addition to medical analyses
- Published papers 19 local and 11 international publications
- Spoken at 78 local and 18 international conferences and workshops
- Currently member of 8 international scientific societies
- Training courses: 29

IL-33 promotes sciatic nerve regeneration in mice by modulating macrophage polarization

Zhikal Omar Khudhur[3], Shukur Wasman Smail[1,2], Shang Ziyad Abdulqadir[2], Sonia Elia Ishaq[2], Abdullah Faqiyazdin Ahmed[4], Mohammad B. Ghayour[5] and **Arash Abdolmaleki[1]**

[1]Department of Medical Microbiology, College of Science, Cihan University-Erbil, Iraq
[2]Department of Biology, College of Science, Salahaddin University-Erbil, Iraq
[3]Department of Biology Education, Faculty of Education, Tishk International University - Erbil, Iraq
[4]KBMS, College of Medicine, Hawler Medical University, Iraq
[5]Department of Biology, Faculty of Science, Ferdowsi University of Mashhad, Iran
[6]Department of Biophysics, Faculty of Advanced Technologies, University of Mohaghegh Ardabili, Iran

Despite the innate regenerative capacity of peripheral nerves, regeneration after a severe injury is insufficient and sensorimotor recovery is incomplete. As a result, finding alternative methods for improving regeneration and sensorimotor recovery is essential. In this regard, we investigated the effect of IL-33 treatment as a chemokine with neuroprotective properties. IL-33 can facilitate tissue healing by potentiating the type 2 immune response and polarizing macrophages toward the pro-healing M2 phenotype. However, its effects on nerve regeneration remain unclear. Therefore, this research aimed to evaluate the neuroprotective effects of IL-33 on sciatic nerve injury in male C57BL/6 mice. After crushing the left sciatic nerve, the animals were given 10, 25, or 50 µg/kg IL-33 intraperitoneally for seven days. The sensorimotor recovery was then assessed eight weeks after surgery. In addition, immunohistochemistry, ELISA and real-time PCR were used to assess macrophage polarization, cytokine secretion and neurotrophic factor expression in the injured nerves. IL-33 at 50 and 25 µg/kg doses could significantly accelerate nerve regeneration and improve sensorimotor recovery when compared to 10 µg/kg IL-33 and control groups. Furthermore, at 50 and 25 µg/kg doses, IL-33 polarized macrophages toward an M2 phenotype and reduced proinflammatory cytokines at the injury site. It also increased the mRNA expression of NGF, VEGF and BDNF. These findings suggest that a seven-day IL-33 treatment had neuroprotective effects in a mouse sciatic nerve crush model, most likely by inducing macrophage polarization toward M2 and regulating inflammatory microenvironments.

Biography

Zhikal Omar Khudhur, a respected lecturer at Tishk International University, is a notable figure in the fields of biology and physiology. Her educational journey began with a

bachelor's degree in biology from Salahaddin University, showcasing her innate curiosity for the natural world. This passion propelled her to achieve a Master's degree in Physiology, demonstrating her dedication to academic excellence.

Zhikal's active role in research is commendable, focusing on crucial areas like cardiovascular physiology, nervous system function and cancer physiology. Her impactful contributions to the scientific community are evident through publications and reviewing articles in reputable impact factor journals, enriching the collective knowledge.

Aside from her research, Zhikal excels in teaching, captivating students with her adeptness at simplifying complex concepts. She fosters a positive and engaging learning environment, nurturing genuine enthusiasm for learning. Her commitment extends beyond the classroom, actively participating in extracurricular activities and emphasizing the holistic growth of her students. Zhikal's multifaceted dedication makes her a cherished figure among both peers and students, enriching the academic landscape.

Jahi Mcmath: It is still a controversial case

Calixto Machado
Institute of Neurology and Neurosurgery, Cuba

In this paper, I reviewed the case of Jahi McMath, who was diagnosed as being in brain death (BD). Nonetheless, ancillary tests performed nine months after the initial brain insult showed conservation of intracranial structures, EEG activity and autonomic reactivity to the "Mother Talks" stimulus. She was clinically in a state of unarousable and unresponsiveness, without evidence of awareness of self or environment, but a full absence of brainstem reflexes and partial responsiveness rejected the possibility of being in a coma. Jahi was not a UWS because she was not awake and showed partial responsiveness. LIS patients are wakeful and aware and although these cases are quadriplegic, they fully or partially preserve brainstem reflexes, vertical eye movements and/or blinking and respire on their own, rejecting the possibility of classifying her as LIS patients. She was not a MCS because she did not preserve arousal and only partially preserved awareness. The CRS-R in Jahi would have resulted in a very low score, not corresponding with MCS patients. MCS patients fully or partially preserve brainstem reflexes and usually breathe independently. MCS has always been described as a transitional state between coma UWS, but MCS has never been reported in a patient who has all clinical BD findings. This case does not contradict the concept of BD but brings to discussion the need to use ancillary tests in BD again. I concluded that Jahi represented a new state of disorder of consciousness, non-previously described, that I have termed: "responsive unawakefulness syndrome" (RUS).

Value of epinephrine as iron chelating and antioxidant agent in cerebral ischemia, neurodegenerative diseases and aging

Ashraf El-Molla
ALKAWKAB Hospital, Egypt

Cerebral Stroke is now the leading cause of death and disability and increasing evidence indicates that iron is involved in the mechanisms that underlie many neurodegenerative diseases. Iron accumulates in regions that are affected by Alzheimer's disease (AD) and Parkinson's disease (PD). Conditions such as neuroferritinopathy and Friedreich ataxia are associated with mutations in the genes involved in iron metabolism. Ischemic stroke accounts for 70-80% of total stroke cases worldwide and survivors often experience sensory and motor disorders in one or more body regions. During ischemia, the blood supply to brain tissues is disrupted, which subsequently promotes a cascade of pathophysiological responses resulting in different types of cell death, including apoptosis, necroptosis and ferroptosis. Ferroptosis, is a nonapoptotic form of programmed cell death, which is characterized by iron overload, glutathione (GSH) depletion, glutathione peroxidase (GPX) 4 inactivation in addition to lipid, amino acid and iron metabolic imbalances. Ferroptosis contributes to neuronal structural and functional damage and blood–brain barrier (BBB) impairment, which leads to rapid neuronal death and dysfunction. As the brain ages, High concentrations of reactive iron can increase oxidative- stress induced neuronal vulnerability and iron accumulation might increase the neurodegenerative disorders. Targeting iron accumulation and distribution during ageing and neurodegenerative disorders by epinephrine may be a potential new therapeutic strategies. The neuroprotection that is seen with iron chelators in the animal models indicates that iron-chelation therapy could be a viable neuroprotective approach for treating PD, AD and other neurological disorders that are associated with abnormal iron metabolism in the brain. Chelation has the potential to prevent iron-induced reactive oxygen species (ROS) and oxidative stress. Epinephrine is iron chelating and antioxidant agent with scavenging properties that may protect from accumulation of ferrous ions (Fe^{+2}). Fe^{+2} may form highly reactive oxygen species (ROS) through Fenton reaction and thereby, contribute to oxidative stress (OS), cellular damage and many pathogenic processes . Fe^{+2} ions are the most powerful pro-oxidant among the various species of metal ions. Fe^{+2} ions can facilitate the production of ROS within animal and human systems and the ability of substances to chelate iron can be valuable antioxidant agent. Thus, Fe^{+2} chelation by epinephrine may present important anti-oxidative effects by retarding metal- catalysed oxidation.

Giant parathyroid adenoma causing severe hypercalcemia; A case report from Duhok

Azri Salih Haji Sgery[2], Dildar Haji Musa[1], Asaad Shareef Omar[3], Gina James Keorges[4] and Nashwan MR Ibrahim[5]

[1]Assistant Professor in General surgery, Department of Surgery, College of Medicine, University of Duhok, Iraq
[2]Junior House Officer (Resident Doctor), Directorate of Health, Duhok, Iraq
[3]Lecturer of General Surgery, Department of Surgery, College of Medicine, University of Duhok, Iraq
[4]Lecturer, Pathology department, College of Medicine, University of Duhok, Iraq
[5]Assistant Professor in Urology, Department of Surgery, College of Medicine, University of Duhok, Iraq

Introduction and importance: Nephrolithiasis, a common urological disease, could indicate a more ominous pathology beyond the kidneys. Patients who present with renal stones must be investigated for serum calcium and subsequently parathyroid hormones, if indicated, as one of the clinical presentations of primary hyperparathyroidism is renal stones.

Case presentation: A-48 years-old married female with a past medical history significant for renal stones presented to the clinic chiefly complaining of muscle pain, joint pain and fatigue. After thorough investigations, she was diagnosed with a case of primary hyperparathyroidism due to parathyroid adenoma and was managed surgically according to guidelines.

Clinical Discussion: Hypercalcemia, serum calcium of > 2 standard deviations above the reference value, is commonly seen to be associated with parathyroid mass therefore, assessment of serum calcium is a necessary step toward the diagnosis of PTA in cases with recurrent renal stones.

Conclusion: recurrent nephrolithiasis requires more thorough investigation for the possible underlying cause. Primary hyperparathyroidism due to parathyroid adenoma can present with recurrent renal stones and some vague symptoms.

Biography

Graduated from College of Medicine, University of Duhok in 2022. Currently working as a 2nd year Junior House officer at Azadi Hospital. I have 9 published articles.

A descriptive review of MEDICATION OVERUSE HEADACHE-From pathophysiology to the comorbidities

Srdjan Ljubisavljevic, Marina Ljubisavljevic, Radomir Damjanovic and **Sreten Kalinic**
University clinial centre of Nis, Serbia

Purpose of review: Medication overuse headache (MOH) is an important problem worlwide areas of different controversy regarding its entity. This article reviews the risk factors, comorbidities, pathophysiology, clinical presentation, effective management and prognosis of MOH, by summaries and integrates the results and finding in previously performed more than 15000 studies (from the year of 2010 to 2023) available from the scientific database of the University Medical Library in the University Clinical centre of Niš, which aimed to investigate and define a complexcity of this type of headache.

Recent finding: It has been proposed that all acute migraine medications can lead to MOH, with differences in the propensity of different agents to cause the problem. Early data suggests that triptans and other pain killers used for the acute treatment of migraine, may be an exception. Recent studies show that practicioners and the general public are still largely unaware of the problem of medication overuse and its damaging effects.

Summary: Although it is likely that MOH does occur and restricting the amount of acute medications is necessary to prevent it. It is also possible that increasing amounts of acute medications are simply a reflection of poorly controlled headaches, rather than a couse. Further researches need to be developed to identify more precisious mechanism in MOH effecitive management and its evolution.

Ultrasound assessment of the course of the median nerve using the DICOM option

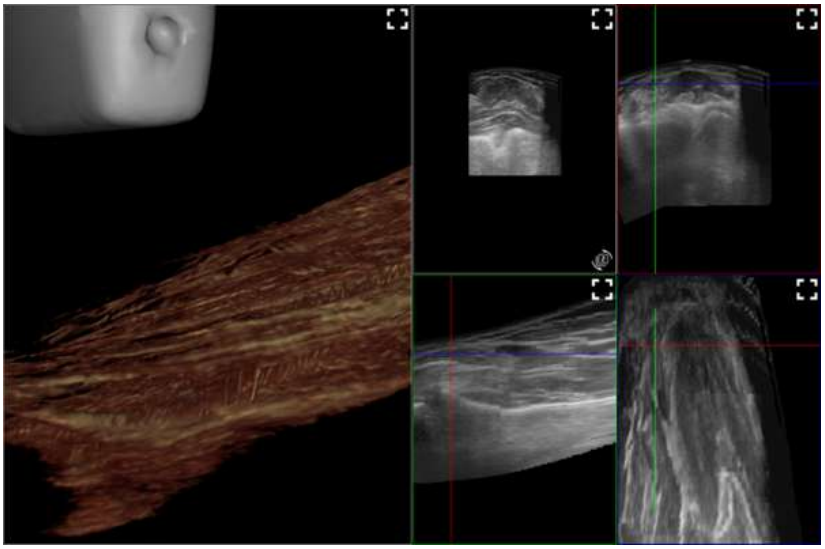
Tomasz Kardacz
Niepubliczny Zaklad Opieki Zdrowotnej im. L.Rydygiera, Poland

Introduction: Carpal tunnel syndrome is one of the most common pathologies of peripheral nerves. Diagnostics is complex and full diagnosis is possible thanks to: interview, clinical examination, EMG and ultrasound. Of the above-mentioned tests, ultrasound can be used most to determine the cause and location of nerve compression, while EMG allows for a differential diagnosis.

Material and method: The author uses 8-20 and 8-12 Mhz heads, connected to a sensor placed on the head and a processor. He separates and evaluates the course of superficial nerves in a multiscan. The author scans the forearm or the median nerve itself, then the photos are analyzed in the format DICOM

Results: Thanks to tUS, it is possible to perform an almost tomographic assessment of the superficial nerves, along with the surrounding structures.

Conclusions: The new method will not replace EMG, but it is much more accurate in assessing superficial nerves compared to the classic US examination.



Biography

Tomasz Kardacz graduated from Medical University of Gdańsk and also from Faculty of Fine Arts of University of Warmia and Mazury in Olsztyn. He took part in many art exhibitions of design, paintings, graphics and photography. In his work – especially in the new ultrasound examination techniques/tomographic visualisation in 3D/. Since 30 years he is a chef Rydygiera Clinic in Olsztyn and Jonkowo.

A case of hereditary hemorrhagic telangiectasia presenting with brain abscess

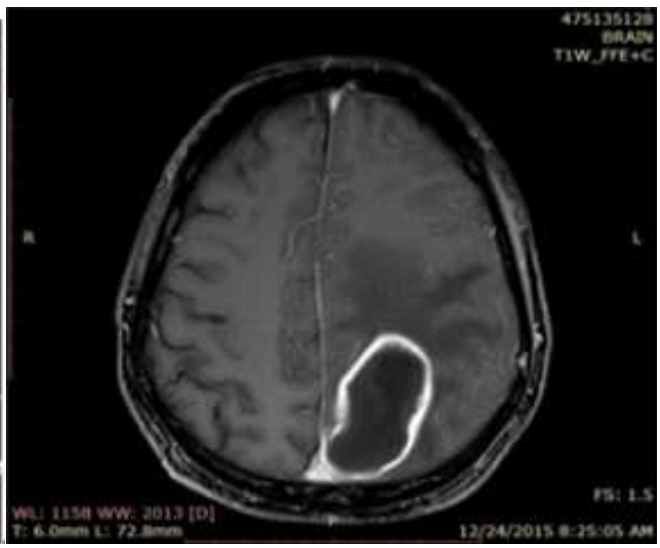
Marwa Zeyad[1], Basel Musmar[1], Mohammad Alnees[1,4], Malik Ghannam[2] and **Qusay Abdoh[1,3]**

[1]Department of Medicine, Faculty of Medicine and Health Sciences, An-Najah National University, Palestine
[2]Department of Neurology, University of Lowa Healthcare, US
[3]Department of Gastroenterology, An-Najah National University Hospital, Palestine
[4]Harvard Medical School Postgraduate Medical Education, Global Clinical Scholars Research Training program, US

Background: Hereditary hemorrhagic telangiectasia (HHT), characterized by telangiectases and arteriovenous malformations that can occur in any organ but primarily the lungs, liver and brain, is an autosomal dominant disorder. Brain abscess, though a rare and potentially fatal complication, can be an initial presentation of this condition.

Case summary: A 60-year-old man presented with anemia and black tarry stools, then developed right-sided weakness initially misdiagnosed as an ischemic stroke. Subsequent onset of headaches and high-grade fever led to the diagnosis of brain abscess and HHT was subsequently identified.

Conclusion: This case underscores that brain abscess can be an initial symptom of HHT. Prompt diagnosis and treatment are vital, which requires physicians to maintain a high index of suspicion and conduct appropriate investigations promptly.



Biography

Mohammad Alnees, he is a postgraduate medical doctor with a Doctor of Medicine (MD) degree from An-Najah National University. He is enrolled in [Global Clinical Research Training program], a comprehensive program covering the latest trends and techniques in clinical research. He possesses strong organizational and communication skills and he is passionate about collaborating with his colleagues. He is highly committed and detail-oriented, recognizing the importance of every tiny detail his scientific knowledge and experience from Harvard will be of great value. Let's work together to become global health system changers!

Does venepuncture associated stress result in misdiagnosis of hyperprolactinemia?

Madhumita Das and **Chitralekha Gogoi**
Guwahati Neurological Research Centre Medical Lab, India

Background: In the 1970s, stress was identified as a cause of transient hyperprolactinemia and venepuncture was considered to be a source of stress in the patient. Stress-induced variation of neuroendocrine is the basis of this functional hyperprolactinemia. Serial blood sampling at intervals of few minutes was considered to be effective in correcting stress-induced hyperprolactinemia.

Objective: The aim of this study was to investigate the association of venepuncture-induced stress with elevation of serum prolactin.

Methods: This was a cross-sectional observational study conducted on a group of 150 outdoor patients visiting a tertiary care hospital. Serial sampling was performed by drawing venous blood at different time intervals (0, 30 and 60 min) by single venepuncture to measure serum prolactin to diagnose stress-induced hyperprolactinemia.

Results: The study was conducted in two phases, Phase1 and Phase2. The Phase1 results were divided into two groups: Group1 (0 min) and Group5 (pool prepared from samples collected at 0 + 30 + 60 min). Likewise, the results of Phase2 were segregated into five groups: Group1 (0 min), Group2 (30 min), Group3 (60 min), Group4 (average of three groups) and Group5 (pool). In both phases, there was a significant ($p = 0.0003$ in Phase1 and $p = 0.02$ in Phase2) decrease in the mean prolactin (17.99 ± 24.76 ng/mL in Phase1 and 19.61 ± 23.42 ng/mL in Phase2) in Group5 compared that (19.67 ± 27.69 ng/mL in Phase1 and 21.06 ± 25.06 ng/mL in Phase2) in Group1. There was no significant difference in the mean prolactin measured from Group5 and Group4.

