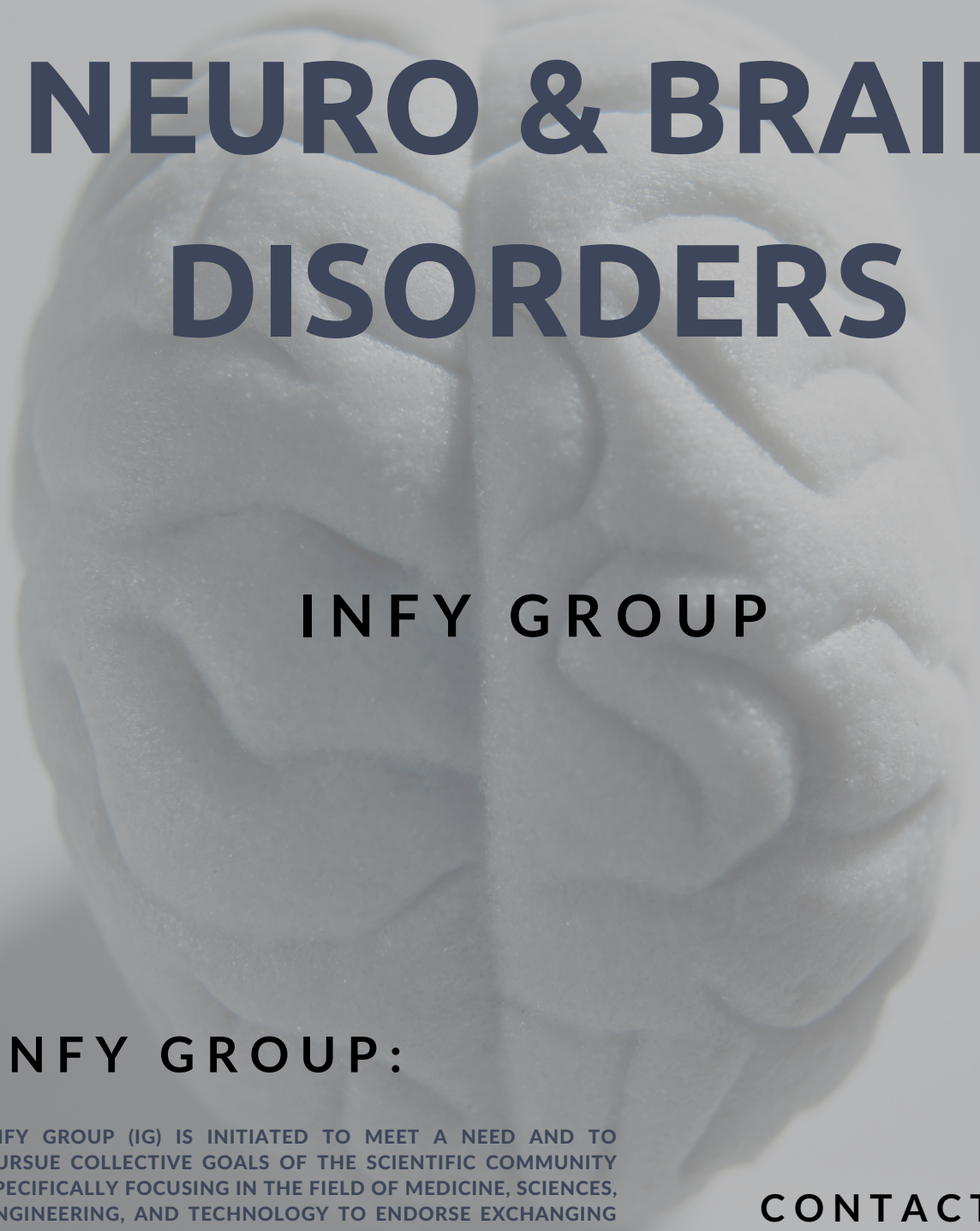


NOVEMBER 15-16 2021 | WEBINAR



**INTERNATIONAL CONFERENCE ON
NEURO & BRAIN
DISORDERS**

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KEYNOTE FORUM

DAY 1

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Stimulation of autophagy by genistein as a potential therapeutic option for Alzheimer's disease – studies on animal and cellular models

