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NeurologySummit-2025

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Hla Hla Aye, University Hospitals Dorset NHS Foundation Trust, UK

Byung Moon Kim

College of Medicine, Yonsei University, South Korea

Long-term outcomes of rescue stent for acute stroke

Abstract

Rescue stent (RS) is an accepted rescue option after failed mechanical thrombectomy (MT) for acute ischemic stroke due to intracranial atherosclerotic stenosis (ICAS)-related large vessel occlusion (LVO). However, the long-term outcomes ($\geq$ 12 months) of RS have not yet been elucidated.

We retrospectively analyzed the data of 154 patients with RS for ICAS-related LVO, which were identified from prospectively maintained multicenter database of RS after MT failure, to assess good outcome (mRS 0–2), mortality, stroke recurrence, symptomatic intracranial hemorrhage (SICH) and stent patency.

Among 154 patients, successful recanalization was achieved in 132 (85.7%) after RS. Clinical follow-up was available in 148 patients at 3 months, of whom 126 were followed longer than 12 months. Good outcome was observed in 53.4% (79/148) at 3 months and 53.2% (67/126) at the final assessment among survivors (median [interquartile range (IQR)] months, 33 [13-91]). The overall incidence of mortality was 16.2% (24/148) Mortality occurred in 8.8% (13/148) of patients at 3 months and 8.7% (11/126) thereafter, respectively. Stroke recurrence was 0.7% (1/148) within 3 months and 3.2% (4/126) thereafter. The overall incidence of SICH was 9.5% (14/148). SICH occurred in 8.8% (13/148) within the first 3 months, and in 0.8% (1/126) thereafter. The stented vessel was patent in 81.1% (99/122) at the first follow-up (median [IQR] days, 3 [1-125]) and 96.7% (89/92) at the final follow-up (median [IQR] months, 18 [13-68]).

Patients with RS for ICAS-LVO showed low stroke recurrence rate in the long term. The long-term patency of rescue stent appears to remain durable, particularly when it remains patent during the initial follow-up
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Biography

Finished his PhD at 25 years old years from Andhra University and postdoctoral investigations from Stanford University School of Medicine. He is the chief of XXXX, a head Bio-Soft administration association. He has Published in excess of 25 papers in rumored diaries and has been filling in as a publication board individual from notoriety.

Mary Jo S. Farmer

Tufts University School of Medicine, Boston

Non-invasive ventilation in Neurologic and Neurosurgery – using an interprofessioonal approach to treat acute hypercarbic respiratory failure

Abstract

When administered as first-line intervention to patients admitted with acute hypercapnic respiratory failure secondary to COPD exacerbation in conjunction with guideline-recommended therapies, noninvasive ventilation (NIV) has been shown to reduce mortality and endotracheal intubation. Opportunities to increase uptake of NIV continue to exist despite inclusion of this therapy in clinical guidelines. Identifying patients appropriate for NIV, and subsequently providing close monitoring to determine an improvement in clinical condition involves a team consisting of physician, nurse, and respiratory therapist in institutions that successfully implement NIV. Published in CHEST journal (June, 2024), is the first known evidence-based algorithm speaking to initiation, titration, monitoring, and weaning of NIV in treatment of acute exacerbation of COPD that incorporates the necessary interprofessional collaboration among physicians, nurses, and respiratory therapists caring for these patients. Applying this approach to the appropriate neurologic and neurosurgical patient will be discussed.

Biography

Mary Jo S. Farmer, MD, PhD completed her PhD from Boston University School of Medicine and her post-doctooral research and MD from Tufts University School of Medicine. Dr. Farmer practices pulmonary, critical care and sleep medicine at Mass General Brigham – Salem Hospital, Salem, MA and Associate Professor at Tufts University School of Medicine, Boston, MA. Dr. Farmer has academic interest and multiple publications in the field of interprofessional education. An active member of the American College of CHEST Physicians, Dr. Farmer serves as Associate Editor for pulmonary vascular disease section of CHEST Pulmonary open access journal, as a member of CHEST Education Committee and member-ex-officio of the CHEST Pulmonary Vascular Disease Network, Clinical Problems Network, and Interprofessional Network. Dr. Farmer was awarded the Distinguished CHEST Educator Award in 2023 and 2024.

Nagwa Abdel Meguid

Yale University, USA

Clinical and Genetic Diagnosis of Rare Syndromes

Abstract

Genetic diversity within Arab populations, along with the fact that rates of inbreeding are often high and family sizes are often large, constitutes conditions that facilitate the emergence and detection of rare syndromes explained notably by autosomal recessive inheritance. Consanguineous marriages have a long history and are respected in Arab culture. Studies of parental consanguinity in the Egyptian population show frequencies ranging from 33% to 42 %. According to the World Health Organization the term congenital anomaly syndromes includes any morphological, functional, biochemical or molecular defects that may develop in the embryo and fetus from conception until birth. The impact of the birth defects on the fetus and newborn infant is great as they are responsible for 495,000 deaths worldwide. There is a high frequency of autosomal recessive disorders, which are monogenic disorders caused by mutations affecting both copies of a gene. Arab countries have shown considerable progress in prevention and combating of infectious diseases, genetic rare disorders have remained a major health problem. When the child is born with a disability, in addition to regular adaptation, the family must cope with stress, grief, disappointments, and challenges, which may lead to a serious crisis or even disruption of family life. In this presentation, we tried to assess the frequency and nature of congenital malformations (CMs) among Egyptian infants and children. 20,000 patient were retrieved from the Clinic where only 2500 had rare genetic disorder. According to ICD-10 classification of congenital malformations, we discovered that the commonest system involved were, nervous system, followed by chromosomal abnormalities. Consanguineous marriage was detected in 40.9% of patients. With rapid advances in medical genetics, recent advances in molecular medicine and high throughput screenings, such as array comparative genomic hybridization (CGH) , exome and whole genome sequencing, are yielding new regions and new genes of interest in early diagnosis and recent genetic testing for these rare diseases.

With this growing awareness of rare diseases, the number of patients directly affected and also of the people living with them as caregivers, are estimated to be much larger than once believed. The presentation will discuss some rare syndromes in details. Clinical recognition of rare phenotypes leading to a targeted molecular testing approach can strengthen the hand of the clinician in answering additional questions about the recurrence risk and prognosis. With a better knowledge of their pathogeneses processes, better opportunities to address counseling, prevention and treatment.

Segundo Mesa Castillo

Psychiatric Hospital of Havana, Cuba

Direct evidence of viral infection and mitochondrial alterations in the brain of fetuses at high risk for schizophrenia

Abstract

There is increasing evidences that favor the prenatal beginning of schizophrenia. These evidences point toward intra-uterine environmental factors that act specifically during the second pregnancy trimester producing a direct damage of the brain of the fetus [1]. The current available technology doesn't allow observing what is happening at cellular level since the human brain is not exposed to a direct analysis in that stage of the life in subjects at high risk of developing schizophrenia. Methods. In 1977 we began a direct electron microscopic research of the brain of fetuses at high risk from schizophrenic mothers in order to finding differences at cellular level in relation to controls. Results. In these studies, we have observed within the nuclei of neurons the presence of complete and incomplete viral particles that reacted in positive form with antibodies to herpes simplex hominis type I [HSV1] virus, and mitochondria alterations [2]. Conclusion. The importance of these findings can have practical applications in the prevention of the illness keeping in mind its direct relation to the aetiology and physiopathology of schizophrenia. A study of the gametes or the amniotic fluid cells in women at risk of having a schizophrenic offspring is considered. Of being observed the same alterations that those observed previously in the cells of the brain of the studied fetuses, it would intend to these women in risk of having a schizophrenia descendant, previous information of the results, the voluntary medical interruption of the pregnancy or an early anti HSV1 viral treatment as preventive measure of the later development of the illness.
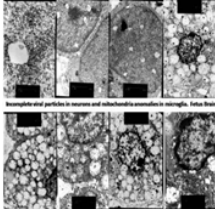
1. Yolken RH, Torrey EF. Viruses, schizophrenia and bipolar disorders. Clin Microbiol Rev 1995; 8: 131-145.
2. Mesa CS. An ultrastructural study of the temporal lobe and peripheral blood in schizophrenic patients. Rev Neurol 2001; 33: 619-623.