Conclusion: Venepuncture-triggered fear and apprehension may result in transient hyperprolactinemia and a period of 60 min rest and relaxation results in significant reduction in the serum prolactin level. Moreover, measuring the prolactin from the pooled serum was found to be the better alternative over performing multiple tests.

Biography

Dr. Madhumita Das is a clinical biochemist serving as Lab Director and Head of the Department of GNRC Medical Lab, GIMS, North Guwahati, Assam, India. Dr. Das received her MD in Biochemistry from Guwahati Medical College and Hospital and PhD in Nanotechnology from Indian Institute of Technology Guwahati. Dr. Das is a life member and founder president of Association of Clinical Chemistry and Lab Medicine Practitioner, Assam Chapter and Editor of the Journal of Applied Biochemistry and Laboratory Medicine. She is also associated with the Association of Clinical Biochemists of India, Association of Neuroscientists of Eastern India, Association of Medical Biochemists of India and Foundation for Quality India. Dr. Das has several publications and two Indian patents in her credit. She is a co-investigator of several projects under the Ministry of Electronics and Information Technology, Ministry of Computer and Information Technology, Govt. of India and Indian Council of Medical Research.

Examination of OCT4 protein and gene expression during the transition of spermatogonia stem cells into neurons through the utilization of immunohistochemistry, immunocytochemistry and bioinformatics analysis

Danial Hashemi Karoii[1,2] and **Hossein Azizi**[2]

[1]*Department of Cell and Molecular Biology, School of Biology, College of Science, University of Tehran, Iran*
[2]*Faculty of Biotechnology, Amol University of Special Modern Technologies, Iran*

Spermatogonia Stem Cells (SSCs) hold promise as potential candidates for reprogramming and regeneration. Recent research has illuminated the possibility of reverting differentiated cells to a pluripotent state by overexpressing a specific set of pluripotent transcription factors. One such critical factor is OCT4, encoded by the pou5f1 gene, a member of the POU transcription factor family. OCT4 plays a pivotal role in controlling pluripotency and is typically abundantly expressed in pluripotent stem cells, but its expression diminishes or becomes suppressed upon differentiation.

In this investigated study, we examined the expression of OCT4 throughout the differentiation process of SSCs into neurons, which involves four distinct stages: SSCs in vivo and *in-vitro*, Embryonic Stem Cell-like (ES-like) cells, formation of Embryonic Bodies (EBs) and the final differentiation into Neurons. Our analysis utilized techniques such as Immunocytochemistry (ICC), Immunohistochemistry (IMH) and Fluidigm Real-Time polymerase chain reaction. Additionally, we employed databases like STRING to predict protein-protein interactions and perform enrichment analysis.

Our investigations into OCT4 expression revealed that it is present in SSCs, ES-like cells and EBs during the differentiation of spermatogonia stem cells into adult neurons. Notably, the addition of retinoic acid (RA) to EBs led to a reduction in OCT4 expression and it was not observed in the mature neuron cells. These findings suggest a significant relationship and interaction between OCT4 expression and the differentiation process of spermatogonia stem cells into neurons. Moreover, it underscores the biological functionality of OCT4 in tasks such as stem cell maintenance and somatic cell reprogramming.

Our discoveries contribute to a deeper understanding of the intricate process of differentiating spermatogonia stem cells into neurons. This knowledge has the potential to be instrumental in the development of novel and more efficient treatments for neurogenesis and neuronal repair.

Biography

At the moment, I am fully immersed in the pursuit of my master's degree in Cellular and Molecular Biology. This academic journey has not only been intellectually stimulating but also incredibly fulfilling. My academic interests have gravitated towards a few specific areas that have captivated my curiosity and passion. One of my primary areas of focus and enthusiasm lies in the realm of germ cells. Germ cells play a pivotal role in reproduction and the transmission of genetic information from one generation to the next. Understanding the intricacies of germ cell development and function is not only scientifically fascinating but also holds significant implications for addressing issues related to infertility and reproductive health. Additionally, my engagement in bioinformatics has added a computational dimension to my scientific pursuits. Bioinformatics offers a powerful toolkit for analyzing complex biological data and extracting meaningful insights. What truly motivates me is the profound impact that scientific research can have on human health and well-being. Each breakthrough, no matter how small, contributes to our collective understanding of the world and our ability to improve the lives of individuals and communities.

Investigation on canonical Wnt signaling pathway at different stages of Temporal Lobe Epilepsy: An interventional study

K. Rawat and **L. Saha**
Post Graduate Institute of Medical Education and Research (PGIMER), INDIA

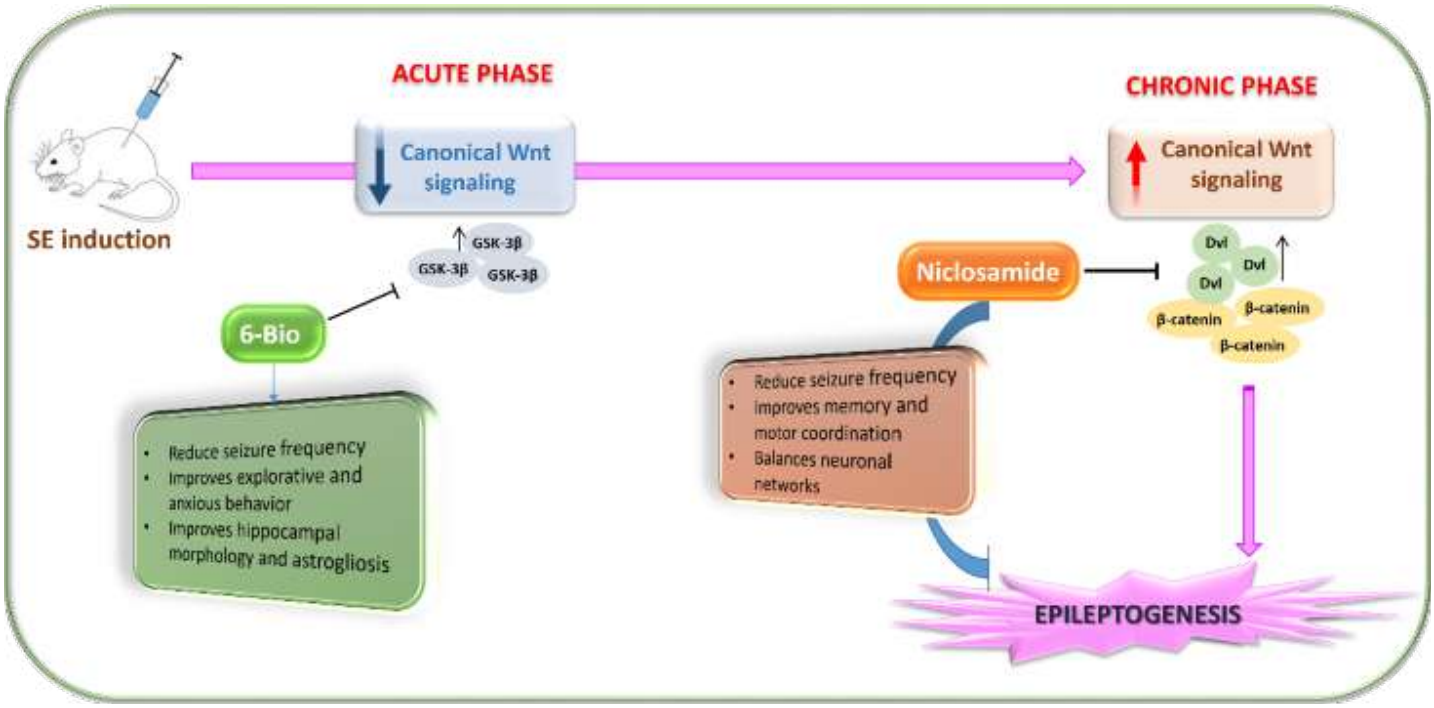
Scope: Temporal Lobe Epilepsy (TLE) is a life-threatening neurological condition associated with recurrent seizure episodes. It is reported to be associated with epileptogenesis which originates during latent period spanning the chronic phase post-neurologic insult. Recent work has shown involvement of canonical Wnt signaling in the pathophysiology underlying epileptogenesis and TLE.

Objectives: The present study aimed to assess the therapeutic potential of modulating canonical Wnt signaling at both acute and chronic stages of TLE using a repeated low-dose lithium chloride-pilocarpine induced rat model.

Methods: Repeated low-dose lithium-pilocarpine model of status epilepticus was developed and followed for 30 and 60 days to study acute and chronic stage, respectively. The Wnt modulators GSK-3β inhibitor, 6-bromoindirubin-3'-oxime and disheveled inhibitor, niclosamide were used in acute and+ chronic stage and several parameters were assessed including seizure-frequency, astrogliosis, synaptic-density and neuronal count in hippocampus. Western-blotting and qRTPCR were performed to examine protein expression and relative mRNA expression of the molecules involved in canonical Wnt/β-catenin signaling.

Results: The western blotting and real time PCR results have shown that the key transcription factor i.e. nuclear β-catenin remain downregulated in acute stage and upregulated in chronic stage of TLE, suggesting the downregulation of canonical Wnt signaling in acute stage while upregulation of canonical Wnt signaling in chronic stage of TLE. The upregulation of canonical Wnt signaling using GSK-3β inhibitor, 6-Bio found to have antiepileptogenic (reduced seizure frequency) and neuroprotective (reduced gliosis and increased synaptogenesis) effects in acute stage TLE. While the downregulation of Wnt signaling using Disheveled inhibitor, niclosamide found to have beneficial effects in chronic stage of TLE.

Conclusions: Canonical Wnt signaling remain downregulated in acute stage and hence GSK-3β inhibitor 6-Bio was found beneficial in acute stage. While the Wnt signaling was found upregulated in chronic stage and hence disheveled inhibitor, niclosamide had shown neuroprotective and antiepileptogenic effects in chronic stage.



Biography

I am a Ph.D. candidate at the Department of Pharmacology, PGIMER in Chandigarh, India. My research focuses on neurology, reproductive biology and epigenomics. I successfully cleared the National Eligibility Test in the life sciences category, which enabled me to pursue my Ph.D. I hold a degree in pharmacy and a postgraduate degree in pharmacology (MS Pharm.) from the renowned National Institute of Pharmaceutical Education and Research in India. Prior to starting my Ph.D., I gained one year of experience as a junior research fellow in the PGIMER pharmacology lab. My research gate metrics include: Research Interest Score: 183.2; Citations: 346; h-index: 6.

Crosstalk between PPARγ and WNT/β-catenin pathway: A potential approach in rat model of autism spectrum disorder

A. Sandhu and **L. Saha**
Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh, India

Scope: Autism spectrum disorder (ASD) is complex neurodevelopmental condition, characterized by impaired social interaction and stereotypic behaviors. The clinical manifestation of ASD is linked to the disruption of fundamental neurodevelopmental pathways. Notably, the canonical WNT/β-catenin pathway is increased while PPARγ seems to be decreased in ASD.

Objectives: This study investigates the therapeutic potential of pioglitazone, a PPARγ agonist, in rat model of ASD. The study also further explores the role of PPARγ and Wnt/β- catenin pathway and their interaction by using their modulators.

Methods: Pregnant female Wistar rats received 600 mg/kg Valproic acid (VPA) on Embryonic day 12 to induce autistic-like-behavioral and neurobiological alterations in offsprings. The potential therapeutic effect of pioglitazone was evaluated through behavioral, biochemical and histopathology (H&E and Nissl stain). Best effective dose of pioglitazone was chosen to study its effect on WNT pathway. To further validate the opposing interplay between PPAR and WNT pathway, we administered offsprings with 6-bromoindirubin-3'-oxime (6-BIO) (4µg/kg), which is a modulator of the WNT/β-catenin pathway.

Results: VPA-exposed rats presented core autistic symptoms and VPA exposure also stimulated neurochemical and histopathological neurodegeneration in various brain regions. Three doses of pioglitazone (2.5, 5, 10mg/kg) were used for assessing various parameters and among them, 10mg/kg pioglitazone efficiently attenuated the autistic symptoms along with other neurochemical alterations like neuroinflammation, apoptosis and restored the neuronal loss in hippocampus and cerebellum. Further, 10 mg/kg dose of pioglitazone found to modulate WNT/β-catenin pathway via inhibiting the expression of associated proteins and utilization of 6-BIO confirmed the opposite interaction between pathways.

Conclusion: The observed amelioration in ASD rats resulting from pioglitazone administration can be linked to its possible neuroprotective effect, along with its role in downregulating WNT/β-catenin pathway. The antagonistic interplay between the PPARγ and WNT/β-catenin pathway presents a promising avenue for potential therapeutic interventions in treating ASD.

Biography

I am a PhD scholar at the Department of Pharmacology, PGIMER, Chandigarh, India, specializing in neurology and neuropharmacology. I have received my master's degree (M.Sc. Zoology) from Panjab University, Chandigarh, India. With my hard work, I have been fortunate to clear my PGIMER PhD entrance exam as well as National Eligibility Test in life sciences category. My current research focuses on exploring the underlying mechanisms of neurodevelopmental disorder, autism spectrum disorder. Besides my thesis work, I have also done an intramural project of PGIMER on ASD only and have had the privilege of publishing its paper PUBMED indexed international journal with good impact factor. My research gate metrics include: Research Interest Score: 14.7; Citations: 20; h-index: 3.

Ultrasound tomography by carotidplaque assessement

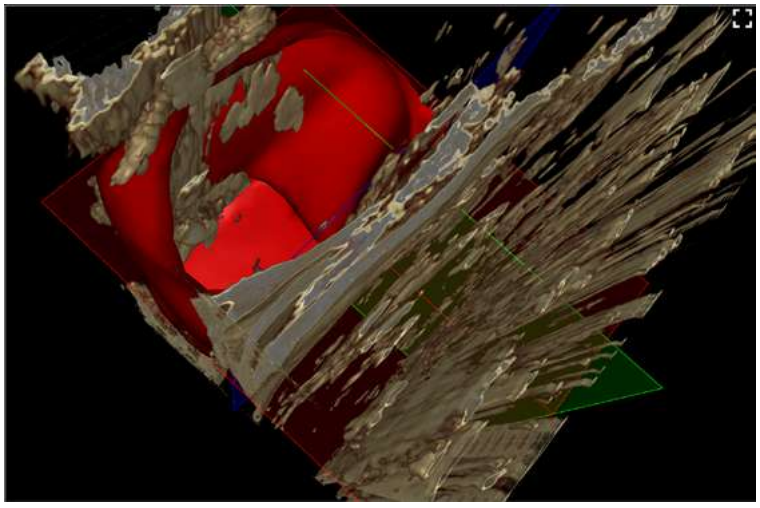
Tomasz Kardacz
Niepubliczny Zakład Opieki Zdrowotnej im. L. Rydygiera Tomasz Kardacz, Poland

Introduction: The aim of the study is to assess the usefulness of novel tUS/tomographic 3D ultrasound technology for carotid arteries.

Method: In addition to the standard DUS examination/ carotid artery doppler/ additionally using tUS, the author assesses carotid arteries with a linear 8-20 Mhz probe in combination with tomographic ultrasound to acquire 3D volumetric datasets with following image processing.

Results: The tUS can be used to measure and visualize the atherosclerotic plaque inside the carotid arteries in detail. That allows an accurate assessment of the shape and volume of the plaque. The inside of the vessel can also be visualized using a virtual endoscopy. The technology is also useful in assessing the IM complex.

Conclusion: The new technology is a promising, fast, non-invasive test that allows a detailed evaluation of atherosclerotic plaque, not only because of its size but also because of its shape and ulceration. This is an important factor influencing the risk of a stroke. It is also possible to observe the state of IM/intima media/. Is it possible to assess the response to treatment by measuring plaque volume and IM quality, before and after treatment.