Grzegorz Wegrzyn

University of Gdansk, Poland

The use of genistein (5,7-dihydroxy-3-(4-hydroxyphenyl)-4H-1-benzopyran-4-one) has been proposed previously as one of approaches to improve the Alzheimer's disease symptoms, as some positive effects of this compound in cellular and animal models were reported. Inhibition of apoptosis and antioxidative functions were suggested as causes of these effects. However, we have demonstrated that high genistein dose (150 mg/kg/day; the dose significantly higher than those used previously in studies by others) can activate autophagy in the streptozotocin-induced rat model of the sporadic form of Alzheimer's disease. We found that this dose of genistein led to complete degradation of beta-amyloid and hyperphosphorylated tau protein in the brain, while experiments with cell cultures demonstrated that these effects require autophagy stimulation, which has never been shown before. Importantly, behavior of high dose genistein-treated Alzheimer's disease rats was completely corrected, i.e. it was indistinguishable from that of healthy animals. This was observed in all performed behavioral tests: Morris water maze test, elevated plus-maze test, open field test, and locomotor measurements in an actometer. We conclude that autophagy-dependent mechanism is responsible for genistein-mediated correction of Alzheimer's disease when this isoflavone is used at the high dose. This suggests that autophagy stimulation by genistein can be considered as a potential therapeutic option for Alzheimer's disease.

Biography

Grzegorz Wegrzyn has graduated from University of Gdansk, Poland. In 1987 he obtained MSc degree in biology, and in 1991 PhD degree in natural sciences. Then (in 1991), he was a research fellow at the Department of Biochemistry, University of Nottingham Medical School (UK). In 1992 he was a post-doctoral researcher at Center for Molecular Genetics, University of California at San Diego (USA). Since 1996 he is a head of Department of Molecular Biology at the University of Gdansk (Poland). In his laboratory, several projects are conducted, which are focused, between others, on new treatment methods of human genetic and neurodegenerative diseases. He is a co-author of over 400 scientific articles in peer-reviewed journals and over 600 communications on scientific conferences.

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Discrimination of parkinsonian tremor from essential tremor and physiological tremor

Abdulnasir Hossen

Sultan Qaboos University, Oman

A wavelet-decomposition with soft-decision algorithm is used to estimate an approximate power spectral-density (PSD) of both accelerometer and surface EMG signals for the purpose of discrimination of Parkinson tremor (PD) from essential tremor (ET) and physiological tremor (PH). A soft-decision wavelet-based PSD estimation is used with 256 bands for a signal sampled at 800 Hz. The sum of the entropy of the PSD in band 6 (7.8125 Hz-9.375 Hz) and band 11 (15.625 Hz -17.1875 Hz) is used as a classification factor. The data has been recorded for diagnostic purposes in the Department of Neurology of the University of Kiel, Germany. Nineteen PH subjects with a mean age of 48.58 years, 39 PD subjects with a mean age of 66 years, and 41 ET subjects with a mean age of 64 years were analyzed. All patients are suffering from a moderate to severe postural tremor. Clinical diagnosis was made according to standards and served as the gold standard for this study. The data is divided into two sets and to be used for trial (training set) and for testing (test set), respectively. The training set, which consists of 21 essential-tremor (ET) subjects and 19 Parkinson-disease (PD) and 10 (PH) subjects, is used to obtain the threshold value of the classification factor differentiating between the subjects. The test data set, which consists of 20 ET and 20 PD subjects and 9 PH subjects, is used to test the technique and evaluate its performance. A "voting" between three results obtained from accelerometer signal and two EMG signals is applied to obtain the final

Biography

Abdulnasir Hossen got his Ph.D. from the Ruhr-University in Bochum-Germany in 1994 and has completed his postdoctoral requirements from the university of Kiel-Germany in 1997, both in the area of digital signal processing. Since 1999, Dr. Hossen is at the department of Electrical and Computer Engineering at Sultan Qaboos University in Oman. On June 2013, he became a full professor and currently he is also the Director of the Communication and Information Research Center at the same university. His main topics of interests are signal processing in general with emphasis on biomedical signal processing, telemedicine, classification of signals, and neural networks. Prof. Hossen is a member of IEEE and a focal person of ITU at Sultan Qaboos University.