Biography

Segundo Mesa Castillo. As Specialist in Neurology, he worked for 10 years in the Institute of Neurology of Havana, Cuba. He has worked in Electron Microscopic Studies on Schizophrenia for 32 years. He was awarded with the International Price of the Stanley Foundation Award Program and for the Professional Committee to work as a fellowship position in the Laboratory of the Central Nervous System Studies, National Institute of Neurological Diseases and Stroke under Dr. Joseph Gibbs for a period of 6 months, National Institute of Health, Bethesda, Maryland, Washington D.C. USA, June 5, 1990. At present he is member of the Scientific Board of the Psychiatric Hospital of Havana and give lectures to residents in psychiatry.

Sergey Suchkov

The Russian University of Medicine, Russia

The foundation and architecture of Personalized and Precision Medicine (PPM) in Clinical Neurology-related Practice

Abstract

Over the course of history, healthcare and thus healthcare philosophy have been focused predominantly on efforts to probe the already diseased individual by focusing down on a type of disorder (nosology) rather than on health or so-called pre-illness conditions. Much less effort has been placed on keeping individuals from developing disorders in the first place. PPM is expected to transform this situation giving healthcare professionals of tomorrow much more reliable control over morbidity, mortality and disabling rates, and significantly optimize the cost and efficacy of treatment for those who have fallen ill and already diseased, or are still persons-at-risk. PPM is a name for the grand new paradigm in healthcare management being based first on prevention, pre-clinical detection of the illness, and delivery of drugs to target tissues with exceptional levels of precision.

Policy formation in the field of individual health promotion and protection is one of the priority tasks of national healthcare systems. Canonical health care is becoming increasingly unaffordable in most of the countries, yet it remains ineffective in preventing or effectively treating chronic diseases. The medicine of the XXI century is Personalized & Precision Medicine (PPM), by protecting and preserving human health throughout the life. To achieve the goals of value-based healthcare and the implementation of the PPM concept, it is necessary to combine the assets of the newest advances in basic science, OMICS technologies and IT resources with clinical medicine, followed by the introduction and promotion of new generation's translational applications.

The goal of PPM is to deliver optimally targeted and timed interventions tailored to an individual's molecular drivers of disease. In this context, neurological diseases are promisingly suited models for PPM because of the rapidly expanding genetic knowledge base, phenotypic

classification, the development of biomarkers and the potential modifying treatments. Neurological diseases have high degrees of genetic and pathophysiological heterogeneity, irrespective of clinical manifestations. Traditional medical paradigms have focused on late-stage syndromic aspects of these diseases, with little consideration of the underlying biology. Advances in disease modeling and methodological design have paved the way for the development of personalized neurology. So, PPM-guided neurology is the application of principles of PPM, ie, the prescription of specific therapeutics best suited for an individual taking into consideration both genetic and environmental factors that influence response to therapy. The aim is to improve the efficacy and reduce the adverse effects of various therapies. Biomarkers, biomarker-driven targeting and integration of diagnostics with therapeutics are important for the selection and monitoring of treatments of neurologic disorders, covering: molecular profiling, clinical evaluation, personalized diagnosis, targeted treatment selection, monitoring and adjustment.

The future of PPM-guided neurology lies in multimodal digital data, enabling the principles of PPM to be applied in neurological disease diagnostics, treatment, and monitoring at scale, expanding the benefits to everyone. This approach offers a highly accessible, cost-efficient, and non-invasive approach for diagnosing neurological diseases at their clinical and subclinical stages, placing an individual precisely along a disease continuum, and providing the most effective possible canonical and preventive treatment pathways.

For instance, multiple sclerosis (MS), Parkinson's disease and amyotrophic lateral sclerosis (ALS), being chronic, autoimmune, demyelinating disease of the central nervous system, are now main targets for implementation of PPM-related resources and search for specific biomarkers of the disease subtypes. PPM in those disorders include the development of targeted therapies that aim to modulate specific immune pathways involved in the pathogenesis.

PPM-guided neurology stands at the threshold of a revolutionary transformation with the advent of PPM. The intricate tapestry of neurological disorders, long characterized by heterogeneity and complexity, is now being unraveled at the molecular level. By delving into the genetic underpinnings of neurological conditions, we uncover the potential for tailored interventions that promise not only to improve treatment outcomes but also to reshape our understanding of neurological diseases. And a journey from genomics and related OMICS-driven technologies to personalized therapies is not only transforming clinical neurology-related practice but also offering hope to individuals and families affected by neurological disorders. It heralds a new era of neurology where treatments are tailored to the individual, leading to improved outcomes, reduced side effects, and a deeper understanding of disease mechanisms.

By understanding the unique characteristics of a patient's neurological condition, such as genetic predispositions, biomarkers, and disease mechanisms, PPM aims to optimize treatment outcomes and improve patient care. Overall, PPM in neurology holds the promise of advancing our understanding of neurological diseases and transforming healthcare by tailoring interventions to the unique needs of each patient. So, to fully harvest the unique potential of PPM-guided neurology, new generations of new precision diagnostic, predictive, prognostic, preventive, prophylactic, therapeutic, rehabilitative and digital products will need to be matched with new thinking and new practice on the part of all the participants in the clinical neurology-related practice.
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Biography

Sergey Suchkov graduated from Astrakhan State Medical University and awarded with MD, then in 1985 maintained his PhD at the I.M. Sechenov Moscow Medical Academy and in 2001, maintained his Doctorship Degree at the Nat Inst of Immunology, Russia. From 1987 through 1989, he was a senior Researcher, Koltzov Inst of Developmental Biology. From 1989 through 1995, he was a Head of the Lab of Clinical Immunology, Helmholtz Eye Research Institute in Moscow. From 1995 through 2004, a Chair of the Dept for Clinical Immunology, Moscow Clinical Research Institute (MONIKI. Dr Suchkov has been trained at: NIH; Wills Eye Hospital, PA, USA; Univ of Florida in Gainesville; UCSF, S-F, CA, USA; Johns Hopkins University, Baltimore, MD, USA. He was an Exe Secretary-in-Chief of the Editorial Board, Biomedical Science, an international journal published jointly by the USSR Academy of Sciences and the Royal Society of Chemistry, UK.

At present, Dr Sergey Suchkov is a Professor of The Russian University of Medicine, and Member of the Russian Academy of Natural Sciences, Moscow, Russia. He is a member of the: New York Academy of Sciences, USA; American Chemical Society (ACS), USA; American Heart Association (AHA), USA; EPMA (European Association for Predictive, Preventive and Personalized Medicine), Brussels, EU; ARVO (American Association for Research in Vision and Ophthalmology); ISER (International Society for Eye Research); PMC (Personalized Medicine Coalition), Washington, USA
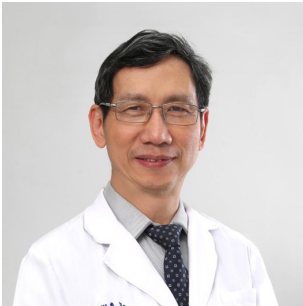
Chinsan Liu

Changhua Christian Hospital, Changhua, Taiwan

Astragaloside IV Reduces Mutant Ataxin-3 Levels and Supports Mitochondrial Function in Spinocerebellar Ataxia Type 3

Abstract

This study investigated the therapeutic effects of astragaloside IV (AST) on spinocerebellar ataxia type 3 (SCA3), also known as Machado-Joseph disease (MJD), a neurodegenerative disorder. Human neuroblastoma SK-N-SH cells expressing mutant ataxin-3 protein with 78 CAG repeats (MJD78) were employed as an in vitro model. Protein expression analysis demonstrated that AST treatment reduced mutant ataxin-3 protein expression and aggregation by enhancing the autophagic process in MJD78 cells. Elevated oxidative stress levels in MJD78 cells were significantly reduced following AST treatment, which also enhanced antioxidant capacity, as evidenced by flow cytometry and antioxidant enzyme activity assays. Furthermore, AST treatment ameliorated mitochondrial dysfunction in MJD78 cells, including improvements in mitochondrial membrane potential, respiration, and mitochondrial dynamics. In conclusion, AST administration increased antioxidant capacity, reduced both cellular and mitochondrial oxidative stress, and improved mitochondrial quality control processes through fusion, fission, and autophagy. These mechanisms collectively reduced intracellular mutant ataxin-3 protein aggregation, thereby achieving therapeutic efficacy in the SCA3 model.