Biography

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Exploring the effect of 6-BIO and Sulindac in modulation of Wnt/β-catenin signaling pathway in chronic phase of temporal lobe epilepsy

V. Gautam and **L. Saha**
Post Graduate Institute of Medical Education and Research (PGIMER), INDIA

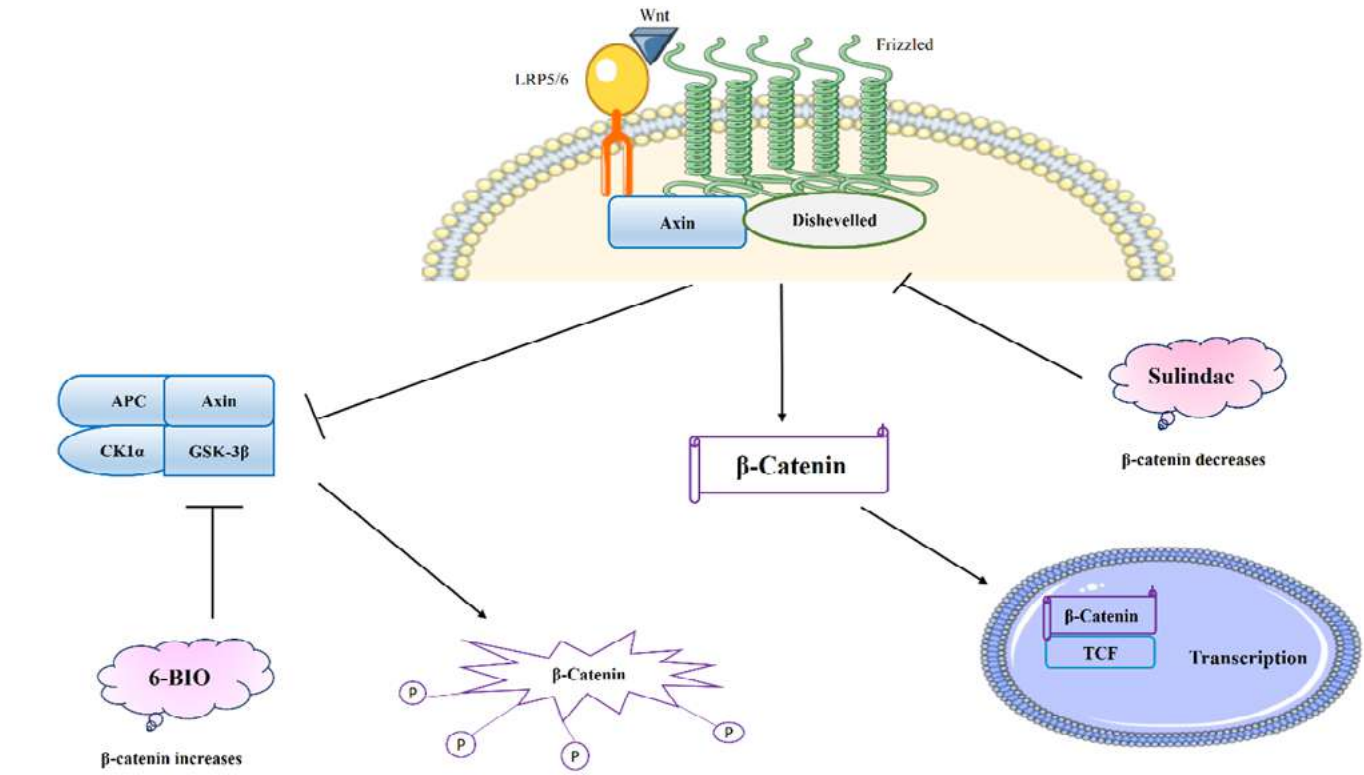
Scope: The prospective involvement of the Wnt/β-catenin signaling pathway in epilepsy, with the proposed therapeutic uses of its modulators, has been suggested; however, comprehensive knowledge in this regard is currently limited. Despite postulations about the pathway's significance and treatment potential, a systematic investigation is required to better understand its implications in chronic epilepsy.

Objectives: To investigate how the modulators sulindac and 6-BIO impact seizure scores, seizure frequency and neurobehavioral tests. Additionally, to examine the gene and protein expression of the Wnt/β-catenin pathway, proteins related to apoptosis and conduct histopathological and immunohistochemical studies. We investigated the role of key proteins like β-catenin, GSK-3β and their modulators, in Wnt/β-catenin pathway during chronic phase of temporal lobe epilepsy.

Methods: We induced a status epilepticus model using lithium-pilocarpine in male wistar rats. We examined the effect of modulators on seizure scores, seizure frequency (by manually monitoring it for 5 hours each week) and neurobehavioral parameters in the chronic phase of temporal lobe epilepsy. After that, we conducted histopathological examinations, performed immunohistochemistry staining of the hippocampus and used qRT-PCR and western blotting to analyze gene and protein expression.

Results: In SE rats, seizure score and frequency were significantly high compared to control rats, with notable changes in neurobehavioral parameters and neuronal damage observed in hippocampus. Our study also revealed a substantial upregulation of the Wnt/β-catenin pathway in chronic epilepsy, as evidenced by gene and protein expression studies. Sulindac emerged as a potent modulator, reducing seizure score, frequency, neuronal damage, apoptosis and downregulating the Wnt/β-catenin pathway when compared to 6-BIO.

Conclusion: Our findings emphasize the potential of GSK-3β and β-catenin as promising drug targets for chronic temporal lobe epilepsy, offering valuable treatment options for chronic epilepsy. The promising outcomes with sulindac encourages further exploration in clinical trials to assess its therapeutic potential.



Biography

Vipasha Gautam, a passionate and driven researcher, is currently engaged in the pursuit of a Doctor of Philosophy (Ph.D.) degree in the captivating field of neuroscience. My academic journey unfolds at the renowned Post Graduate Institute of Medical Education and Research (PGIMER) in Chandigarh, India, where I immerses myself in the realm of brain science. I have completed my post-graduation in Zoology from Panjab University Chandigarh. I cleared my [CSIR-NET(JRF)] National Eligibility Test with AIR-83. I have published some review and research paper in good journals. My Research Interest Score: 14.7; Citation: 20; h-index: 3. As I continues to advance in my academic and research journey, I stands as a promising and dedicated figure in the realm of neuroscience.

Pharmacological assessment of bergenia ligulata and nelumbo nucifera combination in mitigating aluminium chloride-induced neurotoxicity

Nilay Solanki and **Yamini Patel**

Department of Pharmacology, Ramanbhai Patel College of Pharmacy, Charotar University of Science and Technology, India

Neurodegenerative conditions involve the buildup of modified proteins in the brain and adjacent tissues, along with a gradual decline in nerve cell count. Neurotoxicity arises when exposure to harmful substances disrupts the normal functions of the nervous system, potentially leading to nerve cell disturbance or demise. These cells play a critical role in transmitting and processing signals within the brain and nervous system. Alzheimer's disease progressively diminishes an individual's ability to recall information, reason and perform routine tasks. Our current investigation concentrates on exploring the potential protective impact of a blend comprising Bergenia ligulata and Nelumbo nucifera in mice afflicted with neurotoxicity triggered by aluminum chloride. Forty-six rats were divided into multiple groups, all subjected to AlCl3 inducing neurotoxicity except for one group receiving the combined therapy of Nelumbo nucifera and Bergenia ligulata. Various parameters were evaluated, including behavioral assessments, estimation of AChE (acetylcholinesterase), oxidative stress markers and apoptotic markers. AChE levels increased due to AlCl3 exposure but decreased during the combined therapy. Additionally, the therapy reduced levels of GSH, SOD and catalase while elevating MDA levels, resulting in a contrasting effect on oxidative stress. AlCl3 also influenced apoptosis by elevating Caspase-3 levels and reducing Bcl-2 levels. The therapy, however, mitigated apoptosis by decreasing Caspase-3 levels and enhancing Bcl-2 levels. These findings indicate that the combined therapy involving Bergenia ligulata and Nelumbo nucifera possesses neuroprotective properties against AlCl3-induced neurotoxicity in rats.

Biography

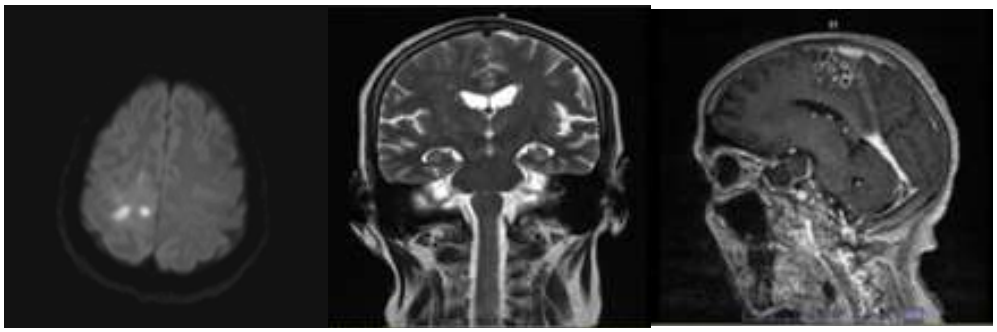
Dr. Nilay Solanki is an Associate Professor at Ramanbhai Patel College of Pharmacy, CHARUSAT Campus, India. He completed his Ph.D. in 2016 from CHARUSAT University, India. Dr. Nilay has 16 years of academic, research and leadership experience. His expertise is in the area of clinical research and preclinical animal model development of various disease conditions, with a special emphasis on diabetes, Cancer, NAFLD, obesity, neurodegeneration, pharmacoepidemiology, pharmacogenomics & health related quality of life assessment in different disease conditions. Dr. Nilay has several collaborations with multispecialty and super specialty hospitals in India, where major clinical studies were conducted. Dr. Nilay has published 45 research and review papers from Scopus and Web of Science-listed high-impact journals and he also completed several consultancy projects. He had received various awards at national conferences and research paper awards for five consecutive years. He had also provided his services as a resource person at national and international conferences in India. He is also associated with being a reviewer and editor in national and international journals.

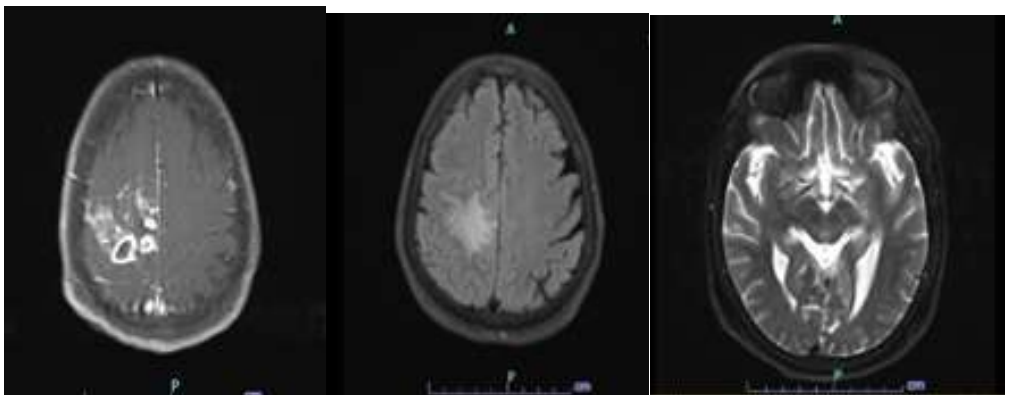
CNS melioidosis: A diagnostic challenge

Preeti Singh
Institute of Neurosciences Kolkata, India

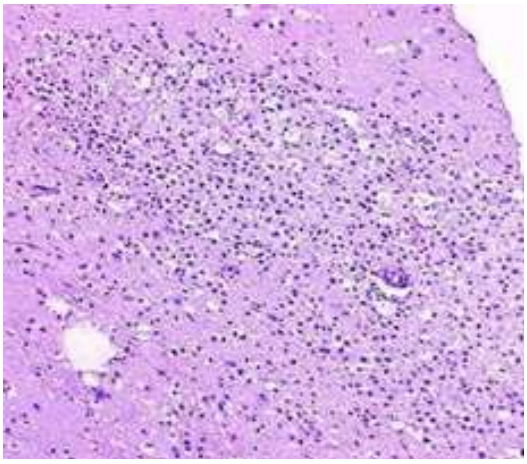
Melioidosis is an emerging tropical disease caused by the bacteria Burkholderia Pseudomallei. It can virtually affect any organ with clinical presentations ranging from pneumonia to fatal sepsis. Central nervous system (CNS) involvement in melioidosis is rare (1.5-10%) with high mortality rate of 60 % . A high index of suspicion and isolation of organisms is the cornerstone for appropriate management.

Case report: A 60 year female presented with low-grade fever for 3 weeks, headache and confusion for 5 days and left-sided weakness for 3 days duration. She was admitted to a local hospital with one episode of generalized tonic-clonic convulsion. A contrast Computerized Tomography (CT) scan of the head showed a ring enhancing lesion in the right parietal lobe with significant perilesional edema. She was discharged on antitubercular drugs (ATT). On arrival at our hospital, she was very drowsy, with dense left hemiplegia. Routine blood investigations were normal except for a white blood counts (WBCs) of 16,300/mL and serum Alanine aminotransferase (ALT) of 110 IU/L. MRI brain was advised which showed multiple rings enhancing lesions in the right parietal lobe showing diffusion restriction.





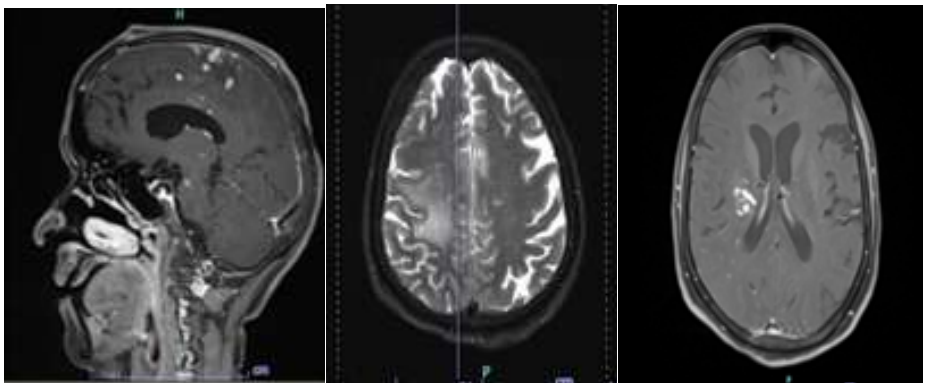
Opinion from infection control specialist was taken and patient was started on injection Ceftriaxone. Next day her drowsiness increased . Guarded LP was done which showed 35 cells (N 40%, L 60%) sugar 44 mg/dl. Protein 115 mg/dl.Patient underwent mini craniotomy and biopsy of lesion. Post surgery her sensorium remained poor for the next few days .Extraocular movements were restricted along left motor neuron facial palsy. Gram stain showed growth of gram negative bacilli. ZN Stain and PAS stain was negative. CSF and tissue MTB gene expert was negative. Culture showed growth of burkholderia pseudomallei.



Histopathological examination: Acute suppurative inflammation of the brain, associated with necrosis. The surrounding brain parenchyma shows many plasma cells and histiocytes with granulation tissue, epithelioid histiocytes are also seen, forming ill-defined granulomas. The rest of the brain shows mild gliosis and perivascular lymphocytic cuffing. Special stains do not reveal acid fast bacilli and fungal organisms. Viral inclusions are not seen. There is no evidence of malignancy.

Ceftriaxone was escalated to meropenem and cotrimoxazole . She steadily improved. Parenteral antibiotics was continued for 6 weeks. Repeat MRI was done which showed regression in rim enhancing lesion in right perirolandic cortex and paracenteral lobule. Increase in enhancement of nodular lesion more inferiorly which may represent temporal evolution.

Suggestive of significant residual disease with partial response.



She was discharged on oral cotrimoxazole . Neurologically her left hemiparesis is improving steadily with rehablitation.

Discussion: Melioidosis is underdiagnosed and underreported in India. A mimicker, Burkholderia radiologically and histopathologically resembles tuberculosis, hence, most often erroneously diagnosed and treated as tuberculosis. The ring-enhancing pattern (78%) is the most frequent neuroimaging finding in encephalomyelitis . In intracranial tuberculoma increase in size of lesion after starting ATT is described as the paradoxical response. It very difficult to differentiate between paradoxical response and no response. Biopsy becomes mandatory in those cases. Biopsy shows chronic abscess with focal granulomatous reaction like TB. Non-AFB, non-spore bearing and safety pin appearance in bipolar staining helps to differentiate it from tuberculosis. Fever and cranial nerve involvement, namely the seventh nerve along with the sixth, ninth and tenth nerves are prominent in encephalomyelitis, a characteristic of melioidosis. Other differentials are brucellosis, mycobacteria other than tuberculosis, fungi and neoplastic lesions Brain stem encephalitis due to Listeria, Herpes, or Mycobacteria may have similar findings. Hence, the diagnostic dilemma.

Conclusion: Instead of assuming a common diagnosis of tuberculosis and waiting for an empirical ATT response, a high index of suspicion, timely surgery, isolation of the organism and correct management can save individual from this lifethreatening CNS infection.

Medical image synthesis to assist treatment planning in Neuro-Oncology

Pournami Pulinthanath Narayanan[1], Jiffy Joseph[2], Ivan Biji[1], Naveen Babu[1], Jayaraj Pottekkattuvalappil Balakrishnan[1], Niyas Puzhakkal[3], Christy Sabu[1] and **Vedkumar Patel[1]**

[1]National Institute of Technology Calicut, India
[2]Center for Development of Advanced Computing, Technopark Campus, India
[3]MVR Cancer Center and Research Institute, India

Radiotherapy is a crucial cancer treatment utilizing radiation to eradicate cancer cells. Image-Guided Radiation Therapy (IGRT) enhances precision through medical imaging, such as CT and MRI, delivering targeted radiation. MRI, with superior soft-tissue contrast, aids in outlining planning target volumes. Fan Beam CT scans provide electron density information for dose calculation in IGRT. Real-time MRI-guided radiotherapy (MRIgRT) with an MR-LINAC is a recent advancement, requiring synthesizers for FBCT data generation. IGRT involves planning with FBCT, followed by radiation delivery guided by Cone Beam CT-LINAC. Treatment spans weeks, with low-dose CBCT for intra-fractional imaging and precise beam positioning.

Our research proposed and developed automatic synthesizers using deep generative models to generate high-quality FBCT images. A Conditional Generative Adversarial Network (cGAN) with a Nested Residual UNet generator is proposed.The model maps CBCT to FBCT in a three-slice to single-slice approach, preserving inter-slice dependencies. It employs mean squared error, gradient difference and adversarial loss and outperformed many of the existing models.

We also introduced a Wasserstein GAN for MRI-to-FBCT synthesis, addressing challenges like vanishing gradients and mode collapse. The WGAN employs Wasserstein loss to prevent mode collapse and the residual UNet-based WGAN produces favorable outcomes. Clinical validation confirms synthetic FBCT images are suitable for radiotherapy planning, despite limitations. Quantitative and qualitative evaluations indicate WGAN outperforms existing FBCT synthesizers. Clinical assessments affirm synthetic images' utility in radiotherapy applications.