ORAL SESSIONS

DAY 1

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Rebuilding of a Neuronal Circuit via Cell Replacement with hADSC-derived Neuron Cells for Treating Ischemic Stroke

Shane Gao*, Xuanxuan Guo, Yaqun Lu, Jiang Wang, Yue Peng, Xin Jin, Yuan Wang and Chunlong Zhong

Tongji University, school of medicine, China

Human adipose-derived stem cells (hADSCs) have been proven to be a promising autologous stem cell source for treating various neuronal diseases. Our study indicated that hADSCs could be induced into neuron-like cells in a stepwise manner that are characterized by the positive expression of MAP2, SYNAPSIN 1/2, NF-200, and vGLUT and electrophysiological activity. We first primed hADSCs into neuron-like cells (hADSC-NCs) and then intracerebrally transplanted them into MCAO reperfusion mice to further explore their in vivo survival, migration, integration, fate commitment and involvement in neuronal circuit rebuilding. The hADSC-NCs survived well and transformed into MAP2-positive, Iba1- or GFAP-negative cells in vivo while maintaining some proliferative ability, indicated by positive Ki67 staining after 4 weeks. hADSC-NCs could migrate to almost every brain region, including the cortex, hippocampus, striatum, and hypothalamus, and further differentiate into mature neurons, as confirmed by action potential elicitation and postsynaptic currents. With the aid of a cell suicide system, hADSC-NCs were proven to have functionally integrated into the hippocampal memory circuit, where they contributed to spatial learning and memory rescue, as indicated by LTP improvement and subsequent GCV-induced relapse.

Biography

Dr. Shane Gao, Doctor of Philosophy (Ph.D), now is an Associate professor of Department of Regeneration in Tongji University. In 2006, she got her M.D in Genetic and Microbiological engineering in Fudan University. In 2009, She got her Ph.D in the Chinese University of HongKong, majoring in colorectal cancer treatment using polysaccharide extracted from mushroom. Since 2009, she has joined in the department of regeneration of Tongji University as an Assistant professor. She started with human Adipose-derived stem cells (hADSCs). Now she is concentrating on the differentiation of hADSCs into neuron cells and equipping these cells to treat neuronal damage or neuronal degeneration diseases using animal models such as stroke, Hypoxia and Ischemia Encephalopathy (HIE) and Spinal Cord Injury (SCI) as well as Parkinson and Alzheimer diseases. Moreover, she is interested in the signaling pathways controlling the neuronal differentiation of hADSCs. Her current mission is to promote the clinical translation of hADSCs by studying their treatment effects, their safety and feasibility on animal models.

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Rebuilding of a Neuronal Circuit via Cell Replacement with hADSC-derived Neuron Cells for Treating Ischemic Stroke

Umi Budi Rahayu, Samekto Wibowo, Ismail Setyopranoto, M. Hibatullah Romli

Universitas Muhammadiyah Surakarta

Background: Brain injuries such as strokes cause damage and death of the neuron cells. Physiotherapy interventions help to improve patient's performance and ability. However, this is only theorized but the impact of the physiotherapy intervention on brain plasticity is not known. **Objective:** The present study aimed to investigate the effect of physiotherapy interventions on brain neuroplasticity by evaluating the brain plasticity regeneration, balance and functional ability. **Methods:** A randomized controlled trial was conducted with 64 stroke patients from three hospitals in the Surakarta region, Indonesia. Control groups (n = 32) received conventional physiotherapy and intervention groups (n = 32) received neurorestoration protocol, which both lasted for seven days. Efficacy of the interventions were measured on brain-derived neurotropic factor serum analysis, Berg Balance Scale and Barthel Index, respectively. **Results:** Both groups showed improvements in all parameters but only balance and functional performance had a statistically significant outcome. **Conclusion:** Neurorestoration protocol that combined several established physiotherapy interventions was effective in improving balance and functional ability of stroke patients in only a seven days period.