Biography

Dr. Chin-San Liu is a neurologist concurrently vice-president in Changhua Christian Hospital. He received PhD degree from National Yang-Ming University, Institute of Clinical Medicine in Taiwan and continuously devoted to study the translational medicine of mitochondrial diseases

in Neurology and metabolism syndrome. Currently, the molecular regulation of mitochondria in dynamic and turnover attract our interest of study, especial in spinocerebellar ataxia type 3 (SCA3). The various strategies of mitochondrial therapy including medicine treatment, infrared and light radiation interventions and peptide-mediated delivery of mitochondria organelles to decrease mitochondrial radical production and oxidative damage are also involved in our projectors.

Jian yang Du

University of Tennessee Health Science Center, USA

Leveraging proton-dependent synaptic transmission in the medial prefrontal cortex flips social dominance

Abstract

Social dominance is essential for maintaining a stable social society and has well-established positive and negative impacts on sociable animals including humans. However, the regulatory mechanisms governing social dominance, as well as the crucial regulators and biomarkers involved, remain poorly understood. We discover that mice lacking acid-sensing ion channel 2 (ASIC2) exhibit a persistent higher social dominance ranking compared to their wild-type casemates.

Conversely, the overexpression of ASIC2 in the medial prefrontal cortex (mPFC) reverses the dominance hierarchy observed in ASIC2 knockout mice. ASIC2 deletion prolongs the inactivation time of ASICs, resulting in enhanced ASIC-dependent synaptic transmission and plasticity in the mPFC through the protein kinase A signaling pathway. Furthermore, ASIC2 exhibits distinct functional roles in excitatory and inhibitory neurons, thereby modulating the balance of neuronal activities underlying social dominance behaviors - a phenomenon suggestive of a cell-subtype- specific mechanism. Finally, this research establishes a foundational understanding of the mechanisms governing social dominance formation, offering potential insights for the management or prevention of social disorders, such as depression and anxiety.

Biography

Dr. Jian yang Du completed his PhD in 2006 from Sun Yat-sen University, China, and postdoctoral studies at the University of Iowa, USA in 2016. He is currently an Associate Professor at the University of Tennessee Health Science Center. He has published more than 50 papers in peer- reviewed journals and has been serving as an editorial board member of several scientific journals, including Brain Sciences, Scientific Reports, Frontiers in Neuroscience, and Frontiers in Molecular Biosciences.

Paul A. Dreschnack

Ina Belshaku, USA

Treatment of idiopathic facial paralysis (Bell's Palsy) and secondary facial paralysis with extracellular vesicles: a pilot safety study

Abstract

Paralysis of the facial nerve (CN VII) is one of the most debilitating issues that any patient can encounter. Bell's palsy is the most commonly seen mononeuropathy. Although usually self-limited, symptomatology can persist for decades in persistent cases. Objective and design We sought to determine a safe new treatment could be developed to restore facial nerve function using extracellular vehicles (EVs) in patients who have been unable to return to normal under a variety of conditions. We performed a pilot safety study of 7 patients with idiopathic and secondary facial paralysis to determine if any functional restoration was possible. Each patient had symptomology for varying periods, with diverse House-Brackman scores. They were all treated with the same protocol of extracellular vehicles (EVs) over 4 weeks and were evaluated both before and after treatment. All patients in this study received treatment by their private physicians before entering the study. A record review was completed, with independent physical examinations. House-Brackman scores and Facial Disability Indices were obtained prior to, and after completing the study. EVs were injected into the area of the main trunk of the facial nerve on the affected side, and an intravenous drip of EVs on visits during weeks 1, 2, and 4.

All patients enrolled in the study improved with this treatment protocol. After the second week of treatment, we saw a progression of independent motion of the affected eyelid, brow motion, and commissure.

Although all patients began at different House-Brackman starting points, almost all ended at the same endpoint on the scale over the same period of time – four weeks. No adverse effects

were encountered. The path mechanism is still unknown. But it appears that the mechanism is reversible. At last, these patients can have hope.

Sergei M. Danilov

University of Illinois at Chicago, USA

ACE-dependent Alzheimer's disease (AD)

Abstract

An analysis of 1200+ existing missense ACE mutations revealed that >400 are predicted to be damaging and led us to hypothesize that heterozygous carriers of these loss-of-function (LoF) ACE mutations (which result in low ACE levels) may be at risk for the development of late-onset Alzheimer's disease (AD) [Danilov, 2024].

The 1st stage of this ACE-dependent AD project is characterization of blood ACE levels, catalytic properties, and conformations (ACE phenotyping) using a wide set of mAbs to ACE that were developed in our lab. We already have performed ACE phenotyping in >200 carriers of 80+ different ACE mutations and 200+ controls [Kryukova, Biomedicines, 2024, PloS One, 2024, unpublished]. We found that several of the relatively frequent AD-associated ACE mutations (present in at least 2% of the population) are truly damaging and, likely transport-deficient, resulting in plasma ACE levels only ~50% of controls. Some other AD-associated ACE mutations were not associated with a decrease in blood ACE levels, and likely do not affect ACE surface expression. Thus, their mechanism of association with AD is likely different, such as via catalytic changes. However, both these types of ACE mutations may result in reduced degradation of amyloid beta peptide Aβ42, an important component for amyloid deposition, and may pose a risk factor for the development of AD. Therefore, a systematic analysis of blood ACE levels in patients with ACE mutations has the potential to identify individuals at increased risk of late-onset AD.

The 2nd stage of this project will include 1) Cell-based in vitro model (HEK cells transfected with cDNA of different ACE mutations) in order to find transport-deficient ACE mutations, which may be amenable to rescue of impaired trafficking of mutant ACE to the cell surface; 2) medico-genetic analysis of 50-100 families of carriers with the most damaging and transport-deficient ACE mutations. This stage will identify prospective candidates for a future limited

clinical trial of preventive or therapeutic interventions to delay the development of ACE-dependent AD.

The 3rd stage of the project could be a limited clinical trial in individuals with several transport-deficient ACE mutations (starting with the most frequent damaging ACE mutation, Y215C) aiming to enhance mutant ACE protein traffic, as we previously demonstrated for the transport-deficient ACE mutation, Q1069R, using a combination of chemical and pharmacological chaperones and proteosome inhibitors [Danilov, PloS One, 2010].

Biography

Sergei M. Danilov, MD completed his PhD and postdoctoral studies from the National Cardiology Research Center, Moscow, Russia. He is the Principal Investigator and Head of the laboratory of ACE biology in the Division of Pulmonary and Critical Care, (Department of Medicine in the University of Illinois at Chicago). His laboratory developed more than 40 mAbs to ACE. He has published more than 200 papers on ACE biology and ACE immmunochemistry in highly respected journals and has been serving as an editorial board member of Biomedicines.

Mehmet Erkan Ustun

Polatli Duatepe State Hospital, Turkey

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

Abstract

To evaluate the efficacy of perivascular sympathectomy in managing adventitia layerrelated 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 nondolichoarteriopathic) 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.
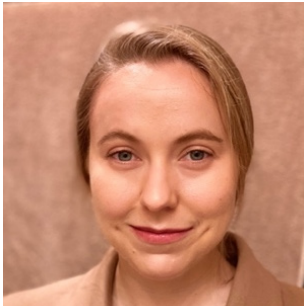
Anastasia Keller

University of California, San Francisco

Nonivnaisve Transcutaneous Spinal Cord Stimulation for Treatment of Chronic Low Back Pain: A Pilot Clinical Trial

Abstract

Chronic low back pain (cLBP) is a leading cause of disability worldwide, with a socioeconomic impact estimated at $87 billion per year in healthcare spending. Spinal cord stimulation (SCS) is a promising therapeutic intervention with superior patient outcomes compared to more traditional modalities for the treatment of cLBP. To date, SCS in cLBP has been delivered via epidural electrodes, requiring neurosurgical implantation. Transcutaneous SCS (tSCS) is a novel neuromodulation technique in the field of spinal cord injury. In this study, we report the preliminary results of the pilot clinical trial on the initial efficacy of 12 tSCS therapy sessions to improve pain and objective sensorimotor outcomes in patients with non-specific cLBP. Individuals with non-specific chronic low back pain (duration > 6 months, intensity on Visual Analogue Scale (VAS) > 5 at enrollment) were eligible for the study. Before initiation of therapy, patients underwent a battery of assessments, including sit-to-stand full-body biomechanics with paraspinal and lower extremity surface electromyography (EMG) and resting state electroencephalography (EEG) to assess motor and neurophysiological function objectively. Stimulation was administered via 3-4 surface electrodes placed on the spine between vertebral segments (T8, T10, L1, C5) 3 times a week for 30 minutes per session for 12 sessions in the research clinic. Pain intensity was tracked daily (on both stimulation and non-stimulation days) through daily UCSF RedCap VAS surveys over a month it took to complete the study. Interim analysis suggests that tSCS treatment is producing a significant decrease in VAS from the pain scores reported at enrollment to post-treatment assessment (paired t-test, $t(10) = 8.04$, $p < 0.0001$). To-date observed effect size is very large (Cohen's $d = 2.43$, 95% CI [1.21, 3.61]. While the objective sensorimotor outcomes analysis is ongoing, our preliminary results suggest that tSCS shows promising efficacy for acute and longitudinal pain relief based

on patient reported outcomes. A transcutaneous delivery of SCS could provide a non-invasive mode of safe and effective neuromodulation therapy suitable for low back pain patients.