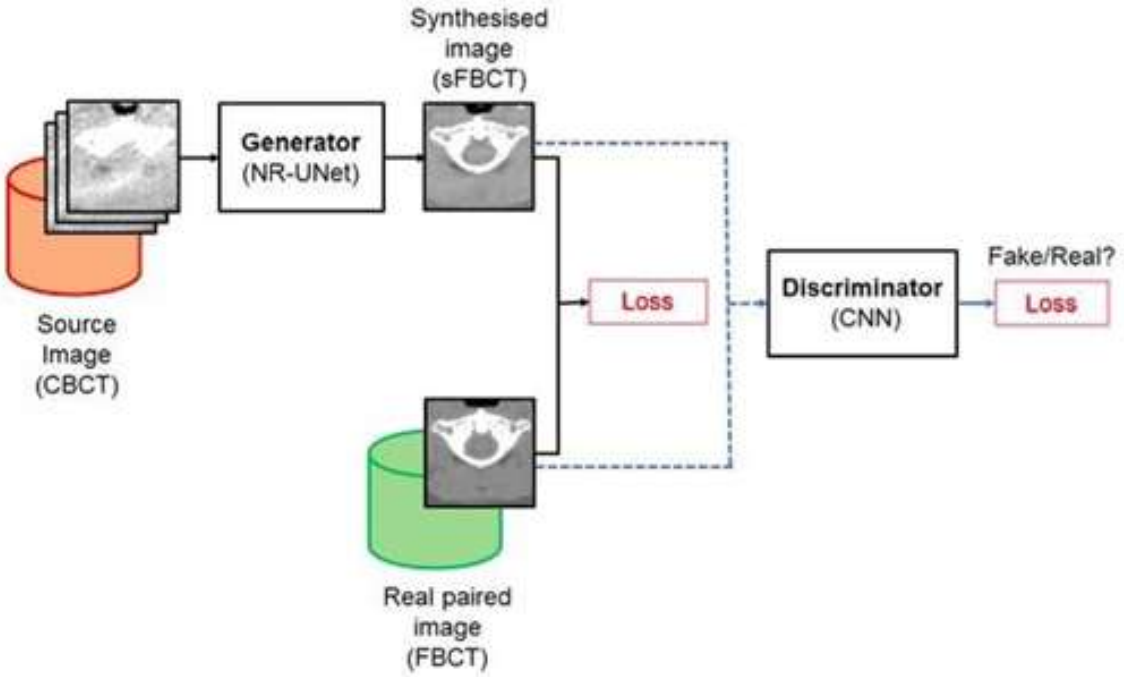


Figure 1. Proposed cGAN for FBCT synthesis

Table 1. Comparison of mean Dose Volume Histogram (DVH) parameters of radiotherapy plans on real and synthetic FBCTs

DVH parameters (cGy)		FBCT	sFBCT	Relative Difference (%) ↓
PTV	Dmean	2049.74	2094.42	**2.17**
(Whole-brain)	Dmax	2190.42	2222.34	**1.45**
	Dmean	418.28	361.04	13.68
Left lens	Dmax	509.46	446.86	12.28
	D1cc	392.78	336.22	14.39
	Dmean	513.06	419.68	18.20
Right lens	Dmax	588.96	489.6	16.87
	D1cc	453.32	381.34	15.87
	Dmean	825.56	797.7	**3.37**
Left eye	Dmax	1851	1871.06	**1.08**
	D1cc	1420.18	1431.66	**0.80**
	Dmean	882.74	834.54	5.46
Right eye	Dmax	1953.36	1950.88	**0.12**
	D1cc	1598.24	1551.8	**2.90**

In conclusion, this research contributes cGAN and WGAN synthesizers for FBCT image generation from CBCT and MRI, respectively, demonstrating superior performance and clinical relevance in enhancing radiotherapy precision. The progression of these models represents a substantial stride in the direction of effective and precise planning for cancer treatment, promising significant opportunities in the field of medical imaging and neuro-oncology therapy.

Biography

Dr. Pournami P N is an accomplished Associate Professor at the National Institute of Technology, Calicut, Kerala, India. With over 13 years of teaching experience in the Department of Computer Science and Engineering, she has been a dedicated educator and researcher. Dr. Pournami earned her Ph.D. from the same institution in 2018 and has since become a notable person in the fields of Computer Vision and AI in Healthcare. As a Senior Member of IEEE, her contributions include research articles published in prestigious international journals, presentations at international conferences and authorship of book chapters. Her work is characterized by a commitment to advancing technology and improving healthcare through artificial intelligence.

The effect of ellagic acid on disease diseases activity in patients with multiple sclerosis.

Naheed Aryaeian[1], Sahar Jafari Karegar[1], Aliakbar Delbandi[2], Farzad Shidfar[1], Ghazaleh Hajiluian[1], Masoud Salehi[1], Bahram Haghi Ashtiani[3] and **Pouya Farhangnia[2]**

[1]Nutrition Department, School of Public Health, Iran Immunity Department, University of Medical Sciences, Iran
[2]School of Medicine, Iran University of Medical Sciences, Iran
[3]School of Medicine, Firouzgar Hospital, Iran University of Medical Sciences, Iran

Background and aim: Multiple sclerosis is a chronic inflammatory and autoimmune disease. Ellagic acid is a natural tannic acid derivative and affects the fate of neurons through its anti-inflammatory, antioxidant and antidepressant effects.

Therefore, the aim of the present study was to investigate the effect of ellagic acid on disease severity, in these patients.

Material and methods: The present study was a double-blind clinical trial. Patients eligible for participation in the study according to the criteria were randomly divided into two groups: Ellagic acid (25 subjects), receiving 180 mg of Ellagic acid supplement from Axenic company and the control group (25 subjects), receiving a placebo containing maltodextrin similar in color, shape and odor to the Ellagic acid supplement, before the main meals for 3 months. Before and after the study, questionnaires of general information, food intake, physical activity, anthropometric measurements, expanded disability status scale (EDSS), general health questionnaire (GHQ), pain rating index (PRI), fatigue severity scale (FSS)were filled. SPSS software version 24 was used for statistical analysis.

Findings: The average changes of the EDSS and FSS index in the ellagic acid group had a significant decrease, the changes between the ellagic acid and control groups were also significantly different ($p<0.05$). The average changes of GHQ index in the ellagic acid group had a significant decrease compared to the control group($p<0.05$).

The mean changes of PRI index between ellagic acid and control groups were not significantly different and the changes within ellagic acid group was also insignificant ($p>0.05$).

Conclusion: The present study showed that supplementing with ellagic acid can play a role in improving the condition of multiple sclerosis patients by reducing the level of GHQ EDSS indexes.

Adaptive spatial filtering-based component exploration model for SSVEP-based brain-computer interface for target identification

G. K. Ravikumar[2] and **K. R. Swetha**[1]

[1]*Department of CSE, BGSIT, Adichunchanagiri University, India*
[2]*Department of Computer Science and Engineering, BGSCET, India*

Objective: By assessing SSVEP components from EEG data, an Adaptive Spatial Filtering approach is presented to successfully identify targets for the use of the SSVEP-based BCI system.

Scope: Non-invasive Brain-Computer Interface (BCI) systems have gained a massive boost from the advancement and developments in signal processing applications and BCI systems can be used, used in several applications like robotic arms. The correct extraction of Steady-State Visually Evoked Potential (SSVEP) components, however, is crucial and difficult.

Methods: Here, the minimization of computational complexity and the optimization of the Eigenvalue problem are covered. The features provided in the reference signal are pre-developed and lacked precision in the earlier SSVEP detection algorithms. Therefore, the development of reference signals can address the inaccuracy of frequency detection. A MAMEM SSVEP dataset is used to analyze the performance results of the proposed Adaptive Spatial Filtering based Component Exploration (ASFCE) model.

Results and Discussion: Results are presented in terms of detection accuracy and Information transfer rate (ITR) using the proposed ASFCE model and compared against varied SSVEP acquisition methods. The mean target detection accuracy and ITR results considering all 11 subjects are 93.48% and 308.23 bpm, respectively. The significance of the SSVEP-based BCI system is massive for multiple applications in different domains, especially for disabled people. Therefore, in this article, Adaptive Spatial Filtering based Component Exploration (ASFCE) model is adopted to analyze SSVEP components from EEG data for the application of the SSVEP-based BCI system.

Conclusion: In traditional SSVEP extraction methods, high computational complexity and Eigenvalue problem are the major issues. However, a detailed solution for these problems is discussed in the mathematical modeling of the proposed ASFCE model. The accuracy enhancement is observed using the proposed ASFCE model against varied previous SSVEP acquisition methods.

Biography

Dr. Ravikumar G. Krishnegowda

Dr. Ravikumar G. Krishnegowda received his M. Tech degree from Karnataka Regional Engineering College Surthkal (NITK) during the year 2000 and Ph.D. from Dr MGR University, Chennai. He is working as a Professor and Research Head in Department of Computer Science Engineering, BGSIT. His areas of interests are data warehouse and business intelligence, multimedia, databases, AI, machine learning. He has published and presented papers in National and International conferences and journals.

Kalenahally R. Swetha

Kalenahally R. Swetha is currently working as Assistant Professor, Department of Computer Science and Engineering, BGS Institute of Technology, Adichunchanagiri University, BG Nagara, Mandya, Karnataka. She obtained her Master of Engineering in Computer Science from UVCE, Bangalore University. She is perusing PhD at Adichunchanagiri University. Qualified GATE-2009 with 3rd state Rank and 484th all over India rank. Having 10+ years teaching experience in both undergraduate and postgraduate streams. She has published 2 full length papers in IEEE conferences.

Opioid requirement and pain intensity after mandibular surgeries with dexmedetomidine administration in two ways: Intraoperative infusion versus bolus injection

Loghman Ebrahimi[1], Saeed Nezafati[1], Abbas Ali Dehghani[2], Reza Khorshidi Khiavi[1] and **Ali Mortazavi[1]**

[1]Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Tabriz University of Medical Sciences, Iran
[2]Department of Anestheliology, Imam Reza Medical Research and Training Hospital, Iran

Purpose: The purpose of this study is to compare the opioid requirement and pain intensity after surgeries of mandibular fractures with administration of dexmedetomidine by two approaches of infusion and single bolus.

Methods: In this double-blind clinical trial, the participants were randomized and matched in terms of age and gender in two groups (infusion and bolus). In both groups, the amount of narcotic used, hemodynamic indices, oxygen saturation and pain intensity were collected based on the ten-point Visual Analogue Scale (VAS) at 7 time points for 24 h. SPSS version 24 software was used for data analysis. A signifcance level of less than 5% was considered.

Results: A total of 40 patients were included in the study. There was no signifcant diference between the two groups in terms of gender, age, ASA class and duration of surgery (P>0.05). There was no signifcant diference between the two groups in terms of nausea and vomiting and subsequently receiving anti-nausea medication (P>0.05). The need for opioid consumption after surgery was not diferent in two groups (P>0.05). Infusion of dexmedetomidine reduced postoperative pain more rapidly than its single bolus dose (P<0.05). However, over time, there was no signifcant diference between the two groups in terms of changes in oxygen saturation variables (P>0.05). Homodynamic indices including heart rate, systolic blood pressure and diastolic blood pressure in the bolus group were signifcantly lower than the infusion group (P<0.05).

Conclusion: Administration of dexmedetomidine in the form of infusion can reduce postoperative pain better than bolus injection, with less probability of hypotension and bradycardia.

DyGCN-LSTM: Advancing multistep traffic prediction through dynamic graph convolutional networks and long short-term memory models

Rahul Kumar

Indian Institute of Technology Patna | IIT Patna · Department of Computer Science and Engineering, India

Intelligent transportation systems (ITS) are gaining attraction in large cities for better traffic management. Traffic forecasting is an important part of ITS, but a difficult one due to the intricate spatiotemporal relationships of traffic between different locations. Even though remote or far sensors may have temporal and spatial similarities with the predicting sensor, existing traffic forecasting research focuses primarily on modeling correlations between neighboring sensors while disregarding correlations between remote sensors. Furthermore, existing methods for capturing spatial dependencies, such as graph convolutional networks (GCNs), are unable to capture the dynamic spatial dependence in traffic systems. Self-attention-based techniques for modeling dynamic correlations of all sensors currently in use overlook the hierarchical features of roads and have quadratic computational complexity. Our paper presents a new Dynamic Graph Convolution LSTM Network (DyGCN-LSTM) to address the aforementioned limitations. The novelty of DyGCN-LSTM is that it can model the underlying non-linear spatial and temporal correlations of remotely located sensors at the same time.

Regulation of gluconeogenesis and lipogenesis in hepatocytes via targeting of PPP1R15B by miR-98-5p

Rukshar Khan[1,3], Amit Kumar Verma[3] and **Malabika Datta[1,2]**

[1]CSIR-Institute of Genomics and Integrative Biology, India
[2]Academy of Scientific and Innovative Research, CSIR-HRDC, India
[3]Jamia Millia Islamia, India

Dysregulation of circulatory miRNAs has been implicated in various diseases and used as diagnostic and prognostic markers. In our study, we demonstrate that miR-98-5p, which is down-regulated in the circulation of individuals with diabetes, exerts regulatory control over hepatic gluconeogenesis and lipogenesis by directly targeting PPP1R15B. Through miR-98-5p overexpression in HepG2 cells, we observed a significant decrease in PPP1R15B transcript and protein levels, along with increased expression of p-eIF2 , which was inhibited by the presence of a miR-98-5p inhibitor. The physiological relevance of these findings was examined by investigating two major hepatic hallmarks of diabetes: hepatic lipid accumulation and glucose output. Overexpression of miR-98-5p resulted in reduced transcript levels of gluconeogenic and lipogenic genes, accompanied by a significant decrease in hepatic glucose production and fat accumulation in HepG2 cells. Analysis of common transcription factors using PASTAA revealed CREB as the most significantly enriched factor. Although miR-98-5p overexpression did not affect CREB transcript levels, there was a notable change in its protein levels. Interestingly, similar effects on gluconeogenic and lipogenic gene expression were observed using PPP1R15B siRNA, while the opposite effects were observed in the presence of the miR-98-5p inhibitor alone. These findings collectively indicate that miR-98-5p regulates hepatic steatosis and glucose output by targeting PPP1R15B, which are characteristic features of hepatic dysfunction in diabetes. Targeting the miR-98-5p/PPP1R15B axis therapeutically may offer a potential strategy for addressing aberrant hepatic metabolism during diabetes.

Biography

As a dedicated PhD scholar, my research focuses on unraveling the intricate role of microRNAs in liver-related pathologies, particularly during diabetes. With a strong foundation in molecular biology techniques, I employ a multidisciplinary approach to investigate the molecular mechanisms underlying liver dysfunction and explore potential therapeutic targets. My work has contributed to our understanding of the dysregulation of microRNAs and their impact on hepatic glucose metabolism and lipid accumulation during diabetes.

I have successfully published research articles in high-impact journals, showcasing the significance and novelty of my findings. These publications highlight my expertise in experimental design, data analysis and interpretation, as well as my ability to communicate complex scientific concepts effectively. Additionally, my research experience has honed my skills in molecular biology techniques including cell culture and animal models.

Driven by a passion for scientific discovery and a commitment to improving human health, I strive to make meaningful contributions to the field of diabetes research. Through my work, I aim to advance our understanding of microRNA-mediated mechanisms and identify novel therapeutic strategies for treating liver complications in diabetes.

Combined Bifrontal Transcranial Direct Current Stimulation and Auditory Stroop Training in Chronic Tinnitus

Maryam Emadi
Faculty of Rehabilitation Hamadan university of Medical Sciences, Iran

Patients with tinnitus experience difculties in cognitive control and executive functions. Many of which are regarded as the cause of tinnitus rather than its complications. Methods for the improvement of inhibitory and cognitive control seem to be efective in the control of tinnitus. In this study, transcranial direct current stimulation and auditory Stroop exercise were have been to improve inhibitory control and the ability to ignore tinnitus in patients sufering from chronic tinnitus. 34 patients with chronic tinnitus (>6 months) were randomly divided into two groups. The frst group consist of 17 patients who received 6 sessions of tDCS followed by 6 sessions of auditory Stroop training. The second group received 6 sessions of sham tDCS followed by 6 sessions of auditory Stroop training. The initial evaluations including pure tone audiometry, psychoacoustic measurements, tinnitus handicap inventory (THI) survey and visual analog scale (VAS) of annoyance and loudness were performed before, immediately after and one month after the tDCS, sham and Stroop training. The results of this study revealed a signifcant reduction in THI score, VAS of loudness and annoyance of tinnitus. A signifcantcorrelation was detected between the reaction time of incongruent words in the Stroop task and improvement of THI score and VAS of annoyance. Combined tDCS and Stroop training efciently improve chronic tinnitus.

Biography

I have pHD in Audiology and now work as an assistant professor in audiology department of Hamadan University of Medical Sciences. I have been studying on tinnitus and general field of audiology.

My pHD thesis was about effect of neuromodulation and auditory Stroop training in tinnitus. Through which I especially focused on treating tinnitus patients. Nowdays, I am trying my hardest to study Cognitive Behavioral Therapy (CBT) and combination therapies of tinnitus.

Zinc deficiency: A harbinger of vestibular dysfunction?