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Case Report: Acupuncture Therapy in Peripheral Vestibular Vertigo (Meniere's disease)

Wahyuningsih Djaali, Christina L. Simadibrata, Irma Nareswari, Dwi Rachma Helianthi

Universitas Negeri Jakarta, Indonesia

The presentation explained the theory about balance disorders, especially about peripheral vestibular vertigo. It also explains how acupuncture can play a role in this disorder.

In this presentation, it is explained about the case presentation of a patient with complaints of spinning dizziness for 18 months. In the case illustration, patients experience complaints of episodic spinning dizziness, with a long duration of complaints is around thirty minutes to two hours, can relapse 3-4 times in one month, and complaints are affected by the position of the head and conditions of lack of sleep or late eating. From the anamnesis, physical examination and investigations, patient was diagnosed with vestibular peripheral vertigo et causa suspected Meniere's disease.

Manual acupuncture therapy was performed at the points GV20, TE17, GB20, LI4, and LR3, for 30 minutes with a mild stimulation technique. Acupuncture therapy was done twice a week, as many as 6 therapy sessions. After six sessions of acupuncture therapy with a one-month follow-up, the patient no longer felt any complaints of spinning dizziness and the VSS-SF questionnaire examination reduced to 4 in score.

From this case it can be concluded that acupuncture therapy can improve the symptom of spinning dizziness and decrease VSS-SF scores in patients with peripheral vestibular vertigo, so that acupuncture can be a therapeutic choice in patients who have contraindications to pharmacological therapies of vertigo and to reduce side effects from the pharmacological therapies.

Biography

The author is a lecturer at the State University of Jakarta, and the author is also a Medical Acupuncture Specialist who graduated from Medical Acupuncture Specialist Program, Faculty of Medicine, Universitas Indonesia on Januari 2021. Currently, the author is continuing his education as a doctoral student at Epidemiology Study Program, Faculty of Public Health, Universitas Indonesia.

The author recently won the "Young Scientist Award" given by the "International Council of Medical Acupuncture and Related Techniques (ICMART)" at the World Congress on Medical Acupuncture in Athens, Greece.

The author has produced several international publications in the field of acupuncture and has conducted extensive research in the field of acupuncture.

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The good compliance is an opportunity to avoid pathological brain aging

Alena Sidenkova

Ural State Medical University, Russia Federation

Preservation of health, increase in life expectancy determine the need to improve the effectiveness of medical recommendations, which, despite the success of pharmacology, are insufficient for reasons related to the low level of compliance with these recommendations by patients. The authors of the article believe that compliance is a kind of quantifiable and behaviorally realized reflection of therapeutic interaction, refracted through the prism of the patient's individual personality characteristics. Participants of the study-148 employees of medical institutions: 12 men, 136 women, their age ranged from 27 to 74 years. The research tool was the neuropsychological rapid method. 3 research subgroups were formed: 27-40 years (37 people), 41-50 years (60 people), 51 years and older (51 people). Comparison of the results of subtests of neuropsychological Express technique showed heterogeneous results in subgroups of the study. In addition, the dynamic characteristics of psychological processes were evaluated: depletion, inertia, impulsivity. A significant difference in the performance of the graphomotor test between the subjects of the age subgroup of 27-40 years and the subgroup of 41-50 years was statistically confirmed. For the qualitative performance of this simple test requires a sufficient level of development of all structural and functional components of brain functions and, in particular, the "front" function of programming and management and consistent organization of movements. In older people revealed a much greater number of errors, interruptions of the test than the representatives of the more "young" subgroup. Similar results were obtained when comparing the "young" and "old" subgroups. Despite the absence of signs of decompensation of concomitant pathology, representatives of the subgroups took a different amount of concomitant therapy. Using the scale of assessment of drug compliance, it was found that compliance is most reduced in the subgroup of 41-50 years. In this subgroup, a comprehensive decrease in compliance across the "behavioral", "emotional", and "cognitive" domains was detected in 87.8% of cases, while in the younger subgroup partial non-compliance was 32.4%, in the older subgroup - 74.5%. An analysis of the states of cognitive functions in 52 representatives of the middle age subgroup with low compliance rates showed that, unlike other representatives of the same subgroup, their indices for a number of neuropsychological tests are close to the results of more adult participants in the study. Individuals demonstrating low compliance with quite favorable CNS resources are at risk for the formation of pathological aging.