Biography

Dr. Keller received her PhD in Physiology from University of Louisville, Louisville KY in 2017. She completed 2 postodctoral trainings: 1st from Univesity of Louisville in clinical neuroscience and 2nd from Univesity of California, San Francisco in data science. Dr. Keller is a professional researcher/junior faculty in the Department of Neurological surgery at University of California San Francisco (UCSF). Dr. Keller is member of the UCSF Brain and Spinal Injury Center (BASIC) as well as the Core Center for Patient-centric, Mechanistic Phenotyping in Chronic Low Back Pain (UCSF REACH) where she conducts clinical research focused on non-invasive neuromodulation application in cLBP and spinal cord injury (SCI). Her research experience in neuroscience spans three key themes: 1) sensorimotor dysfunction driven by nociceptive mechanisms, 2) implementation of non-invasive SCS in SCI and cLBP and 3) application of unsupervised machine learning approaches to phenotype cLBP patient movement biomechanics.

Ashenafi Guye Dumara

Haramaya University, Dire Dawa, Ethiopia

Determinants of multiple maize technology package adoption in Ethiopia: evidence from the Sidama region

Abstract

The adoption of improved agricultural technology packages is vital in Ethiopia, as the expansion of cultivable land appears nearly exhausted and population size has skyrocketed. However, the country has shown a low adoption rate. Thus, this study aimed to investigate the factors that hinder or facilitate the adoption of multiple maize technology packages and the intensity of adoption in the northern Sidama zone of Ethiopia. A multistage sampling procedure was applied to gather cross-sectional data from 424 farm households owning 545 maize plots. A multivariate probit and two-limit Tobit models were used to address the study objectives. The conditional probability results confirmed that maize technology packages are complementary (positive relationship). This infers that agriculture-focused policies that influence the adoption of a single component of technology packages can have a reinforcing advantage over the adoption of other technologies. Furthermore, the results from the models showed that farmers with greater experience, family size, plot size, livestock and oxen ownership, number of maize plots owned, of-farm income, and access to credit, extension services, and membership in institutions are more likely to adopt at least one of the improved technology packages and achieved a better status of intensity of adoption. The adoption rate and intensity level were meager and there must be relevant interventions that promote wider adoption for better productivity. This, in turn, helps smallholder farmers to get rid of chronic food insecurity and poverty. It is, therefore, crucial to reinforce and deliver quality extension services, provide credit access, motivate youth to be involved in farming activities, inspire membership, and ease the system to access inputs and technologies for broader adoption of technology packages.

Biography

Ashenafi Guye has expertise in lecturing and teaching various courses in the Department of Agricultural Economics and Agribusiness at Bonga and Hawassa University. In addition, he has been participating in research and community service as part of his job. Currently, he is a PhD candidate in the School of Agricultural Economics and Agribusiness at Haramaya University. The research article mentioned above is part of his PhD dissertation work.

F. Javed

St James's Hospital, Dublin, Ireland

Dual diagnosis of multiple sclerosis and Parkinson's disease

Abstract

The typical demographics and clinical presentation of patients with multiple sclerosis and Parkinson's are markedly different. In addition, the symptoms differ, although rarely do the two co-exist. This case report contains two patient reports of such a dual diagnosis. In both cases, the patients had been diagnosed clinically with MS, and this was supported by MRI and CSF analysis. Later in their disease course, a hypokinetic movement disorder emerged with clinical evidence of Parkinsonism. Arising from this unexpected scenario, a dopamine transporter scan was done with bilaterally reduced uptake in both patients. This case report highlights the unusual situation of a dual diagnosis of MS and Parkinson's disease. It highlights the need for ongoing clinical surveillance of MS patients when a lack of response to treatment or clinical progression occurs to aim to identify any other contributory pathologies.

Multiple sclerosis is an inflammatory immune-mediated disease of the central nervous system that affects 2.8 million people globally. The age of onset is typically between the ages of 20 and 40 years, and the sex ratio is 3:1 woman to men.1,2,3

In contrast, Parkinson's disease presents more commonly over the age of 60 and affects men more commonly than women30. Given the distinct demographic risks for these two diseases, there is not expected to be much overlap in these two diseases24.

The clinical presentation also differs. Parkinson's is a progressive neurodegenerative disorder of the motor systems characterized by tremor, rigidity, bradykinesia, and postural instability11. It affects one to two per 100,000 people in the developed world.4 Worldwide, 2.8 million people live with MS12.

A dual diagnosis of these two diseases has been described, likely due to chance rather than shared

pathology. Nonetheless, it is rare and raises some intriguing clinical management problems. Research indicates that about 1.4% of people previously diagnosed with the pathogenic variant in LRRK2 may have two diseases, perhaps related to neuroimmune pathogenesis.5 The challenge posed may, in part, relate to the treatment of one disease without a resulting deterioration of the other as a consequence.6

Keywords:

Neurodegenerative Disorders, Multiple Sclerosis (MS), Comorbidity, Parkinson's Disease (PD), Differential Diagnosis.

Peggy B. Shoar

California State University Fullerton,USA

Investigating The Quantum Biofeedback's Viability in Self-Regulatory Therapy and Reducing Anxiety

Abstract

Biofeedback interventions have gained recognition as a promising method for managing anxiety, stress, and depression by enhancing individuals' capacity to regulate physiological responses (Yucha et al., 2008; Wang et al., 2019). Techniques such as heart rate variability (HRV), which monitors and regulates cardiac rhythm; electromyography (EMG), which measures and tracks muscle tension; neurofeedback or electroencephalography (EEG), which assesses brain wave activity; and galvanic skin response (GSR), which evaluates changes in skin conductance, are among the most effective biofeedback methods for anxiety reduction (Goessl et al., 2017; Sandhu et al., 2007 ; Wang et al., 2019; Yu et al., 2018). This research investigates the efficacy of quantum biofeedback in identifying imbalances within the body's electrical signals and tracing them to their underlying causes. Findings suggest that quantum biofeedback provides a more comprehensive self-regulatory approach to stress reduction related to anxiety by addressing interconnected physiological systems holistically. This method demonstrates potential for greater effectiveness in reducing stress, improving emotional regulation, and enhancing mind-body balance, potentially surpassing traditional biofeedback methods (Cadabam's Hospitals, n.d.; Yucha & Montgomery, 2008).

Biography

Peggy Shoar is an adjunct professor at California State University, Fullerton, specializing in developmental and educational psychology. With nearly twenty years of experience, she teaches various courses exploring cognitive, biosocial, and socio-emotional development across the lifespan, particularly focusing on child and adolescent development. Peggy Shoar is also a certified biofeedback specialist with expertise in managing stressors related to brain function, learning disabilities, and mental health challenges.