Madhusudhan U[1], Neemu Hage[2] and **Nitin Ashok John[3]**

[1]Assistant professor, Department of Physiology, AIIMS (All India Institute of Medical Sciences), India
[2]Assistant Professor, Department of ENT, AIIMS (All India Institute of Medical Sciences), India
[3]Professor & Head, Department of Physiology, AIIMS (All India Institute of Medical Sciences), India

Background: Role of zinc in the maintenance of redox homeostasis have been explored & is established to have antioxidant effects in the body. Presence of zinc in auditory system & its role in deafness & tinnitus is well established. Zinc supplementation has shown to not only improve tinnitus but also dizziness associated with it which marks the presence of zinc in vestibular system 4. The possible role of zinc in modulating neurotransmission across the glutaminergic synapses in vestibulo cerebellar, vestibulo-occular pathways are established. So, this study aims to assess serum zinc levels in vestibular disorder patients & correlate with severity of the vestibular dysfunction

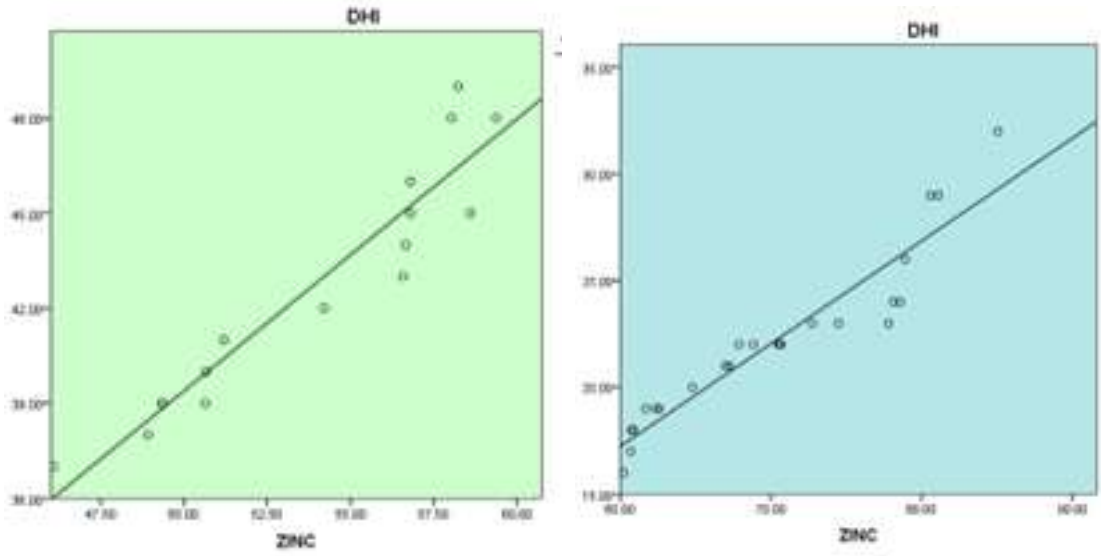
Methodology: This was Cross sectional comparative study, 40 patients with vestibular disorders & 40 subjects without vestibular dysfunction were included in the study. After thorough history taking, these patients were subjected to Dix Hallpike test, Head Impulse test Romberg test on foam with eyes closed /The Clinical Test of Sensory Interaction and Balance (CTSIB) to confirm vestibular dysfunction. After that, Dizziness handicap inventory (DHI) to assess the severity of the vestibular dysfunction. Serum zinc levels along with other, micronutrients like magnesium, calcium & Serum vitamin B12 & vitamin D were also assessed. Serum zinc levels were compared with age matched controls.

Results: Table 2 shows micro nutrients levels in study & comparative group, Zinc levels were significantly($p<0.001$) reduced in study group when compared to comparative group. Serum zinc levels in study group was 60.63±10.10 which was significantly ($p<0.005$) lower than compared control group 70.50±19.1. Also, serum zinc levels significantly (r:0.91, $p<0.000$) reduced when the severity of the dysfunction increases. (Fig1)

Conclusion: Zinc supplementation in vestibular disorder patients can be considered as add on therapy, which might have a beneficial role with respect to cognitive function as well.

Table 1: Micronutrients in both the groups

	Study group (Mean & SD)	Comparative group (Mean & SD)	T value	P value
S. zinc	60.63±10.10	70.50±19.1	2.889	0.004 *
S. Magnesium	2.13±0.34	2.27±0.19	2.768	0.022
Vitamin D	22.53±12.2	16.86±7.43	2.923	0.014
Vitamin B12	216.38±158.10	198.3±87.8	0.6323	0.529
Folic acid	10.60±5.59	8.78±6.43	1.351	0.1806



A(MILD B (MODERATE)

Fig 1: Correlation of s. Zinc levels with severity of vestibular dysfunction

Biography

Dr Madhusudhan Umesh, MBBS, MD Physiology, currently working as Assistant Professor in Department of physiology has more than 10 years of academic teaching experience in Physiology. He has published more than 40 research papers out of which more than 15 are in PubMed indexed journals. He has undergone various training in medical education technologies mandated by National medical commission. His field of interests includes neurophysiology especially pertaining to sleep & cognitive physiology. He has Completed 4 funded projects & currently working on 2 ICMR funded projects on cognitive physiology.

Heavy metals induced alterations in gene GST; responsible for autism spectrum disorder in children

Hira Mubeen, Muneeza Qayyum Khan, Zohaira Qayyum Khan and **Ammara Masood**
University of Central Punjab Lahore, Pakistan

Autism is a neurological disorder diagnosed through early-emerging communication and social impairments and through restricted and repetitive patterns of behavior. Increasing evidences have supported that industrial chemical are major contributors to the development of neurocognitive disorder, known as autism spectrum disorders, whose prevalence has been gradually increased in present years. Heavy metals are specifically recognized as neurocognitive toxicants since they may cause fetal damages which further lead to neurological defects, learning disabilities, developmental delays and behavioral abnormalities. In this research paper we have analyzed heavy metals interaction with human Glutathione Transferase genes via molecular docking analysis to elucidate the role of mercury, its salt (mercury dithiocyanate) and copper and aluminium thiocyanate in ASD. The present study examined three of six subfamilies of GST genes; GSTM, GSTP, GSTT. However, results indicated that salts of heavy metals mercury and copper interact with GST genes and can possibly disrupt the functionality of gene. Moreover, the ADMET analysis outlined those elemental heavy metals are not toxic, but their salts possess certain level of toxicity entering the blood stream being absorbed by GI tract. Although the present study provides useful insights on GST family genes and autism spectrum disorder (ASD), still a lot of research is needed to completely explore the diseases progression in children via these heavy metals.

Biography

Hira Mubeen has completed her PhD from Government College University Faisalabad in collaboration with University of Copenhagen Denmark. She is working as Assistant Professor at Department of Biotechnology, Faculty of Science and Technology, UCP, LHR. She has published over 56 papers in reputed journals and has been editorial board member of two journals.

Primary tumor characteristics leading to brain metastases in patients reporting in our centre, a prospective observational study

Furqan Ul Haq Uzma Qasim[1], Muhammad Furrukh[2], Asif Masood[2], Hira Asim[2] and **Muhammad Ali Afridi[2]**

[1]Consultant in Department of Radiation Oncology, Shifa International Hospital, Islamabad
[2]The Director, Research Training and Monitoring Cell, College of Physicians and Surgeons Pakistan

Introduction: Brain is a common site of metastases from primary malignancy of other organs of the human body. Most brain metastases result from spread of cancer cells via the lymphovascular system. Majority of the brain metastases develop in the cerebrum (80%), followed by cerebellum (15%) and brainstem (5%)1. Most common primary malignancy that leads to development of brain metastases include lung cancer (40% – 50%), breast cancer (5% – 15%), testicular cancer (10% – 15%) and melanoma (10%)2. Patients who are diagnosed with an advanced solid malignancy carry a risk of 10-26% to develop brain metastases at some stage of their life3. Majority of the patients diagnosed with metastatic disease of the brain were more than 50 years of age4. An interval of 4.6 years and 1.2 years was observed in a series of patients between the diagnosis of a primary malignancy of the breast and lung respectively and the development of brain metastases 6. It is hypothesized that some specific characteristics of the primary malignancies may increase the risk of brain metastases including histological type, grade of tumor, size and stage of tumor, lymphatic and vascular invasion, expression of receptors (Her 2neu positive tumors in breast cancer has high propensity to metastasize to brain), genetic mutation and tumor micro environment7. The mainstay of treatment of brain metastases depends on the type of primary malignancy, site and size of metastatic tumor, number of metastases, performance status and concomitant systemic disease burden8.

The primary approach to treatment of brain metastases include surgical excision in patients having solitary brain metastases in an operable position, stereotactic radiosurgery (SRS) with or without whole brain radiotherapy (WBRT) to oligometastases and whole brain radiation therapy alone if the survival expectancy with steroids is less than 2 months9. Based on contemporary data, median survival of patients with brain metastases exceeds six months for all major cancer types and a range of approximately 8 to 16 months, depending on the primary tumor10.

Objectives:

- To identify the primary malignancy leading to brain metastases in our center
- To characterize the specific features of primary malignancy in such patients.

Operational Definitions:

There are several characteristic features of tumor, these features explained below are the fundamentals to help us knowing the basis of brain metastases.

Histological Type of Tumor: Refers to tumor type with H&E staining on microscopic examination of the biopsy specimen of the primary malignancy.

Grade: It is the classification of cancer cells based on the differentiation of malignant cells in comparison to the normal cells of the primary organ

Low Grade is well differentiated.

Intermediate grade is moderately differentiated.

High grade is poorly differentiated or undifferentiated tumor cells.

Stage: Stage of tumor is based on TNM classification of tumors, where T stands for tumor size, N for number of locoregional nodes involved and M for distant site/organ involvement

Receptor based Tumor classification: It is based on immunohistochemistry (IHC) to identify the presence or absence of specific receptor proteins present on the malignant cells. Example of estrogen, progesterone and Her 2 Neu in case of breast cancer.

Presence/Absence of Genetic mutation: Examples of genetic mutations are BRCA1/BRCA2 mutations in breast and ovarian cancer, EGFR mutation in lung cancer, BRAF and KRAS mutations in colorectal cancer and melanoma.

Hypothesis:

Null Hypothesis: There are no specific primary tumor characteristics that lead to increased incidence of brain metastases

Alternate Hypothesis: There are certain primary tumor types and characteristics that lead to increased incidence of brain metastases

Material and Methods:

Study design: Prospective observational study.

Setting: Department of Radiation Oncology, Shifa International Hospital Limited, Islamabad.

Duration of Study: The study will be completed in 06 months duration.

Sample size: The sample size is calculated with WHO sample size calculator 2.0.

Confidence level: 95%

Anticipated population proportion: 80%1

Absolute precision required: 8%

The sample size calculated comes out to be: 97

Sampling Techniques: Non probability convenience sampling.

Sample Selection:

a)Inclusion Criteria:

1) Radiological or histological proof of brain metastases

2) Age more than 18 years

3) Brain metastases from solid malignancy

Exclusion Criteria:

1) Brain metastases from hematological malignancy

2) Patients having more than 1 primary site of malignancy

3) Pediatrics population (patients of age less than 16 years)

Data Collection Procedure: After taking approval from the Institutional Review board, patients fulfilling inclusion and exclusion criteria will be selected from Shifa International Hospital Islamabad from January 2023 to December 2023 . Demographic information like name, age and gender, Variables such as tumor type, grade, stage of tumor will be assessed. The data would be retrieved from the hospital based EMR system and from the radiation files of the patients.

OUTCOME:

- Performa (Annexure -I)

Data Analysis:

Data will be entered and analyzed using SPSS version 21.0. Frequency and percentage will be computed for categorical variables and mean and standard deviation will be estimated for continuous variables. The association between primary tumor type, grade, stage, receptor status, treatment received and time to brain metastasis be assessed using Chi-square or Fisher's exact test, as appropriate.The p-value of ≤0.05 will be considered as significant.

Effects of pre-conditioning of endurance training with different intensities on the soleus muscle atrophy in a period of inactivity: the role of PGC-1α4 gene

Majid Asadi Shekaari[2], Aram Asadi Karam[1], Javad Nemati[1], Farhad Daryanoosh[1] and **Mohammad Hematinafar[1]**

[1]Department of Exercise physiology, Faculty of physiology and educational science, Shiraz University, Iran
[2]Neuroscience research center, Neuropharmacology Institute, Kerman University of Medical Science, Iran

Background: There are a few studies that show effective factors in preventing Muscle atrophy. This study aimed to measure PGC-1α4 soleus muscle and to investigate the effect of endurance training pre-conditioning with different intensities on the atrophy response of the soleus muscle to a period of inactivity.

Materials and Methods: In this experimental study, 24 male Wistar rats were randomly divided into equal groups including control (C), control inactivity (CI), high-intensity endurance training group (HE) (treadmill speed 30 km/h) and low-intensity endurance training group (LE) (speed Treadmills (10 km /h). After two weeks of familiarization, the endurance training group ran on a treadmill for two weeks and five sessions each week. The animal's lower limbs were then immobilized for 7 days. Then the soleus muscle was extracted and after weighting, the expression of the PGC-1α4 gene was measured using the Real time-PCR technique. Data were analyzed using SPSS v.24.

Results: The expression of the PGC-1α4 gene was significantly higher in the HE group than the CI group. However, compared to the C group, all groups with inactivity intervention showed significantly lower PGC-1α4 gene levels. The ratio of muscle mass to body weight in the C group was significantly higher than the LE and the CI groups and higher in the HE group than the CI group.

Conclusion: Endurance training seems to be reduce distractive effects of inactive atrophy. The higher intensity of these exercises was more effective, which was associated with increased expression of the PGC-1α4 gene.

EXOSOMES in biotechnological interventions-possible role in drug targeting in cancer therapy

Dwijendra Gupta
Dept of Biochemistry, Universityof Allahabad, India

The quintessential role of physical sciences in development of medical sciences is aptly visible in everyday life. Medical science has now progressed to a stage with non-invasive medical procedures taking over the invasive procedures. An area of research in this technical advancement is of Exosomal Biology that has gone explosive during last 30 years as it has gained tremendous importance in medical field. Exosomes are a novel class of cell-derived nanovesiclesnthat are generated by all cells under physiological and pathological conditions. Being of endocytic origin, these extracellular vesicles of size 30-300 nm carry nucleic acids that (messenger RNAs, MicroRNAs), proteins, lipids and metabolites enable cellular crosstalk by transferring encapsulated molecular cargos across biological membrane barriers, They are mediators of near and long-distance intercellular communication in health and disease and affect various aspects of cell biology and are implicated significantly in etiology and progression of diverse disease states.

The presence of these tiny vesicles in all biological fluids has attracted the attention of biologists working in the broad areas of membrane biology, regenerative medicine, cancer immunotherapy, vaccinology, proteomics, nanobiotechnology and drug delivery. Due to their favorable biopharmaceutical properties, exosomes hold promise as unique nanoparticulate therapeutic carrier to deliver drugs, nucleic acids and vaccines due to their advantages in stability, non-immunogenicity and targeting recipient cells. Consequently, with the projected objective of non-invasive therapy, the development of exosomes-based therapeutic strategies has received tremendous consideration for advancing therapeutic interventions and disease prognosis. An update of current research in exosomal therapy will be presented.

Biography

Professor Dwijendra Gupta, was former Vice-Chancellor of JP University, Chapra(Bihar), former Chairman of Biochemistry and Coordinator-Chair of Bioinformatics,University of Allahabad,.

Done Postdoctoral work on Lysosomal Membrane Molecular Biology under Prof. Kurt von Figura and Prof Andrej. Hasilik, Muenster(Germany), Visiting Fulbright Scholar at Penn State University,USA and a former Faculty at CWRU, Cleveland(Ohio). Besides, was IAS Senior Visiting Scientist, University of Bologna(Italy). Served as Elected Board Member of International Society of Extracellular Vesicles Sweden(ISEV), on Board of Governors of ISEV-Americas, Executive

Member ,Vice-President of Society of Biological Chemists (India) and was conferred Associate Fellowship of International Academy of Physical Sciences (IAPS) and Life-Time Achievement Award in 2016 in the field of Membrane Molecular Biology by Venus International Research Foundation held at Chennai. With over137 Publications in premier, peer-reviewed scientific journals, including in “Science”(Gupta, D.,Tartakoff. and E. Tisdale Science 242:1446-1448,1988), Made significant contributions in the field of membrane molecular biology, cell biology, proteomics and biomedical sciences.

Profile and predictors of barriers to physical activities: A cross-sectional assessment focusing community dwellers visiting a public healthcare institute of Quetta, Balochistan and Pakistan

Salwa Mohammad, Qaisar Iqbal and **Fahad Saleem**
University Of Balochistan, Pakistan

Aim: the current study aimed to assess barriers to physical activity (PA) among community dwellers with chronic diseases visiting a public healthcare institute in Quetta City, Pakistan.

Subject and method: a cross-sectional design was adopted and the Urdu version of Barriers to being active questionnaire was used for data collection. The Mann-Whitney U and Jonckheere-Terpstra test were used to identify significantly associated variables that were later assessed for their relationship with binary logistic regression model.

Result: four hundred nineteen patients participated in the study with response rate of 97.2%. barriers to PA were categorized into one or more of seven categories: lack of time, social influences, lack of energy, lack of willpower, fear of injury, lack of skill, lack of resources. Social influence was significantly associated with all demographic variables ($p<0.05$). Lack of energy and willpower was significantly associated with oncome and occupation, whereas fear of injury and lack of skills were significantly associated with age. The binary logistic regression showed significant goodness of ft (chi square= 102.94, $p=0.001$, df=9). Social influence (adjusted OR=1.25,95% CI=1.118-1.415, $p<0.001$) emerged as significant predictor of PA.

Conclusion: among all identified barriers, social influence was rated as predictor of barriers to PA. social norms and practices are hard to change and continue; grass roots level for a behavioral change to happen.