Biography

Alena Sidenkova, Doctor of Medical Sciences, Professor, Head of the Department of Psychiatry, Ural State Medical University. In 2010 she defended her doctoral dissertation on "The Psychosocial Model of Dementia". She develops and manages interdisciplinary programs for the elderly with dementia. ... Member of the Russian Society of Psychiatrists, co-chairman of the geriatric psychiatry section of the Russian Society of Psychiatrists. He is a member of the working group on the development of the state program "Anti-Alzheimer" under the Ministry of Health of the Russian Federation. Author of several monographs on geriatric psychiatry

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How the Maternal Hyperhomocysteinemia Affects Offspring Brain Development

Alexander Arutjunyan, Yulia Milyutina, Anastasiia Shcherbitskaia, Gleb Kerkeshko, Irina Zalozniaia.

D.O. Ott Institute of Obstetrics, Gynaecology and Reproductive medicine

Maternal or prenatal hyperhomocysteinemia (PHHC) is one of the common complications of pregnancy that causes various functional impairments of the offspring brain, including disturbances of short-term and long-term memory, as well as spatial orientation. The behavioral abnormalities reported in different studies are not often compared to changes in the cellular composition in the brain structures responsible for cognitive functioning. Therefore, we carried out a comprehensive study of structural, biochemical and functional changes in early ontogenesis in the offspring that underwent PHHC.

According to our data under the influence of PHHC, the level of neurotrophin precursors of BDNF and NGF increased in the fetal brain and placenta. It can be assumed that it is associated with a violation of their processing to mature forms, in contrast to which proBDNF and proNGF have a depressing effect on brain maturation in early ontogenesis¹.

Our findings demonstrated that PHHC seems to negatively affect the cytoarchitecture and function of the hippocampus and cortex of infant rats. Histological and biochemical examination of the nervous tissue revealed alterations in the ultrastructure of neurons as well as their loss with activation of apoptosis only in parietal cerebral cortex, but in both structures, the glial activation was observed^{2,3}. The data obtained might suggest the involvement of various mechanisms of neuronal cell death in the hippocampus and cortical tissue leading to differences in their vulnerability to PHHC. Neuroinflammation, reflected by changes in the level of proinflammatory (IL-1 β and IL-6) and anti-inflammatory (IL-10) cytokines, as well as the activation of astrocytes and microglia in the brain regions of affected offspring, may explain some mechanisms for the behavioral disorders resulting from prenatal exposure to PHHC.

PHHC can cause a delay in the growth and maturation of individual brain structures and neurotransmitter systems, as well as desynchronization of brain developmental program, by inducing oxidative stress in the fetal/newborn brain and activating apoptosis and neuroinflammatory response accompanied by changes in the neurotrophins expression and processing.

PHHC induced disturbances in the brain development lead to the cognitive impairments that manifest themselves already in the early postnatal period and remain in adulthood. Prenatal development of fetal brain requires timely delivery of essential nutrients and oxygen via placental transport, which depends on the formation of placental vascular network and activity of transporters in the transplacental barrier between the maternal and fetal circulation. It is possible that reduction in the placental transport and barrier functions contribute to the negative effects of PHHC on the brain development and functions in offspring⁴.

Based on our experimental studies, it was hypothesized that in addition to a direct neurotoxic action, PHHC has a negative effect on the formation of the fetal and newborn nervous systems by changing the functional state of the placenta.