Rumana Sangi

National Institute of Cardiovascular Diseases (NICVD), Pakistan

Incidence, clinical profile and short term outcome of cerebral abscess in cyanotic congenital heart diseases

Abstract

Brain abscess is a serious infection of brain parenchyma in patients with cyanotic congenital heart disease (CCHD) and around 25-46% of unrepaired CCHD patients develop brain abscess. Aim of this study was to determine the incidence, clinical features, microbiology and factors associated with early and short term outcome of cerebral abscess in CCHD. Methodology: This is a retrospective study, conducted at Pediatric cardiology department, National Institute of Cardiovascular Diseases (NICVD) Karachi. The data was collected from January 2019 to December 2021. All CCHD patients between 1-25 years of age were included. Data of patients with cerebral abscess was reviewed. Results & Discussion: Among the 544 pediatric patients hospitalized in the last two years , brain abscesses were identified in 51 (9.3%). Polycythemia (31.4%) was the most significant contributing factor, especially in patients aged above 10 years. The most frequently seen CCHD was tetralogy of fallot (TOF) 60.8%. Majority of the patients (84.3%) had a single abscess while 15.7% had multiple abscesses. E coli (9.7%) was the most common isolated pathogen. Immediate complication identified was cerebral edema in 22 (43.1%). Four patients (7.8%) died, 47(92.2%) patients completed treatment course. 45.1% had complete recovery however, 17(33.3%) had neurological deficits, 8(15.7%) had seizures and 2(3.9%) patients had residual abscess. Prolonged hospitalization was observed in patients of age group <10 years. Conclusion: In Patients with underlying CCHD, early referrals and intervention are key to mitigating the severe consequences of cerebral abscesses and can drastically improve patient outcomes.

Biography

Dr Rumana Sangi is a Paediatric Cardiologist working as Assistant Professor (faculty) in Asia's largest cardiac care centre, National Institute of cardiovascular Diseases Karachi, Pakistan.

She has done her first fellowship Paediatrics followed by second fellowship in Paediatric Cardiology from College of Physicians and Surgeons of Pakistan (CPSP). She has four years of experience in the field of Paediatric Cardiology.

She is a philontropist and has has Published in excess of 18 extensive publications national and international and has done various projects in the field of paediatrics and paediatric cardiology. She bears position as Assistant Editor in Pakistan Heart journal. She is also a Member Of Pakistan Cardiac Society.

Her fields of interest's are, Cardiac imaging , Interventional cardiology, cardiac Critical Care and Electrophysiology.

Usman Farrau

Ahmadu Bello University, Nigeria

Prevalence and correlates of academic stress, anxiety and depression among medical students at Ahmadu Bello University, Zaria-Nigeria

Abstract

This study investigated the prevalence of academic stress (and associated stressors), anxiety and depression among year two medical students at Ahmadu Bello University, Zaria, Nigeria. Depression, anxiety and stress scale-21 (DASS-21) and medical stressor questionnaire (MSSQ) were filled out by 188 randomly selected participants after obtaining their agreement and written consent to participate. Preliminary reliability tests on the two instruments were conducted using a few (35) subjects before the main data collection. The reliability tests revealed strong internal consistencies of the two instruments, with overall Cronbach's alpha values of 0.937 for DASS-21 and 0.929 for MSSQ. Mean levels of stress, anxiety and depression were found to be normal, moderate and normal, respectively. Significant and strong positive correlations between stress, anxiety and depression levels were observed. The prevalences of the conditions were found to be relatively high: 39.4% for stress, 68.1% for anxiety and 47.3% for depression at various degrees. However, the prevalences of severe to extremely severe levels of the conditions were relatively low for stress (6.9%) and depression (6.9%), and moderate for anxiety (33%). Academic-related stressors were the leading contributors to stress among the participants, with 46.8% perceiving high stress from this category of stressors. The findings of this study indicate a relatively high prevalence rate of stress, anxiety and depression among the participants, while framing a critical view of the academic environment's impact on medical students' mental health, and underscore the importance of proactive measures to support the well-being of this population.

Biography

Usman Farrau is a 38 year old PhD Human Physiology student at Ahmadu bello University, Zari-Nigeria, where he obtained his bachelor's and masters degrees earlier in the same subject. He is currently a full-time lecturer at the said University, starting since 2019, where he has taught hundreds of undergraduate medical students and supervised over 20 undergraduate research projects. He has published up to 15 research articles in reputable local and international Journals in areas ranging from gastroenterology, endocrinology, and neurophysiology. He is an early career researcher with expertise in gastroenterology, endocrinology, toxicology, and metabolism. He now has an interest in the pathophysiology of stress-induced depression, and currently enhancing his research skills along that line through a PhD study. He aims to also build an illustrious academic and research career at one of the world's finest institutions along that line.

Abhishek Bansal

*New Era Consultancy Services, Delhi,India*

Novel B-Bio Propositions, Equations, Models For Understanding Biological Processes, Clinical Diagnosis, Medicine and Therapy

Abstract

In this session, I present my novel B-Bio propositions/theory based on the existing paradigm of multi-engineering specializations/applied physics used in various clinical specializations, surgery, genetics and medicine. I demonstrate the development of novel framework construction of my novel work with new propositions with relevance of unified-multi-engineering specializations including biochemitry, pharmacology, artificial intelligence, from clinical perspective, meant for real life-critical situ-ations involving either human subjects or animals and expect these to be useful, particu-larly when computer has to diagnose, make medicine, testing efficacy or machine/therapy but I do not claim any clinical or any pharma usefulness.

Biography

Abhishek Bansal is an amateur scholar, fully self-studied various engineering, medical and mathematical specializations, and has been working for the past 21 years (approx) in R & D(machine designing). He is also involved in non-engg. works. He is fighting himself his litigation matters in Courts. He is the founder of New Era Consultancy Services and Learn Yourself Easy Solutions. His profile can be seen at ORCiD with identification number 0000-0002-2572-9004.
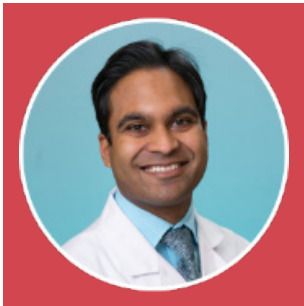
Joash Lazarus

The Atlanta Neuroscience Institute, Atlanta,USA

Treadmill training with speed and cadence controlled simultaneously on improving gait quality in people with Parkinson's disease

Abstract

Gait deficits are a hallmark of Parkinson's disease (PD). Rhythmic auditory cueing has shown effects on improving gait speed by increasing cadence with little modulation on stride length for people with PD (PwPD). The increased cadence could be an issue for some PwPD whose cadence is already within or higher than the normal range. This study examined the acute effects of an advanced treadmill training intervention, which controls the speed and cadence concurrently (thus the stride length), on altering gait quality in PwPD, relative to a regular training program that manipulates speed only. Thirty PwPD were evenly randomized into the advanced training (mean±standard deviation age: 67.6±4.7 years, height: 173.1±8.9 cm, mass: 77.1±11.6 kg, Hoehn and Yahr: 1.53±0.40) or the regular training (66.7±7.6 years, 173.4±9.0 cm, and 80.9±16.7 kg, 1.60±0.43) group. The training protocol consists of six 5-minute bouts of walking on a treadmill. Before and after the training program, the stride length (the primary outcome) and speed and cadence (the secondary outcomes) during overground walking at the self-selected speed were determined to quantify the gait quality. Independent t-tests were used to compare the changes in the outcome measures (from pre- to post-training tests) between groups. SPSS 29.0 was used for the statistical analyses with a significance level of 0.05. The advanced program increased the stide length by 0.07±0.04 body height (bh), significantly larger than the increase for the regular training group (0.03±0.03 bh, p=0.018). The training also enhanced the gait speed for both groups, while the increase for the advanced group was more than for the regular group (0.09±0.06 bh/s vs. 0.04±0.06 bh/s, p=0.050). Both groups exhibited comparable change in the cadence resulting from the training (3.4±3.8 steps/min

vs. 1.0±4.6 steps/min, p=0.137). Our results revealed that the advanced gait training program could improve gait quality more for PwPD than a regular training program. The findings could augment our understanding of PwPD's responses to control gait and provide a foundation to design effective interventions to improve gait for this population.

Biography

Dr. Joash Lazarus is board-certified by the American Board of Psychiatry and Neurology. He serves as the Clinical Research Director of the Atlanta Neuroscience Institute in Atlanta, USA. His clinical and research interests revolve around the evaluation and management of balance disorders and mobility dysfunctions, such as those seen in multiple sclerosis, Parkinson's Disease, and other neurological diseases. Specifically, Dr. Lazarus' research and clinical goal is the objective assessment of mobility and body balance encompassing both static balance measures and those of dynamic gait. He has presented his research in this field at national and international meetings. He was the recipient of the resident research award at Emory University. Dr. Lazarus is a member of the Council of Legislation of the Medical Association of Georgia and has represented both organizations at national policy forums. Various funding agencies have extensively funded Dr. Lazarus' research.