Table Mean scores and component analysis

Components of Physical Activity Questionnaire Mean ± SD
Lack of time 5.2±2.8
Social influence 6.7±2.8
Lack of energy 5.4±2.9
Lack of willpower 5.3±2.8
Fear of injury 6.4±2.7

Lack of skills 5.0±2.7
Lack of resources 6.2±2.3

Biography

As a hospital Pharmacist in the health department of Balochistan and an MPhil scholar in Pharmacy Practice I possess keen interest in research and innovation, my journey is marked by dedication to healthcare. Balancing my role in public service with academic pursuits, I have become a vital contributor to the well-being of my community. I was a member of ISPOR 2018-2019 student chapter. Volunteer and a member of an international organization "Volunteer 4 cause of Pakistan Chapter". Nominated for medical emergency response mission for Turkey/Syria earthquake affected populations.

The effectiveness of Non-Invasive Brain Stimulation (NIBS) in combination with Cognitive Analytic Therapy (CAT); A complex cocaine abuser case

Mohammad Khodayarifard[1], Reza Rostami[2] and **Mahnoosh Kamranvand[3]**

[1]Professor of Psychology, Faculty of Psychology and Education, University of Tehran, Iran
[2]Professor of Psychiatry, Faculty of Psychology and Education, University of Tehran, Iran
[3]Ph.D. student of cognitive psychology, Research Institute of Cognitive Sciences, Iran

Drug addiction, a global problem affecting 275 million people, is a complex disorder characterized by compulsive substance use despite negative consequences. Neuroplasticity changes in the brain's circuits, particularly those involving dopamine, play a crucial role in addiction. Non-invasive brain stimulation techniques, such as transcranial magnetic stimulation and transcranial direct current stimulation, show promise as adjunctive treatments for substance use disorders, including cocaine use disorder. Combining these brain stimulation therapies with psychological interventions may enhance treatment outcomes and reduce relapse rates.

In this study, a 38-year-old Iranian woman, diagnosed with cocaine use disorder, underwent a multi-faceted neuropsychological treatment program. Her husband also received psychological treatment but not biological treatment. After treatment, both the woman and her husband were able to completely stop using cocaine for more than three years. The study used various assessments, including self-report tests and brain mapping, to evaluate the effectiveness of the interventions. The woman showed a significant reduction in symptoms and improvement in mood regulation.

This study highlights the effectiveness of a multifaceted approach to treating cocaine addiction, including neurological and psychological interventions. It suggests that non-invasive brain manipulation and Cognitive Analytic Therapy (CAT) may be effective in treating complex cases. However, further research is needed to establish the efficacy of CAT for bipolar affective disorder. The study emphasizes the importance of considering biological, psychological and social factors in the treatment of substance use disorders.

Adverse drug reactions and changes in haematological and clinical chemistry to two acts among Nigerian children with acute uncomplicated malaria

O. E. Anjorin[1], I. A. Anjorin[2] and**C.O. Falade[3]**

[1]Department of Emergency Medicine, Obafemi Awolowo University Teaching Hospital, Nigeria.
[2]Department of Family Medicine, University College Hospital, Nigeria
[3]Department of Pharmacology and Therapeutics, University of Ibadan, Nigeria

Background: Adverse drug reaction (ADR) is a global and frequently occurring medical emergency with increased cases of mortality annually. ADRs can occur with the use of all drugs including artemisinin-based combination therapy (ACTs), which are currently the treatment of choice for acute uncomplicated malaria globally. Numerous doses of ACTs are administered daily for treatment of malaria in malaria endemic areas.

Aims: This study determined the incidence, pattern of presentation and factors associated with ADRs to two ACTs- artemisinin-piperaquine (AP) and artemether-lumefantrine (AL) among children with confirmed acute uncomplicated malaria in Ibadan, Nigeria.

Methods: Children, aged 2-10 years enrolled into a larger study evaluating the safety and efficacy of artemisinin /piperaquine (AP) or artemether /lumefantrine (AL) using the WHO 28-day protocol were studied. Monitoring for ADR was based on history from the parent and /or child (for occurrences of treatment emergent signs and symptoms), physical examinations and abnormalities in laboratory investigations- full blood count, blood chemistry and liver function tests. Causality assessment for the ADR was by the Naranjo algorithm scale.

Result: 108 of 114 (94.7%) children completed the study. Over half [61(56.5%] were males. The mean age of enrollees was 65.1±30.0 months. Day 28 adequate clinical and parasitological response (ACPR) for AP was 96.1% and 90.4% for AL. Observed ADRs were cough, diarrhea, loss of appetite, abdominal pain, rash, irritability, insomnia and headache. The prevalence of ADR was similar in the two treatment groups (AL=14%, AP= 11%; =1.000) while the incidence of ADR to both ACTs was 12/1000 patients per day. The hematological and clinical chemistry parameters were not adversely affected by the study drugs. ADRs were mild and resolved spontaneously. No notable associated factor to ADR was detected in this study.

Conclusion: Artemether-lumefantrine and Artemisinin-piperaquine were found to be safe in the study population.

Table1: Demographic and clinical characteristics of children treated with artemether-lumefantrine (AL) and artemisinin-piperaquine (AP) for acute uncomplicated malaria in Ibadan, SW Nigeria at enrolment.

Characteristics	total	al	AP	ρ –value
Gender, N (%)				
• Male	61 (56.5)	30 (53.6)	31 (59.6)	0.527
• Age (months), mean (SD)	65.1 (30.0)	62.4 (31.4)	68.0 (28.2)	0.372
Weight (Kg), mean (SD)	16.9 (5.5)	16.6 (5.4)	17.1 (5.6)	0.649
Height (cm), mean (SD)	104.2 (19.1)	104.7 (19.2)	103.6 (19.3)	0.759
Past drug allergy, N (%)	11 (10.2)	3 (5.4)	8 (15.4)	0.085
Past drug history, N (%)	94 (87.0)	50 (89.3)	44 (84.6)	0.47
• Chloroquine	8 (7.4)	7 (12.5)	1 (1.9)	0.062
• Paracetamol	86 (79.6)	46 (82.1)	40 (76.9)	0.634
• ACT use > 2weeks prior Presentation	6 (5.6)	2 (3.6)	4 (7.7)	0.425
Haematocrit, mean (SD)	30.8 (4.4)	30.4 (4.0)	31.3 (4.8)	0.289
Geometric mean parasite density (/µl)	35,500	19,000	50,400	<0.001*
Temperature (°c), mean (SD)	37.4 (1.4)	37.3 (1.2)	37.4 (1.4)	0.637

TABLE 2- Adverse drug reactions (ADR) profile of children with acute uncomplicated malaria treated with artemether-lumefantrine (AL) and artemisinin-piperaquine (AP) in Ibadan, SW Nigeria.

	AL N (%)	AP N (%)	ρ –value
Cough	5 (7.1)	6 (11.5)	0.207
Diarrhea	4 (8.9)	1 (1.92)	0.414
Loss of appetite	1 (1.8)	1 (1.9)	1
Vomiting	2 (3.6)	2 (3.9)	1
Abdominal Pain	2 (3.6)	2 (3.9)	1
Insomnia	1 (1.8)	0	0
Irritability	1 (1.8)	0	0
Headache	2 (3.6)	0	0
Rash	3 (5.4)	1 (1.9)	0.619

TABLE 3- Adverse drug reactions (ADR) profile of children with acute uncomplicated malaria treated with artemether-lumefantrine (AL) and artemisinin-piperaquine (AP) in Ibadan, SW Nigeria.

	AL N (%)	AP N (%)	ρ-value
Cough	5 (7.1)	6 (11.5)	0.207
Diarrhea	4 (8.9)	1 (1.92)	0.414
Loss of appetite	1 (1.8)	1 (1.9)	1
Vomiting	2 (3.6)	2 (3.9)	1
Abdominal Pain	2 (3.6)	2 (3.9)	1
Insomnia	1 (1.8)	0	0
Irritability	1 (1.8)	0	0
Headache	2 (3.6)	0	0
Rash	3 (5.4)	1 (1.9)	0.619

ρ value set at 0.05

Biography

I am OLUWAFUNMIBI ANJORIN, a clinician/researcher. I work as a lecturer and an emergency physician. I am a fellow of the Nigerian Postgraduate medical college, I have a masters degree in Pharmacology and therapeutics from University of Ibadan, Nigeria.

My research interests include chemotherapy of malaria and clinical trials of chemotherapeutic agents. I conducted a clinical trial that evaluated the safety and efficacy of Artemisinin-piperaquine versus Artemether-lumefantrine in children with acute uncomplicated malaria in Nigerian children. I am currently evaluating the caregiver burden of relatives of patients admitted to the emergency department of our institution.

I have been awarded a number of travel scholarships to present my studies at both local and international conferences.

Patient-derived primary culture-based prognostic model to predict tumor recurrence in patients with glioma

Syed Sultan Beevi[1], Manas Kumar Panigrahi[2], Vinod Kumar Verma[1], Sailaja Madigubba[3], Radhika Chowdary Darapuneni[4] and **Sambit Sahu[5]**

[1]Cancer Biology Division, KIMS Foundation and Research Centre, Krishna Institute of Medical Sciences, Minister Road, India
[2]Department of Neurosurgery, Krishna Institute of Medical Sciences, India
[3]Department of Pathology, Krishna Institute of Medical Sciences, India
[4]Diagnostics Division, Krishna Institute of Medical Sciences, India
[5]Department of Critical Care, Krishna Institute of Medical Sciences, India

Background: The prognosis for glioma patients remains grim despite aggressive treatment approaches. Current molecular profiles have limitations in predicting glioma recurrence, highlighting the need for new and improved prognostic biomarkers. We investigated whether the growth kinetics of patient-derived glioma cultures (PDGCs) can offer valuable prognostic insights to predict tumor recurrence. Additionally, we examined the expression of glial-mesenchymal transition (GMT) markers in PDGCs to assess their potential as additional prognostic biomarkers.

Methods: 130 patients diagnosed with primary glioma via MRI scans were prospectively enrolled. Surgical tumor tissues were collected from all participants and used to establish patient-derived glioma cultures (PDGCs). The growth kinetics and colony-forming ability of the respective PDGCs were calculated to derive proliferation index (PI) for each patient. Progression-free survival (PFS) and overall survival (OS) served as the primary outcome measures.

Results: We established short-term glioma cultures in 98 clinical samples, regardless of the CNS WHO tumor grade, IDH1/2 mutation and 1p/19q co-deletion status and maintained active cell proliferation for at least 10–12 passages. However, we observed two distinct growth kinetic patterns among PDGCs. Based on their proliferation index (PI), we categorized patients into either high proliferation index (HPI) or low proliferation index (LPI) group. Furthermore, we noted a differential expression profile of GMT markers between HPI and LPI patients. The proliferation index (PI) exhibited a significant correlation with progression-free survival (PFS), while the expression of GMT marker vimentin was associated with overall survival (OS).

Conclusion: The PDGC-derived Proliferation Index (PI) can serve as a predictive tool for tumor recurrence, independent of clinical or tumor-related factors. Moreover, reduced vimentin expression is a positive indicator for glioma patients' overall survival status.

Biography

Dr. Syed S Beevi is a cell biologist specializing in Neuro-oncology, boasting a decade of experience in the field. She earned her master's degree in Medical Biochemistry and completed her doctorate in cancer biology in India. Dr. Beevi further honed her research acumen during her post-doctoral training under the mentorship of Prof. Thomas Grewal at the University of Sydney. Her research focuses on unraveling the intricate tumor micro-environment of glioma and its immuno-suppressive properties. Her ultimate goal is to develop innovative diagnostics for targeted therapy against tumor cells. Additionally, she is involved in characterizing the genomic landscape of glioma patients in India using Next-Generation Sequencing (NGS) to assess tumor mutational burden, crucial for future immunotherapeutic interventions. Currently, Dr. Beevi is dedicated to investigating cytokine-induced killer (CIK) cells as a supplementary treatment approach alongside the Stupp regimen.

Remote cerebral and cerebellar hemorrhage after removal of supratentorial fangliogliomа: A case report and review of the literature

Thomas Bogale Megerssa[2], Yabello Hirbo Guyolla[1] and **Dagnachew Tamrat Belete[3]**

[1]Department of Surgery, Neurosurgical unit; Addis Ababa University College of Health Sciences, Tikur Anbessa Specialized Hospital (TASH), Ethiopia

[2]Department of Pathology; Addis Ababa University College of Health Sciences, Tikur Anbessa Specialized Hospital (TASH), Ethiopia

Background: Postoperative surgical site hematomas are one of the most frequently reported complications in neurosurgery. However, multiple hemorrhages occurring distant from the operation site are uncommon and the exact pathophysiology remains unclear.

Objective: To report a case of multiple remote hemorrhages in a 26-year-old patient who underwent resection of a frontal Ganglioglioma and to review the current literature on pathomechanisms.

Case description: A 26-year-old woman with an 11-year history of progressive headaches and vision loss underwent surgery for a huge complex anterior cranial fossa mass extending into the ethmoid sinus. In the immediate postoperative hours, she developed a grand mal seizure and a CT scan revealed multiple bilateral cerebral and cerebellar hemorrhages (Fig. 1). Seizure controlled with medications, hemorrhages managed conservatively. The patient was discharged without a new neurologic deficit.

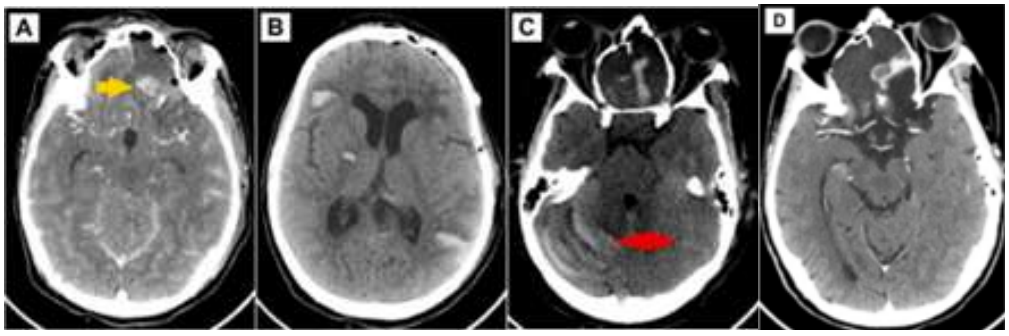


Fig. 1. Postoperative CT scan (A) post-contrast showing complete removal of the tumor with minimal tumor bed hematoma (arrow). (B) Hemorrhages at right posterior frontal, basal ganglia and left parietal ICH. (C) Right cerebellar folia bleed zebra sign (arrow). Preoperative CT scan (D) showing calcification of the solid part and scalloped orbital walls.

A review of the English literature identified 59 cases of Remote Site Hemorrhage (RSH) after supratentorial tumor removal. Chronic increased intracranial pressure, preoperative hypertension and specific coagulation disorders are considered the most prominent risk factors for RSH development. (Table-1)

Conclusion: Remote intraparenchymal hemorrhages are rare and the exact pathophysiology remains unknown. Clinicians should maintain a high suspicion of RSH to enable early diagnosis. Additionally, avoiding sudden decompression of long-standing, large supratentorial mass lesions is recommended.

Table -1 Summary of 59 cases of RSH following removal of supratentorial tumors.

Author, year	Age/ sex	Diagnosis	Location of RSH	RSH pre-sentation	Manage-ment	GOS	Foll	Possible mechanism
Miyamoto, 1985 [21]	56/M	Craniopharyngioma	ST	DOC	DC	5		Inconclusive
Konig, 1987 [6]	56/M	Meningioma	ST	DOC	conserva-tive	1		
	42/F	Craniopharyngioma	MRCCH	DOC	EVD	1		
	59/F	Glioma	ST	DOC	EVD	4		CSF over drainage
Van Calen-berg, 1993	58/M	Epithelioma	MRCCH	None	conserva-tive	5		Inconclusive
[7]								
Kuroda, 1994 [12]	63/M	Pitutary	RCH	DOC	EVD	5		CSF over drainage
	72/M	Meningioma	RCH	DA,seizure	DC	5		
	58/F	Meningioma	RCH	Vomiting	conserva-tive	5		
Papan, 1996 [8]	54/F	Meningioma	MRCCH	seizure	EVD & DC	3		Inconclusive
Bris-man,1996 [22]	73/M	Meningioma	RCH	DOC	conserva-tive	5	1	
	24/F	Craniopharyngioma	RCH	None	conserva-tive	5	1	
	57/F	Meningioma	ST	DOC,mo-tor w.	conserva-tive	5	1	
Cloft, 1997 [13]	47/M	Meningioma	RCH	NA	conserva-tive	5	4	CSF over drainage
Friedman, 2001 [1]	64/M	Metastases	RCH	None	conserva-tive	5	1	Hyperten-sive peak & CSF over drainage
	36/M	Glioma	RCH	DOC	EVD	5	1	

	53/M	Glioma	MRCCH	Motor w.	conserva-tive	4	1	
	47/F	CS schwanomma	MRCCH	DOC	conserva-tive	5	1	
	47/F	Meningioma	MRCCH	DOC	conserva-tive	4	1	
	34/M	Craniopharyngioma	MRCCH	DOC	conserva-tive	5	1	
	55/M	Metastases	RCH	None	conserva-tive	4	1	
Kobbe, 2001 [10]	49/M	GBM	ST	Motor w.	conserva-tive	4		Induced coagulopa-thy/ distant wounded glioma
	50/M	GBM	ST	DA,seiz,-mot	conserva-tive	1		
				w.				
Honegger, 2002 [14]	28/M	Ganglioglioma	RCH	DOC	conserva-tive	5		CSF over drainage
	33/M	Astrocytoma	RCH	None	conserva-tive	5		
	54/M	Meningioma	RCH	DOC	DC	4	1	
Mar-quardt, 2002 [15]	31/M	Histocytoma	RCH	NA	EVD & DC	4		Inconclusive
	42/M	Glioma	RCH	NA	conserva-tive	5		
	73/M	GBM	RCH	DA	conserva-tive	1		preop HPTN ,DM
	44/M	Glioma	RCH	NA	EVD	4		Inconclusive
	51/M	GBM	RCH	NA	EVD	1		
	51/F	Meningioma	RCH	NA	EVD	5		
	51/F	Meningioma	RCH	DOC	conserva-tive	5	2	Hyperten-sive peak & CSF over drainage
Brock-man, 2005 [23]	58/F	Meningioma	RCH	Vomiting	conserva-tive	5		CSF over drainage

Amini, 2006 [24]	36/F	Oligodendroglioma	RCH	Ataxia	conservative	5	6	preop HPTN & anticoagulant use
	28/M	Arachnoid cyst	RCH	Nausea	conservative	5	1	
	53/M	GBM	RCH	None	conservative	5	2	
Park, 2009 [2]	54/F	Meningioma	RCH	DA	conservative	5	2	preop HPTN ,DM
	68/F	Meningioma	RCH	DA	EVD & DC	3	2	preop HPTN & anticoagulant
	55/M	Oligodendroglioma	RCH	None	conservative	5		preop HPTN
	60/M	GBM	RCH	DA	conservative	2		
Mandonnet, 2010 [25]	49/M	Meningioma	RCH	DOC	DC	5		Inconclusive
Rezazadeh, 2011 [26]	60/M	Meningioma	RCH	DOC	conservative	5		
Hung, 2012 [16]	45/F	Meningioma	RCH	DA	conservative	5		CSF over drainage
	18/M	Craniopharyngioma	RCH	DA	conservative	5		
	66/F	Meningioma	RCH	DA	conservative	5		
	52/F	Glioma	RCH	None	conservative	5		
	65/M	Meningioma	RCH	DA	conservative	5		
Dincer,2012 [20]	43/M	Astrocytoma	RCH	None	conservative	5	48	Inconclusive
	49/F	Meningioma	RCH	None	conservative	5	12	
	44/M	Oligodendroglioma	RCH	None	conservative	5	36	
	37/F	astrocytoma	RCH	None	conservative	5	60	
Hara, 2014 [3]	45/M	Oligoastrocytoma	RCH	DOC,motor w.	conservative	4		Sudden decompression

Wang, 2018 [17]	75/M	Meningioma	RCH	Seizure	EVD & DC	4		
Ramesh, 2019 [18]	48/M	GBM	RCH	DOC	DC	4		
	53/M	Meningioma	RCH	DA	conserva-tive	1		
	63/M	Oligodendroglioma	RCH	DA	conserva-tive	5		
	38/M	LGG	RCH	None	conserva-tive	5		
	30/M	Dermoid	RCH	None	conserva-tive	5		
	36/F	Pitutary	RCH	None	conserva-tive	5	6	

CS- cavernous sinus, CSF- cerebrospinal fluid, DA- delayed awakening, DC- decompressive cranectomy, DOC- decreased level of consciousness, DM- diabetes mellitus, EVD- external ventricular drain, F- female, Foll- follow up in months, GBM- glioblastoma multiformae, GOS- Glasgow outcome scale (5- good recovery,..1- death), HPTN- hypertension, LGG- low-grade glioma, M- male, MRCCH- multiple remote cerebral and cerebellar hemorrhage NA- not available, RCH- remote cerebellar hemorrhage, RSH- remote site hemorrhage, ST- supratentorial.

Biography

I lead the Neurosurgical Division at Addis Ababa University College of Health Sciences (AAU/CHS), bringing extensive experience in Neurovascular and Skullbase surgery.

Following my medical degree (AAU/CHS, 1999-2005) and Neurosurgery residency (AAU/CHS, 2009-2013), I have consistently strived to advance patient care in this specialized field. My commitment to lifelong learning is reflected by:

- Serving as an Assistant Professor and Neurosurgeon (2016-2017)
- Completing a Fellowship in Neurovascular and Skullbase Surgery at Bundang CHA Hospital in Seoul, South Korea (2018)
- Holding the positions of Consultant Neurovascular and Skullbase Surgeon (2019-2022) and Head of the Brain Unit (2022-2023)
- Currently leading the Neurosurgical Division.

I actively participate in esteemed societies like SENSP, AANS, CNS and WFNS, demonstrating my dedication to the field. My passion for research is evident in my publications (nearly eight) in prestigious journals like Science Direct and Lancet, alongside ongoing efforts to educate fellow residents.

Transcutaneous electrical nerve stimulation as a therapeutic adjuvant to ultraviolet radiation in chronically infected wound-a narrative review

Saturday Nicholas Oghumu [1], Nicholas Ruth Oluwafunmike BMR[2] and **Regina Etieta Ella[3]**

[1]Department of Physiotherapy, University of Calabar, Nigeria
[2]Department of Physiotherapy, University of Uyo Teaching Hospital, Nigeria
[3]Department of Nursing Science, University of Calabar, Nigeria

Objective: Although the literature on the clinical benefits of ultraviolet radiation (UVR) for wound healing is compelling, its usage for wound healing may have been limited due to reported unwanted effects of fibrosis and cellular mutation from prolonged exposure. Harnessing the clinical benefits of UVR in wound healing while preventing probable side effects would enhance its use for optimal care.

Scope: Therapeutically, UVR exists in three distinct bands of highly germicidal UVR-C (200–280 nm), wound healing stimulating UVR-B (280–315 nm) and un-associated wound healing UV-A (315-400 nm). Germicidal effects of UVR have been demonstrated in-vivo for methicillin-resistant Staphylococcus aureus in 30 seconds, erythemal in 0-60 hours and unwanted effects after 60 hours of exposure. However, the UVR treatment times for germicidal and erythemal effect is insufficient for complete wound healing given reported average healing times for non-blanchable erythemal wounds (14-days), partial-thickness wounds (45-days) and full-thickness wounds (90-120 days). Thus, a complementary therapy to UVR in wound healing for optimal care void of unwanted effects of prolonged exposure is desirable. Transcutaneous electrical nerve stimulation (TENS) is one of several potential therapeutic modalities for this purpose. Appropriately, TENS is one electrical modality used in pain rehabilitation with no reported adverse effects on body tissues. Low-frequency (2-5 Hz) and high-frequency (50-100 Hz) TENS (100-200 µs, 30-45 minutes) applications have been found to be effective for the treatment of chronic ulcers including diabetic and venous ulcers. Low-frequency TENS evoke epidermal growth-factor and platelet-derived growth-factor, while high-frequency TENS evoke angiogenesis.

Conclusion: Overall, in managing chronically infected wounds, clinicians should consider UVR-C for germicidal effect followed by UVR-B over cumulative periods of 60 hours treatment sessions, after which TENS application is implemented to achieve complete wound healing.

Biography

I hold a Bachelor of Medical Rehabilitation in Physiotherapy from Obafemi Awolowo University, Nigeria, a master and doctoral degrees in Orthopedic and Sports Physiotherapy from the University of Lagos. I hold certification in spine physiotherapy from the Medical Rehabilitation Therapist Registration Board of Nigeria. I am a lecturer in the Department of Physiotherapy and the current Acting Head of Department of Physiotherapy at the University of Calabar. My research interest is in orthopedic/musculoskeletal conditions, sport injuries, spine care, neurobiology of pain, exercise medicine, wound care and physiotherapeutic appliances. I am an experienced physiotherapist with practice in general physiotherapy of several years and trained in geriatric principles of patients' care.

Detection of drowsiness using the pulse rate variability of finger

Saeideh Heydari, Ahmad Ayatollahi, Arezu Najafi and **Mohammad Poorjafari**
Tehran, Iran

This paper proposes a new method for detecting a driver's drowsiness from changes in the pulse rate of a finger. Electroencephalographic (EEG) signals were received from a sample of ten individuals. The analysis of electroencephalographic signals is investigated and the activation of theta waves during the drowsiness interval is observed. Photoplethysmography signals were received from ten participants simultaneously with the EEG signal. Finger pulse data are analyzed and the features showing a significant change during drowsiness in the pulse rate variability (PRV) of the finger are further identified and extracted. The results indicate that the values and the average values of PRV increase before the point of sleep onset (SO). It is observed that the standard deviation of all PP intervals (SDNN) has a significant reduction during drowsiness. An increase in the values of RMSSD is also observed in the drowsiness interval. Besides, the ratio of low to high frequency (LF/HF) representing the balance of sympathetic and parasympathetic branches decreases in the vicinity of SO which indicates raised parasympathetic activity. The nonlinear analysis of the Poincaré plot indicated the reduction of the SD1 parameter.

The results indicate that the PRV method can be used for the detection of driver drowsiness. Finally, the presented method is considered in an intelligent steering wheel design as a feasible non-invasive procedure for the detection of driver river drowsiness.

Biography

I am an Electrical Eng. and I received my master's degree in bioelectrical (biomedical)Engineering, with professional training at the Baharloo Hospital (Sleep and Research Center of Tehran University) including detection of driver s' drowsiness in order to road safety. My master's thesis was on detection of driver's drowsiness and design of an intelligent steering wheel as a feasible non-invasive procedure for the detection of driver drowsiness. I am passionate about road safety, driver behaviour, advance driver assistance system (ADAS), health technology especially wearable sleep-trackers, signal processing.

Risk factors associated with congenital central nervous system abnormalities in the National Hospital of Zinder, Niger

Rabiou Mahaman Sani[1,2], Hamissou Moussa Maman Roufai[1], George Thomas Ibrahim[1,2], Hassane Ali Amadou[1] and **Hounkpatin Seton Stachys Beranger[1]**

[1]National Hospital of Zinder, Nigeria
[2]University of Zinder, Nigeria

Introduction: Congenital malformations of the central nervous system (CNS) are morphological abnormalities of the brain and spinal cord that occur during fetal development. They constitute the second most common congenital disability, after congenital cardiac defects. Many risk factors have been identified; however, these studies included various types of congenital abnormality. Furthermore, there is a lack of information on risk factors for congenital CNS malformation and notably in the Zinder region of Niger.

Objective: This study aimed to identify the risk factors associated with congenital CNS malformations in the Zinder region.

Methods: In a case-control design, patients with congenital CNS malformation were enrolled between June 2022 and April 2023 in the Department of Neurosurgery of the National Hospital of Zinder.

Results: Family history of malformation (aOR:3.31, 95% CI:1.25– 8.78) and consanguine marriage (aOR:2.28,95% CI:1.23– 4.20) were significantly associated with congenital CNS malformation. In contrast, folic acid supplementation (aOR:0.34, 95% CI:0.13, 0.89), multiparity (aOR:0.34, 95% CI:0.13, 0.89) and grand multiparity (aOR, 0.47; 95% CI:0.23, 0.97) had a protective effect.

Variable	Univariate OR (95%CI)	P-value	Multivariate OR (95%CI)	*P*-value
Gender				
Male	referent		referent	
Female	1.32 (0.75, 2.31)	0.322	1.37 (0.75, 2.50)	0.301
Mother's first pregnancy age				
< 17 years	referent		referent	
18 -28 years	1.22 (0.70, 2.12)	0.479	1.23 (0.67, 2.26)	0.498

Family malformation history				
No	referent		referent	
Yes	3.11 (1.24, 7.79)	0.015	3.31 (1.25, 8.78)	0.016
Folic acid supplementation				
No	referent		referent	
Yes	0.39 (0.16, 0.959	0.04	0.34 (0.13, 0.89)	0.029
Intermarriage				
No	referent		referent	
Yes	2.39 (1.34, 4.25)	0.003	2.28 (1.23, 4.20)	0.008
First-semester Fever Illness				
No	referent		referent	
Yes	1.00 (0.53, 1.85)	1	0.89 (0.45, 1.76)	0.739
Parity				
Low parity	referent		referent	
Multiparity	0.42 (0.20, 0.85)	0.016	0.34 (0.13, 0.89)	0.003
Grand multiparity	0.53 (0.27, 1.02)	0.061	0.47 (0.23, 0.97)	0.041

Note: * p <0.05. Values are presented as n (%). P-values were calculated for each quantitative variable. For each categorical variable, the p-value was calculated using Pearson's 2-test.

Conclusion: Risk factors such as family malformation history and consanguine marriage increased the risk of developing congenital malformations of the central nervous system. In contrast, folic acid supplementation in the index period and multiparity had a significant protective effect.

Biography

Congenital abnormalities of the central nervous system are commonly observed in our daily medical encounters. I have witnessed the profound distress of numerous mothers who are unable to bear their babies due to the lack of apparent normalcy. Their overwhelming anxieties revolve around societal perceptions regarding giving birth to a child with abnormalities. To address this issue, I have undertaken the objective of identifying the factors associated with the occurrence of these abnormalities. This initiative aims to assist both the local community and the global population in mitigating and preventing such disorders.

Exploring mourning: Themes and depictions in contemporary amharic novels

Dawit Dibekulu[1], Tesfaye Dagnew[2] and **Tesfamaryam G Meskel[3]**

[1]PhD candidate in Literature, Department of English Language and Literature, Faculty of Humanities, Bahir Dar University, Ethiopia
[2]Assoc. Prof. in Literature, Department of English Language and Literature, Faculty of Humanities, Bahir Dar University, Ethiopia
[3]Asst.Prof. in Literature, Department of English Language and Literature, Faculty of Humanities, Literature, Bahir Dar University, Ethiopia

This research explores the intricate landscape of mourning within the realm of Amharic literature, specifically focusing on the novels "Yäqənat Zar" (Zar of Jealousy) and "Emba nna Saq" (Tear and Laughter). Employing a qualitative research approach, utilizing a descriptive and analytical research design and drawing on psychoanalytic literary theory as a theoretical framework, the study delves into the multifaceted expressions and consequences of mourning depicted in these narratives. Through meticulous textual analysis, the research examines the characters' experiences of grief, their struggles with the pain of loss, the complexities of navigating societal expectations and the transformative power of mourning rituals and cultural practices. By unraveling the manifestations of melancholy in both individual and collective contexts, the study sheds light on how historical and societal burdens cast profound shadows of sorrow, shaping the psyche of individuals and influencing community dynamics. The findings of this research contribute to a deeper understanding of the emotional landscapes specific to Amharic literature, while also offering insights into universal themes of loss, longing and the quest for meaning amidst uncertainty. As a result, it is recommended that further studies be conducted to analyze the representation of these three psychic elements in other genres of Amharic literature, with a specific focus on national agendas.

Biography

PhD candidate in Literature, Department of English Language and Literature, Faculty of Humanities, Bahir Dar University, Bahir Dar, Ethiopia. He is a member of the Reviewer Board for some international journals (International Journal of Psychology and Counselling(IJPC), International Journal of Learning, Teaching and Educational Research(IJLTER), African Educational Research Journal(AERJ), Journal of Engineering Research and Reports(JERR), International Research Journals(JRJ), International Journal of Economic and Business Management(IJEBM) and International Journal of English and Literature (IJEL). He has published articles, books and e-books in many international journals and presented some papers at various conferences.

Neuroprotective effects of natural compounds in paclitaxel-induced peripheral neuropathy

Muhammad Faheem[1] and **Abdul Waheed Khan**[2]

[1]*Riphah Institute of Pharmaceutical Sciences, Riphah International University, Pakistan*
[2]*Department of Molecular Science and Technology, Ajou University, South Korea*

The current study explored the effects of natural compounds like berbamine, bergapten and carveol on paclitaxel associated neuro-inflammatory pain. Berbamine, an alkaloid obtained from *Berberis amurensis Rupr* has been previously researched for anticancer and anti-inflammatory potential. Bergepten is 5-methoxsalenpsoralen previously investigated in cancer, vitiligo and psoriasis Carveol obtained from caraway is well known source of essential oil. The induction was carried out by administering 2 mg/kg paclitaxel for a week with a day gap. On 7th, 14th and 21st days, behavioral testing was executed and tissue was removed for molecular analysis. Treatment attenuates thermal hyperalgesia, improved latency of falling, normalized the changes in body weight and increased threshold for pain sensation. The drugs increased the protective Glutathione (GSH) and glutathione S-transferase (GST) levels in the sciatic nerve and spinal cord, while lowering inducible nitric oxide synthase (iNOS) and lipid peroxidase (LPO). Hematoxylin and Eosin (H and E) and immunohistochemistry (IHC) examinations confirmed that the medication reversed the abnormal alterations. The aforementioned natural substances inhibit cyclooxygenase-2 (COX-2), tumor necrosis factor-alpha (TNF-α) and nuclear factor kappa B (NF-κb) over-expression, as evidenced by enzyme-linked immunosorbent assay (Elisa) and western blot and hence provide neuroprotection in chronic constriction damage.

Differential levels of post-cerebral ischemia recovery in males and females might be mediated through sex-distinctive epigenetic modifications and associated neurogenic dynamics

Sumana Chakravarty[1], Mydhili Radhakrishnan[1] and **Arvind Kumar[2]**

[1]Applied Biology, CSIR-Indian Institute of Chemical Technology, INDIA
[2]CSIR-Centre for Cellular and Molecular Biology, INDIA

A variety of risk factors, including a high body mass index, smoking and lifestyle choices, could potentially have an impact on ischemic stroke, one of the main causes of neurovascular morbidity and mortality. Even so, there is still a dearth of thorough research on the present and future burden of disease, especially as it relates to internal carotid artery occlusion (ICAO). Building on previous research that showed sex-specific responses to cerebaral stroke, our present work suggests that complex epigenetic regulatory pathways are responsible for these differences. Using high-throughput illumina RNA sequencing, we want to clarify the functions of histone methylases ezh1 and ezh2, as well as H3k27-specific demethylase kdm6b/jmjd3, in controlling neurogenesis. This study identifies sex-specific roles of methyl transferases in neural stem cell proliferation and finds a new epigenetic modulator, kdm6b/jmjd3, targeting H3k27. Addressing the dearth of female stroke research and acknowledging the substantial influence of sex on ischemic stroke incidence, mortality and functional outcomes are crucial components of this study. The results add to a complete framework that links neurogenesis, post-ICAO recovery and gender-specific epigenetic regulation. To sum up, this comprehensive method not only broadens our comprehension of ischemic stroke but also emphasises how important it is for stroke researchers to take sex into account. The discovered epigenetic modulators and their functions in neurogenesis provide prospective targets for improved therapeutic approaches, highlighting the significance of personalized and gender-specific factors in stroke research.