Chao Liu

Beijing Normal University, China

The Selfishness of Adolescents Overrules Cooperation in Social Dilemmas

Abstract

Background:
Cooperation skills are crucial for individual success in society. While research has often shown that adolescents exhibit less cooperative behavior than adults in social dilemmas, the computational processes underlying such behavioral variations remain underexplored. Previous studies concluded that adolescents may have a deficiency in forming appropriate expectations of others' cooperative intentions due to underdeveloped mentalizing abilities (Theory of Mind); however, another possibility is that they may simply be driven by a selfish motive to exploit others.

Methods:
To this end, the present study used a repeated version of the Prisoner's Dilemma Game (rPDG) to compare cooperative behaviors between adolescents (n = 127) and adults (n = 134). Participants were cooperating with a computer-simulated partner during rPDG (Figure 1a-c). Computational models with different assumptions were constructed and compared to explore the mental processes underlying cooperative decisions, ultimately testing the hidden variables driving behavioral variations between adolescents and adults.

Results:
Consistent with previous research, adolescents exhibited less cooperation compared to adults, particularly following their partner's consistent cooperation (Figure 1d). Computational modeling revealed that the social reward model with asymmetric reinforcement learning algorithm provided the best explanation for the behaviors of both adolescents and adults

(Figure 2). The best- fitting model revealed that, compared to adults, adolescents applied a higher positive learning rate ($\alpha+$) and a lower negative learning rate ($\alpha-$) when updating their expectations of partners' cooperation intention, and exhibited less social preference (ω) for mutual cooperation (Figure 3). In line with our hypothesis, adolescents did not exhibit inappropriate expectations regarding their partner's cooperative intentions compared to adults (Figure 4a-d); however, they perceived less intrinsic reward for reciprocity (Figure 4e-f).

Ms. Mossop Wamba Nde Christelle

University of Yaoundé I, Faculty of Science

Extra-virgin avocado (Persea Americana Mill., Laucaceae) oil improves cognitive impairment in D-galactose-induced Alzheimer's disease model on ovariectomized Wistar Rat

Abstract

Inadequate levels of monounsaturated (MUFA) and polyunsaturated (PUFA) fatty acids have been reported as a risk factor for neurodegenerative diseases, including Alzheimer's disease. Avocado oil (Persea Americana Mill., Laucaceae) represents a source of bioactive compounds with a relative abundance of omega-3, omega-6 polyunsaturated, and omega-9 monounsaturated fatty acids. The present study investigated the effects of extra-virgin avocado oil on the D-galactose-induced Alzheimer's disease model in ovariectomized Wistar rats. The cognitive dysfunctions were induced by D-galactose administration (150 mg.kg−1 i.p) and/or ovariectomy in 54 female rats for 70 days. The rats were concomitantly treated with extra- virgin avocado oil (0.25, 0.5, and 1 mL.kg−1, p.o), donepezil (1 mg.kg−1, p.o), and estradiol valerate (1 mg.kg−1, p.o). Memory disorders were evaluated using the Object Recognition, Y- Maze, and Morris water maze tests. Some biochemical and his to- logical parameters regarding memory function were evaluated on hippocampus homogenate and tissue. D-galactose administration and ovariectomy significantly induced learning and memory impairments, decreased relative hippocampal weight (p< 0.001), the levels of acetylcholine (p< 0.001), glutamate (p< 0.001), reduced glutathione (p< 0.001), catalase (p< 0.05), and superoxide dismutase (p< 0.001) activities, and an increase (p< 0.001) in the levels of methylglyoxal, malondialdehyde, and nitrites. The treatment with extra-virgin avocado oil at all tested doses reversed or prevented the negative effects induced by ovariectomy and/or by D-galactose. Taken together, these results suggest that avocado oil possesses neuroprotective properties and can be consumed or supplemented to prevent the onset of Alzheimer's disease.

Keywords: Avocado oil Persea Americana • Memory • Ovariectomy • D-galactose • Alzheimer's disease.

Biography

I'm enthusiastic PhD student at the University of Yaoundé 1, Cameroon. my research activities mainly focus on dietary approaches to prevent Alzheimer's disease with natural ingredients of plant origin, we investigated the neuroprotective effects of the avocado fruit pulp oil extracted by cold pressing technique on the D-galactose-induced Alzheimer's disease model in ovariectomized Wistar rats, and the results obtained have shown that avocado oil is able to alleviate cognitive and learning deficits in this model of Alzheimer's disease. The article of this work has been recently published in prestigious scientific journal (Biologia).

Amanda Thorpe

Royal Hospital for Neurodisability

Navigating Parkinson's: Integrating Nature, Neuroscience, and the   Human Spirit

Abstract

As technology advances our understanding of brain disorders and enables innovative treatment development across neurological conditions, we may risk overlooking the profound, innate resilience of the human body, mind, and connection with nature.

Sail4Parkinsons (Italy) and Spellthorne Parkies (UK) have spearheaded an alternative approach through annual, week-long retreats, providing participants with Parkinson's and their partners with an immersive program of physical, mental, and emotional activities. Led by a multidisciplinary team of neurologists, psychologists, music therapists, and fitness experts, these retreats illustrate how a holistic approach can foster a shift in coping mechanisms, enhance social reintegration, and bring a renewed sense of wellbeing amidst life's uncertainties.

These week-long retreats offer a unique setting where professionals can closely observe the dynamic on- and off-medication cycles of participants, allowing for individualized recommendations regarding medication, activity, and therapeutic timing. Furthermore, the transformative shared experiences create lasting bonds among participants, enhancing their support networks.

While developments in biomarkers, microbiome research, neuroinflammation interventions, deep brain stimulation, and AI-driven predictive modeling offer exciting avenues for Parkinson's management, these retreats underscore the importance of teaching individuals to reconnect with their bodies and minds organically. This integrative approach not only complements high-tech innovations but also grounds them in the holistic principles of self-

awareness, resilience, and quality of life.

Biography

Amanda Thorpe holds a Psychology degree from UCL and a Music Therapy Masters from Guildhall School of Music. She leads the UK Neurologic Music Therapy Support Chapter, and works at the Royal Hospital for NeuroDisability as well as privately. Amanda has worked in a range of hospital, community, educational and corporate settings in New York and London, providing music-informed interventions to facilitate wellbeing, learning, and cognitive functioning. She specialising in trauma, neuro-diversity, and neuro-rehabilitation. She has been published in the Brain Injury Journal and the Bristish Journal of Music Therapy.

Ansu Royit

St. Thomas College, Palai, Arunapuram – 686574, Kerala, India

Neurofinance and the Psychology of Investing: Understanding Decision- Making in Financial Markets

Abstract

The Indian equity market has experienced significant changes over the past two decades, with the financial crisis in 2008-2009, a massive fall in return in 2009-2010, and a hike in return in 2010-2012. The COVID-19 pandemic has also caused extreme volatility and increased trade volume, causing asset price anomalies. The excessive buying and selling pressure of irrational investors will influence the equity market's volatility to a great extent. Investors interpret such a hike in stock market volatility as a risk to their equity investments. Significant impact can be seen in the benchmark index prices during the outbreak of the health crisis. Investors' perception during volatile periods is to protect their portfolios at a low cost. Investors interpret these fluctuations as risks to their investments, leading to the importance of derivative instruments, particularly options, for economic risk mitigation. Options trading can help hedge the risk involved in unpredictable price movements at a low cost. Accurate volatility forecasts enable investors to protect their investments and profit from volatility trading strategies during volatile periods. However, the cost concern, profit motive, and loss aversion influenced by neurotransmitters, such as dopamine and serotonin, also influence investment decisions. This study aims to determine the influence of these neurotransmitters on investment decision-making during volatile periods in the equity market.

Biography

I am Dr. Ansu Royit. Presently, completed research at the Department of Commerce, St. Thomas College, Palai, Kerala, India (Ph.D. awarded on 19th August 2024). I have completed M.Phil. in Commerce from the University of Kerala. I am a Post Graduate in Commerce with

92.75% and qualified UGC NET in the year 2017.