Biography

Dr. Sumana Chakravarty, Senior Principal Scientist in Applied Biology, IICT has completed her Ph.D. from Banaras Hindu University, Varanasi, in Zoology in 1997. She has more than twenty five years of experience in biomedical research including 10 long years of international experience, as postdoctoral fellow in different fields of biology like physiology and neurobiology. She served as faculty in the Department of Psychiatry, University of Texas Southwestern Medical Center at Dallas, Texas, USA before joining IICT Hyderabad. With her outstanding credentials she got several awards like "Ramalingaswami Re-entry Fellowship"; SERB-POWER fellowship 2021 as an outstanding woman researcher in India. She mentored 10 Ph.D. and 45 master's students so far; published 98 publications in peer-reviewed biomedical journals (Google scholar citations: 7547). The major focus of her research is to understand the sexual dimorphisms in cellular and molecular mechanisms behind stress-induced mood and cerebral ischemic disorders by using mouse and zebrafish models.

Youth sexual exploitation in Nigeria: Pathway influencers and crossroad solutions for an undercarpet menace

Akeem Opeyemi Akinbode[1], Sunday Bassey Udoh[2], Patricia Eseigbe[3], Ndifreke Ubokutom Udom[4] and **Omolade Margaret Olowu[5]**

[1]University of Ilorin, Nigeria
[2]University of Uyo Teaching Hospital, Nigeria
[3]Bingham University Teaching Hospital, Nigeria
[4]University of Uyo Teaching Hospital, Nigeria
[5]Bingham University Teaching Hospital, Nigeria

Purpose of Review: This study highlights the prevalence of sexual exploitation of young people in Nigeria, as well as its contributing factors, impact and potential solutions, based on the evidence currently available.

Recent Findings: Recent developments include the adoption of guidelines and a national action plan to combat online child sexual exploitation and violence against children, with the integration of Sexual Exploitation of Children into the National Child Act and the Nigerian Child Online Protection Policy (NCOP) of 2012.

Summary: In Nigeria, youth sexual exploitation is a great problem, that has not historically received exposure and has not been part of public discussions. There are numerous factors involved. Few policies are in existence in the country, though not still implemented due to under-reporting of cases. In order to achieve successful outcome, concerns of sexual exploitation of Nigerian youth should be resolved, utilizing evidence-based techniques and strategies.

Biography

Dr Akeem Opeyemi Akinbode studied Medicine at the University of Ilorin, Nigeria. He obtained MSc in Public Health and Master of Business Administration degrees, both at the University of South Wales, United Kingdom. He is currently a Commonwealth scholar at the Global Health Academy, University of Edinburgh, United Kingdom studying for Master of Family Medicine. He is a Member of the West African College of Physicians (WACP) and a Family Medicine resident physician at Federal Medical Centre, Birnin-kebbi, Kebbi state, Nigeria. He is a Global Health advocate with focus on vulnerable populations, mobilizing resources at the grassroots in Nigeria. He is a volunteer with the Centre for Adolescent Health and Social Development (CAHSD) and the convener of the Women, Adolescent and Child Health (WACH) Research Group, Nigeria. He is a member of the World Organization of Family Doctors (WONCA) Special Interest Group on Adolescent and Young Adult Health.

Severity of menopause and associated factors among middle aged women

Begosew M, Co. Kefita K. and **Diresigne M**
ArbaMinch university, Ethiopia

Menopause is a common practice in women and it is recognized as a complete pause of menses for more than twelve months. A decrease in sex hormone levels particularly estrogen in the blood is associated with different types of menopausal symptoms. Those symptoms include different psychological, vasomotor, physical and sexual symptoms. They are among the major public health problems of middle-aged women. Particularly severe forms of menopausal symptoms are bothersome for middle-aged women. However, little is known about the severity status and associated factors of menopausal symptoms among middle-aged women in the study area. The main aim of the present study was to assess the severity of menopausal symptoms and associated factors among middle-aged women residing in Arba Minch DHSS.

Community-based crossectional study was employed. A single population proportion formula was used to determine the sample size. A total of 423 study participants were recruited to conduct the study. A simple random sampling technique was used to employ study participants. Proportional sample size allocation formula was used to allocate study participants in each Kebele of Arba Minch DHSS (demographic and health surveillance site). A menopausal rating scale was used to assess the severity status of Menopausal symptoms. The collected data were analyzed by using SPSS version 20. A descriptive analysis was made to describe the Sociodemographic characteristics of the study participants. Moreover, binary and ordinal logistic regressions were used to identify the factors associated with the severity of menopausal symptoms among middle-aged women. On binary logistic regression variables with p-value < 0.25 were eligible for ordinal logistic regression. Variables with a p-value < 0.05 were considered statistically significant.

The present study revealed that the prevalence of menopausal symptoms was 88.7%. According to the Menopausal rating scale, 91.7% of the study participants were Asymptomatic, 6.6% of them were mild in severity, 1.4% of them were moderate and the remaining 0.23% individuals were severe menopausal symptoms. The most severe menopausal symptom was the sexual problem. The factors that have a significant association with the severity of menopausal symptoms were Age with [AOR = 1.46(95%CI: 1.27–1.64)] and history of chronic disease with [AOR = 2.56(95%CI: 1.78–3.4)] and p < 0.001.Generally, menopausal symptoms among middle-

aged women were common. Asymptomatic and mild forms are the dominant severity forms of menopausal symptoms. Age and history of chronic diseases have statistically significant associations with the severity of menopausal symptoms. The ministry of health, researchers and different stakeholders are recommended to be concerned about this neglected issue.

Spinal anesthesia for laparoscopic cholecystectomy in case of post-polio syndrome: A case report

Prabin Subedi[1], Bijya K.C[2], Ujma Shrestha[3] and **Binod Gautam[4]**

[1]Department of Anaesthesia and Intensive Care Unit, Resident,
[2]Department of Anesthesia and Intensive Care Unit,
[3]Assistant Professor Department of Anesthesia and Intensive Care Unit,
[4]Professor Department of Anesthesia and Intensive Care Unit, Kathmandu Medical College and Teaching Hospital, Nepal.

Post-Polio Syndrome (PPS) poses challenges during the perioperative period due to its impact on motor neurons, the brain stem and anesthetic sensitivity. Limited research exists on anesthesia in polio patients, showing general anesthesia with volatile agents, sedative-hypnotics, opioids and neuromuscular blocking agents can lead to increased sensitivity and adverse effects. Spinal anesthesia was successfully employed in a 52-year-old male patient with acute calculous cholecystitis and PPS undergoing laparoscopic cholecystectomy. T4 sensory block was achieved using heavy bupivacaine and low intra-abdominal pressure was maintained. Transient hypotension was managed with a vasopressor and the patient experienced no perioperative neurological deterioration and discharge on the second postoperative day. Spinal anesthesia can be a valid technique for laparoscopic cholecystectomy in needy patients with multiple perioperative risks. This highlights the favorable outcomes of spinal anesthesia in high-risk polio patients.

Perioperative diagnosis and anaesthetic management of idiopathic intracranial hypertension in pregnancy

Prabin Subedi[1], Bijya K.C[2], Ujma Shrestha[3] and **Binod Gautam[4]**

[1]Department of Anaesthesia and Intensive Care Unit, Resident,
[2]Department of Anesthesia and Intensive Care Unit,
[3]Assistant Professor Department of Anesthesia and Intensive Care Unit,
[4]Professor Department of Anesthesia and Intensive Care Unit, Kathmandu Medical College and Teaching Hospital, Nepal.

Idiopathic intracranial hypertension is characterised by increased intracranial pressure of unknown aetiology. It is usually seen among obese women who are of childbearing age. With an incidence of 0.9 per 100,000 in women of childbearing age, the incidence in obese women is as high as 19.3 per 100,000. Here, we represent the case of a 31-year-old, non-obese primigravida with hypothyroidism which was diagnosed as idiopathic intracranial hypertension during pregnancy. This patient, was managed with multi-disciplinary considerations so as to avoid complications in perioperative period.

Motivations for continued tobacco smoking and reasons for quitting among youths in Wakiso district, Uganda: A qualitative study

Alex Daama[1,2], Stephen Mugamba[1],Grace Kigozi Nalwoga[1], Fred Nalugoda[1], James Menya Nkale[1], Emmanuel Kyasanku[1], Gertrude Nakigozi[1], Godfrey Kigozi[1], Joseph Kagaayi[2] and **Stevens Kisaka[2]**

[1]Africa Medical and Behavioral Sciences Organization, Uganda
[2]Makerere University School of Public Health, Uganda

Background: Efforts have been invested towards cessation of tobacco use among youths aged 18–35 years, however, motivators for continued tobacco smoking and reasons for quitting are limited in Ugandan settings. Therefore, this study aimed to explore motivations for continued tobacco smoking and reasons for quitting in Wakiso district Uganda.

Methods: This study used explanatory sequential method. Data from a Population-based survey collected from October 2019 to September 2020 was used to select participants for this qualitative study. Twenty-three in-depths interviews were conducted from July to October 2021 among youths (18-35years old) who reported continued tobacco use and those who quit. Data were analysed using a team-based thematic content approach with the help of NVivo.

Results: Data was collected from a total of twenty three participants, fourteen were tobacco quitters and nine were current tobacco smokers. Recurrent habit, desire to complement the use of other drugs, peer pressure, using smoking as a replacement for alcohol consumption, low tobacco prices, smoking as a tradition were reported as motivators for continued tobacco smoking. However, reported reasons for quitting smoking by youths included; packaging health warnings, school based prevention programs, fear of associated health risks due to tobacco use, embarrassment from family members.

Conclusion: Targeted and tailored tobacco prevention counselling through family support programs, intensified health education on the risks of smoking and implementing stronger health warnings on tobacco packaging can be employed to reduce or stop tobacco use among urban youth.

Determinants of mortality among pediatric patients admitted to wolaita sodo university comprehensive specialized hospital with acute bacterial meningitis, Southern Ethiopia: An unmatched case–control study

Ushula Deboch Borko[1], Temesgen Bati[2], Zewde Zema[3], Afework Alemu[1], Getahun Dendir[4], Eskinder Israel[2], Temesgen Lera Abiso[2] and **Beshada Zerfu Woldegeorgis[1]**

[1]School of Medicine, College of Health Science and Medicine, Wolaita Sodo University, Ethiopia
[2]School of Public Health, College of Health Science and Medicine, Wolaita Sodo University, Ethiopia
[3]School of Pharmacy, College of Health Science and Medicine, Wolaita Sodo University, Ethiopia
[4]School of Anesthesia, College of Health Science and Medicine, Wolaita Sodo University, Ethiopia

Background: People of all ages suffer from acute bacterial meningitis, but children are the most vulnerable, accounting for over 50% of all cases and deaths in children under the age of five. Children are at great risk of disease and mortality due to a lack of specific immunity associated with their young age. As a result, determinants of death were found among pediatric patients treated with acute bacterial meningitis at Wolaita Sodo University Comprehensive Specialized Hospital(WSUCSH) in Southern Ethiopia.

Methods: A facility-based unmatched case–control study was conducted on pediatric patients admitted with acute bacterial meningitis at WSUCSH from July 1, 2019, to June 30, 2022. A total of 355 (71 cases and 284 controls) pediatric medical charts were used for data extraction; checked for completeness and consistency, entered into Epi-Data version 4.6 software and transported to SPSS version 25 for analysis. Multivariable logistic regression analysis was performed to identify the independent determinants of acute bacterial meningitis mortality at a P value of <0.05 along with a 95% confidence interval (CI).

Results: Age between 2 months and 5 years (AOR)=3.19, 95% CI=1.15–8.88), admission in the summer season (AOR=0.27, 95% CI=0.15–0.49) and family size greater >=6 (AOR=3.13, 95% CI=1.76–5.56), initial antibiotic change (AOR=10.81, 95% CI=2.10–55.7), clinical features at presentation such as loss of consciousness (AOR=16.90, 95% CI=4.70–60.4), abnormal body movements(AOR=6.51, 95% CI=1.82–23.4), increased intracranial pressure (AOR=3.63, 95% CI=1.78–7.4), malnutrition (AOR=2.98, 95% CI=1.34–6.59) and presence of >1 comorbidity (AOR=3.03, 95% CI=1.03–9.03) were found to be determinants of acute bacterial meningitis mortality.

Conclusions: In summary, Children aged 2 months to 5 years, from large families (>=6), history of initial antibiotic change, malnutrition, more than one comorbidity and worse clinical characteristics were related to greater death due to acute bacterial mortality in this study.

STIFF-PERSON SYNDROME- A review of case reports and new advancements in its management

Swetha Kannan
Gulf Medical University, UAE

Stiff-person syndrome (SPS) is a neurological disease-causing symptoms of rigidity and painful muscle spasms. It is caused by increased serum anti-glutamic acid decarboxylase antibodies (anti-GAD). Persistent muscle stiffness can lead to difficulty walking and recurrent falls. This review discusses SPS, its pathophysiology, clinical features, diagnoses and the existing treatment strategies. Published articles on the topic were collected by searching various databases that include PubMed, Sciencedirect, Hindawi, ResearchGate and Neurology-related journals in the period of 2003-2023. The keywords used for searching included ‘‘Stiff-person syndrome’’, ‘‘Case reports’’ and ‘‘Management’’. A total of 21 articles were extracted, out of which 9 articles were case reports and around 5 articles focussed on the treatment methods currently used. The comparison narrative was divided into three groups according to the age of the cases. The presenting symptoms of all the patients were roughly the same, mainly comprising of painful muscle spasms, gait abnormalities, tremors and difficulty standing. Physical examination were consistent overall in all cases which include showed brisk symmetric reflexes and spastic walk and rigid abdomen. Electromyography findings were consistent through out all the age groups- continuous motor unit discharge. Anti-GAD antibody titre levels were also elevated in all the cases except one. The treatment regimen for all age groups comprised of similar patterns- doses of Intravenous Immunoglobulin, Plasma exchange therapy,diazepam, baclofen, benzodiazepenes and gabapentin. This review provides encouragement for additional investigation and clinical trials exploring advanced treatment modalities aimed at improving short-term clinical symptoms and fostering the long-term well-being of patients.

Biography

Swetha is a fourth year medical student in UAE. She has authored a book at the age of 18. She has published six medical papers and presented her papers at several international medical conferences.

Clinico-Epidemiological profile of 75 cases of Tb meningitis in children and adoloscents

Stuti Sharma[1], Anurag Agarwal[1] and **Ashwani Khanna[2]**

[1]Department of Pediatrics, Maulana Azad Medical College, India
[2]Chest Clinic, Lok Nayak Hospital, India

Background: Neurological involvement is one of the deadliest forms of tuberculosis especially in pediatric population.

Aim: To study the clinico-epidemiological profile of 75 cases of pediatric TB meningitis and its co-relation with CBNAAT/TRUENAT positivity.

Study Design: Prospective study in children and adolescents less than 18 years in Tertiary Health care centre in New Delhi.

Subjects and Methods: 75 Children and adolescents less than 18 years with Probable TBM as per NTEP guidelines were enrolled. Clinical, Radiological and CSF analysis were carried out in all the patients.

Results: 75 children were enrolled out of which 61% were females. The most common symptom at presentation was fever followed by loss of appetite and weight loss. Neck rigidity was present in 66% cases followed by posturing in 25% cases. 46% patients presented in Stage 2. Tuberculin skin test was positive in 16% cases and 20% patients had evidence of pulmonary TB on chest Xray. Hydrocephalous was the most common finding in neuroimaging present in 61% cases. In majority of the cases, CSF analysis revealed pleocytosis with lymphocyte predominance, low glucose and high protein values. Nucleic amplification tests (CBNAAT/TRUENAT) were positive in 33% cases and 4 out of 75 were detected to have rifampicin resistance. There was no co-relation identified between Stage at presentation, tuberculin positivity and CSF analysis with CBNAAT/TRUENAT positivity. Six patients expired within 2 weeks of presentation.

Conclusion: The diagnosis of TBM is a composite of clinical, radiological and CSF analysis parameters. Being a paucibacillary sample, the yield of TB bacilli in NAAT studies remains moderately low. Moreover, detection of TB bacilli in CBNAAT/TRUENAT is independent of the CSF cytological and biochemical profile and is also independent of the Stage of TBM.

Biography

Dr Stuti Sharma has completed her MBBS from Indira Gandhi Medical College, Shimla and MD Pediatrics from Maulana Azad Medical College under the guidance of Dr Anurag Aggarwal (Professor, Pediatrics) and Dr Ashwani Khanna (State TB Officer, New Delhi). Dr Ashwani Khanna heads one of the biggest Tuberculosis Diagnostic Centre of the State and has authored multiple studies on the diagnosis and treatment of tuberculosis. Dr Anurag Agarwal has been a pioneer in pediatric care and has carried out multiple studies on Tubercular diagnostic modalities and treatment outcomes.

This study was carried out in one of the largest tertiary healthcare center in North India and it is one of the very few studies on pediatric tubercular meningitis involving GeneXpert and TRUENAT

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