I am interested in handling stock market data, especially options data. I have done my PG project in the area of options (Violations of the monotonicity property in Indian options market), M.Phil. dissertation entitled 'Put-Call Parity violations and arbitrage opportunities in Indian options market' and currently doing Ph.D. in the topic 'Investor Sentiments and Volatility Forecasts: Performance Evaluation of Trading Strategies in the Indian Equity Options Market'. Thus, I have 9 years of experience in handling options data. For the purpose of research, I have obtained data on NSE NIFTY 50 index options for the period from 2001 and the current research work mainly focuses on improving the volatility forecasts using investor sentiments in optimizing the performance of conventional options trading strategies and to develop novel options trading strategies to mitigate the losses or to ensure profitability to volatility traders in the Indian equity options market. I have presented research papers in several national and international seminars, especially in the SEBI-NISM research conference and SEBI Capital Market Conference in the year 2023, World Finance Conference and WFBS. My research paper entitled 'Beware of Extreme Investor Sentiments! Indian Evidence on the Performance of Neuro-specific Options Volatility Trading Strategies on the Facets of COVID-19' is published in the Journal of Emerging Market Finance.

Hossein Mahmoodi

Shahid beheshti university of medical sciences Iran university of medical sciences

common types of brain tumor and their management

Abstract

Brain tumors present a complex challenge in the field of oncology, characterized by abnormal growths of cells within the brain or surrounding tissues. These tumors can be classified into primary, originating in the brain, and secondary, resulting from metastasis from other parts of the body. Current estimates suggest that brain tumors account for approximately 1.4% of all new cancer cases, with an incidence rate of 7.2 per 100,000 people annually, highlighting the necessity for ongoing research and improved management strategies.

Statistically, brain tumors are more frequently diagnosed in adults aged 45-64, yet they remain a leading cause of cancer-related mortality in children. The World Health Organization (WHO) classifies brain

Gliomas, meningiomas, and pituitary adenomas are among the most common types, each presenting unique clinical challenges.

Management of brain tumors is multidisciplinary and has evolved over the years. Standard treatment modalities include surgical resection, radiation therapy, and chemotherapy, often employed in combination to enhance patient outcomes. The approach to management is heavily influenced by tumor type, location, patient age, and overall health. For example, surgical excision is often the first line of treatment for accessible tumors, aiming for maximal

In conclusion, brain tumors pose significant clinical challenges, necessitating a multifaceted approach to treatment and management. The integration of emerging therapies, coupled with robust statistical analysis and patient-centered care, will be pivotal in improving outcomes for this diverse patient population. Ongoing research into the biology of brain tumors and innovative treatment modalities will ultimately pave the way for more effective interventions and enhance the quality of life for patients affected by these formidable conditions.

Biography

I'm the best researcher student in basic neuroscience ,neurology and neurosurgery in Iran and one of the bests in the world.I'm the Prof.guive sharifi's assisstant and I'm working on 12 articles.I observed and participated in more than 400 surgeries on brain and spinal cord.I was involved in more than 1200 neurological patiants and totally I was involved in treatment of more than 2000 patients in neurology and neurosurgery.

Kavin Raj Purushottaman

James Cook University Hospital, United Kingdom

Day case cervical spine surgery – A retrospective case series

Abstract

Objective
This study aims to evaluate the safety and efficacy of day case cervical spine surgery, specifically Anterior Cervical Discectomy and Fusion (ACDF), in reducing hospital length of stay (LOS) without compromising patient outcomes.

Introduction
Day case cervical spine surgery has the potential to reduce waiting times and the risks associated with prolonged hospital stays. Typically, the LOS for cervical spine surgery is ≥24 hours, with post-operative x-rays performed on the first day. The National Getting It Right First Time initiative promotes day-case posterior lumbar decompression and discectomy, and data from the United States demonstrates the safety of day-case ACDF. However, there is limited data regarding this practice within the United Kingdom.

Methods
A retrospective review of theatre databases was conducted for all ACDF and cervical disc replacement procedures performed between 2017 and 2022. All the cases performed under Consultant Neurosurgeons in JCUH were selected and categorised into two groups based on LOS: <24 hours (day-case) and ≥24 hours (inpatient). Electronic patient records were reviewed to collect data on demographics, LOS, readmission and/or re-operation within 30 days, and symptom status at follow-up.

Results
A total of 319 cases were identified. Of these, 88% had a LOS of ≥ 24 hours, while 12% were

LOS < 24 hours.

In the LOS ≥ 24 hours group, there is a slight female predominance at a ratio of 1.2:1, whereas in the LOS < 24 hours group, there is a slight male predominance at a ratio of 1.1:1

No patients in the LOS < 24 hours group had a drain.

In the LOS < 24 hours group, 84.2% had symptom resolution vs 46.6% in the LOS ≥ 24 hours group, with p value of 0.000004 (< 0.05), suggesting a statistically significant association between LOS and symptom resolution.

In the LOS ≥ 24 hours group, 2% were readmitted within 30 days and 1% were re-operated within this time frame whereas in the LOS < 24 hours group, 3% were readmitted and no patients were re-operated within this time frame. The main cause of this is hematoma, pneumonia & dysphagia.

All day-case surgeries were single-level procedures, with intraoperative x-rays performed to check cage positions.

Conclusion

Day case ACDF surgery proved to be safe and produced outcomes comparable to inpatient cases. Further cost-analysis is needed to evaluate the economic benefits of this approach. Optimal patient selection, the use of intraoperative x-rays, and the avoidance of drains where safe may facilitate effective day case ACDF surgery.

Biography

Mr Kavin is a current final year medical student from Newcastle University, United Kingdom with profound interest in Neurosurgery and is expected to graduate in July 2025. He was awarded Merit for his outstanding academic performace for multiple academic years. He works closely with the Department of Neurosurgery, James Cook University Hospital, which is where he enhanced both his clinical and surgical skills under the supervision of experienced Consultant Neurosurgeons. He also gained neurosurgical experience in India & Nepal. As he is Malaysian, he conducted a nationwide survey on the perceptions of neurosurgery as a career choice among final year medical students studying in Malaysia. Adding on to his dedication to this speciality, he was the International Ambassador for Neurology & Neurosurgery Speciality Interest Group (NANSIG) and member of world-renowned socieites such as Society of British Neurological Surgeons (SBNS), Americal Association of Neurological Surgeons (AANS) and European Association of Neurosurgical Societies (EANS).

Muhammed Keshavarzi

School of Medicine, gaziantep turkiye

Case Report Reaction to surgicel in neurosurgery

Abstract

The use of Surgicel is one of the methods used to stop bleeding during various surgical operations, especially neurosurgery. The use of Surgicel may cause complications such as inflammation, delayed tissue repair, and necrosis. This case is a 60-year-old woman with a history of craniotomy and reaction to Surgicel who presented to the hospital with symptoms of seizures. The patient underwent craniotomy after a mass diagnosis in the parasagittal region. After reviewing this case, we concluded that the use of Surgicel can have complications for patients, Therefore, it is recommended to use Surgicel in the patient's body so that it is not treated as a mass, abscess, or hematoma in the postoperative period.

Biography

I finished master of ergonomy at 23 years old years and finished MD at 30 years old from gazianatep University and strat neurosurgery in gaziantep.

Sneha Balasubramanian

Cancer Institute, Chennai

Behind the mask: Parkinson's disease and depression

Abstract

Parkinson's disease (PD) is a common, prevalent neurodegenerative disease. It is mainly characterized by its motor symptoms like rigidity, tremors, and bradykinesia. Still, it can also manifest with non-motor symptoms (NMS), of which depression is the most frequently occurring and can impair the quality of life. Yet, it gets overlooked and goes untreated because of the significant overlap in their clinical features, hence making the diagnosis difficult. Furthermore, there is limited data on the availability of appropriate criteria for making the diagnosis of depression in PD patients, as it can occur with varying expressions throughout the course of PD or it can also precede it. This review article has included a brief discussion on the diagnosis of depression in PD patients and their overlapped clinical manifestations. Understanding the mechanisms underlying the disease processes of PD and depression and the pathways interconnecting them gives better knowledge on devising treatment options for the patients. Hence, the interlinking pathogenesis of depression and PD, along with their various traditional and newer pharmacological and non-pharmacological treatment options and their relative efficacies, have been discussed.

Biography

Sneha Balasubramanian completed her MBBS from the Madras Medical College (MMC) affiliated with Tamil Nadu M.G.R. University and Rajiv Gandhi Government General Hospital (RGGGH) in India in 2023. During this time exposure to several patients with Parkinson's Disease with Depression behind their mask-like faces led to this review paper focusing in-depth on the topic to bring notice and also to provide holistic care inclusive of the emotional and mental health of those battling this neurodegenerative disease. Currently, I work as a full-time Research Scholar at the Cancer Institute, Adyar to gain insights into research as well as medical oncology.

Sneha Ranjan

Indian Institute of Information Technology Allahabad

Trans-differentiation of WJMSCs into neurons upon treatment with growth factor- ATRA

Abstract

Mesenchymal Stem Cells (MSCs) are a multi-potent cell line capable of differentiating into various cell types, with neuronal differentiation being one of the most extensively studied. The ability of MSCs to differentiate into different types of neurons makes them promising candidates for stem cell therapy. This study focuses on the trans-differentiation of Wharton's Jelly Mesenchymal Stem Cells (WJMSCs) into neurons by inducing differentiation using growth factor such as All-trans Retinoic Acid (ATRA). The effectiveness of the differentiation was further evaluated by assessing the morphometric analysis. The induction process with ATRA demonstrated significant neuronal morphology, including neurite extension, synaptic connections confirming successful neuron formation. These in vitro findings hold potential for advancing treatments for neurological disorders.

Biography

Sneha Ranjan, a Research Scholar in the Department of Applied Sciences at the Indian Institute of Information Technology,Allahabad, has published three papers during her research tenure. Additionally, several of her papers are currently under review and are subjected to be published by March 2025.

Ying Liu

Zhejiang University School of Medicine

APOE2 protects against Aβ pathology by improving neuronal mitochondrial function through ERRα signaling

Abstract

Background: Alzheimer's disease (AD) is a progressive neurodegenerative disease and apolipoprotein E (APOE) genotypes (APOE2, APOE3, and APOE4) show different AD susceptibility. Previous studies indicated that individuals carrying the APOE2 allele reduce the risk of developing AD, which may be attributed to the potential neuroprotective role of APOE2. However, the mechanisms underlying the protective effects of APOE2 is still unclear. Methods: We analyzed single-nucleus RNA sequencing and bulk RNA sequencing data of APOE2 and APOE3 carriers from the Religious Orders Study and Memory and Aging Project (ROSMAP) cohort. We validated the findings in SH-SY5Y cells and AD model mice by evaluating mitochondrial functions and cognitive behaviors respectively.
Results: The pathway analysis of six major cell types revealed a strong association between APOE2 and cellular stress and energy metabolism, particularly in excitatory and inhibitory neurons, which was found to be more pronounced in the presence of beta-amyloid (Aβ). Moreover, APOE2 overexpression alleviates Aβ1-42-induced mitochondrial dysfunction and reduces the generation of reactive oxygen species in SH-SY5Y cells. These protective effects may due to ApoE2 interacting with estrogen related receptor alpha (ERRα). ERRα overexpression by plasmids or activation by agonist was also found to show similar mitochondrial protective effects in Aβ1-42-stimulated SH-SY5Y cells. Additionally, ERRα agonist treatment improve the cognitive performance of Aβ injected mice in both Y maze and novel object recognition tests. ERRα agonist treatment increased PSD-95 expression in the cortex of agonist-treatedAD-mice.
Conclusions: APOE2 appears to enhance neural mitochondrial function via the activation of ERRα signaling, which may be the protective effect of APOE2 to treat AD.

Biography

Ying Liu, Doctor of Medicine graduated from Nanjing University, China. Involved in research and medical care in the field of neurology, specialising in the diagnosis and treatment of neurological disorders such as dementia, cerebrovascular disease, and so on. Main research interests include the search for risk and protective factors for cognitive decline in diseases such as dementia and the molecular mechanisms of dementia and cerebrovascular disease.

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Critical Gaps in Prehospital Care for Traumatic Spinal Cord Injuries: An Analysis and Solutions

Abstract

Background and Aims:
Traumatic spinal cord injuries (TSCI) are a significant public health challenge in Pakistan, primarily resulting from road traffic accidents, falls, and violence. Effective prehospital care is essential to improve outcomes and prevent secondary injuries. This study aims to evaluate Pakistan's current prehospital treatment protocols for TSCI patients, identify key challenges, and provide recommendations for improvement.

Methods: A narrative review was conducted to assess prehospital care practices for TSCI in Pakistan. Using the PCC (Population, Concept, and Context) framework, a comprehensive search was performed on PubMed and Cochrane Library databases for studies published until January 2024. Articles were reviewed independently by two reviewers, with disagreements resolved by consensus or consultation with a third reviewer. Data extraction was conducted using a pre-designed chart to capture relevant details.

Results: The review identified critical deficiencies in Pakistan's prehospital care for TSCI patients. Timely interventions, including maintaining mean arterial pressure (MAP) > 85 mmHg, early transfusions for hemoglobin levels below 7 g/dL, and spinal or regional anesthesia, are often inadequately performed. Positioning to avoid secondary spinal insults, timely neurological assessments, and imaging protocols, such as CT scans and MRIs, are inconsistent. The lack of adherence to transfusion protocols and improper utilization of imaging further compromise care. Moreover, insufficient knowledge of Advanced Cardiovascular Life Support (ACLS) and prophylactic measures for complications like deep vein thrombosis (DVT) remains a concern.

Biography

Zarhaish Baramulla, a 3rd-year MBBS student at FMH College of Medicine and Dentistry, Pakistan, is deeply interested in neurotrauma and spinal injuries. She has actively contributed to research on traumatic spinal cord injuries and their pre-hospital care, particularly in resource-limited settings. As the Local Officer on Reproductive Health and AIDS (LORA) with IFMSA at her institute, Zarhaish is also engaged in global health initiatives, focusing on enhancing healthcare delivery and promoting equity in medical education. Her work reflects a commitment to advancing knowledge and improving outcomes in neurotrauma care.
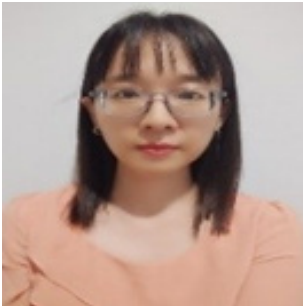
Hla Hla Aye

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Navigating the Diagnostic Challenges of Posterior Circulation Ischemic Strokes: A Case Report of Delayed Diagnosis

Abstract

Posterior circulation infarcts (POCI) account for 20-25% of all ischemic strokes but are often misdiagnosed due to their variable and non-specific presentations. Unlike anterior circulation strokes, POCI may not present with focal neurological deficits, delaying diagnosis and treatment.

A 58-year-old woman with a history of migraine presented with sudden-onset vertigo, nausea, and vomiting. She had no focal neurological deficits, and her initial National Institute of Health Stroke Scale (NIHSS) was 0. Gait assessment was limited due to her vertigo and nausea. Initial brain CT and CT angiography were unremarkable, leading to a provisional diagnosis of atypical migraine or benign paroxysmal positional vertigo. However, persistent symptoms prompted an MRI brain, revealing acute infarcts in the posterior left temporal lobe, inferior left occipital lobe, and left cerebellar vermis. She was treated with dual antiplatelet therapy and statin, leading to symptomatic improvement and discharge with rehabilitation.

This case underscores the limitations of commonly used stroke screening tools like FAST and NIHSS for POCI. Modified screening tools such as BEFAST (Balance, Eyes, Face, Arm, Speech, Time) and HINTS (Head Impulse, Nystagmus, Test of Skew) improve detection rates in posterior strokes. Early MRI is critical for diagnosing POCI when CT findings are inconclusive. A high level of clinical suspicion is essential for diagnosing POCI in patients with unexplained vertigo. Enhancing awareness of its atypical presentations and incorporating advanced diagnostic tools can reduce missed diagnoses and improve patient outcomes.

Biography

A Journey in Medicine:

I earned my medical degree from the University of Medicine, Mandalay, following a one-year internship with rotations in Medicine, Surgery, Obstetrics & Gynecology, Pediatrics, and various subspecialties. This exposure formed a strong foundation for my clinical skills and deepened my passion for patient care.

After graduation, I worked as a junior and then senior medical officer in Myanmar, gaining valuable experience in various healthcare settings. Committed to continuous learning, I pursued the Membership of the Royal College of Physicians (MRCP) and achieved certification in 2022, further strengthening my knowledge in internal medicine.

Currently, I am working as a Resident Doctor at University Hospitals Dorset NHS Foundation Trust, rotating through various medical specialties. My journey so far has been one of dedication, perseverance, and an unwavering commitment to patient care. I look forward to further refining my skills and contributing meaningfully to the field of medicine.