Biography

Prof. A. Arutjunyan since 2015 is a chief researcher of D.O. Institute of Obstetrics, Gynecology and Reproductive medicine, St. Petersburg, Russian Federation. The Laboratory of Biochemistry under his leadership in 1990 – 2015 was engaged in studying the mechanisms of hypothalamic regulation of reproductive function. Now he is studying the neurotoxic effects of prenatal hyperhomocysteinemia on reproductive and cognitive functions in offspring. He is the author of 5 monographs and over 300 scientific articles. Prof. Arutjunyan is a member of the editorial boards of the journals “Current Aging Science”, “Advances in Gerontology”, “Neurochemical Journal” and the topic editor of journal “Cells”. He is also the member of European and International Neurochemical Societies.

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Root causes of neuro and brain disorders and meditation as a means to minimise them.

Jagadeesha T

National institute of technology, India

The main purpose of this talk is to introduce the audience about the main root cause for neuro and brain disorders in youngsters. To emphasize the fact that neuro disorders and brain disorders are connected with life styles, attitude of couples during mating and cultural upbringings. Many of neuro and brain disorders are curable and do not demand expensive surgery and medicines. Brain waves signatures can be changed completely to free a person from different kinds of substance use, abuse. Gamma-wave patterns serves as important signature for Cognitive deficits including disruptions in memory, information processing, and divided attention and alcohol intoxication. Today there are many modern methods coupled with traditional methods of diagnosis and treatment with the biological concept of the brain as a network of circuits. Emotions and neuro feedback systems can be changed by proper life style. This talk also concentrates on Raja yoga system of meditation to cure some of the neuro disorders and brain disorders. Energising various energy points in the body in heart region, pind pradesh, mind region can create wonders and thus helps to balance the activities of mind. Once the regulation of mind is achieved by the practitioner, then it is easy to cure neuro and mild disorders. Meditation is a highly advanced techniques to treat psychiatric, neurologic, and other brain-related disorders without any medical expenses. Elements of meditation also includes cleaning of though pattern, grossness in mind, impurities of thoughts and transmission which is the very sable energy used to transform the human being to reduce modern day diseases which we have acquired unnecessarily and for want of pleasure and false prestige.

Biography

Dr. Jagadeesha T is currently working as Assistant Professor at National Institute of Technology Calicut, a premier institute in the country run under the aegis of Govt of India. Author is practicing raja yoga medication for the last twenty-seven years. He is a certified heartfulness trainer from Heartfulness institute which is non-profit organisation and which helps humanity to bring global peace and harmony without any pre-requisite. Dr. Jagadeesha T is also worked has faculty advisor for many batches at NIT Calicut training the youngsters to do the work effectively and peacefully by overcoming emotional pressures, work and research pressures. He taught less-medication techniques to overcome anxiety, psychological disorders, substance abuse, alcohol consumption and heavy smoking. His focus is in life style changes and its implications to bring harmony, peace and bliss in one's own life through advanced yet simple meditation, cleaning and transmission techniques.

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Selection of Deep Brain Stimulation Parameters in Intractable Epilepsy: An EEG Based Novel Approach

Harinder Jaseja

NIMS University, Jaipur, India

Deep brain stimulation (DBS) of anterior thalamic nucleus (ATN) is establishing as an effective adjunctive therapy for patients with intractable epilepsy (IE) not suitable for epilepsy brain surgery and/or vagal nerve stimulation. The success of ATN-DBS is dependent upon exact placement of the DBS electrodes and judicious selection of DBS parameters (DBSPs) and patients; however, the success has been observed to be limited to one form of intractable seizures (IS), namely complex partial seizures with other forms of IS failing to respond satisfactorily. Furthermore, the conventional mode of selection of DBSPs is by trial and error and the desired adjustments in the DBSPs are governed by the clinical response (i.e. improvement in the seizure profile) over the course of multiple sessions and hospital visits, thus, warranting a strong need for optimization of the DBSPs with objective assessment of its influence on the electrophysiology of the brain. We present an EEG-guided novel and superior approach to the selection of effective DBSPs and advocate replacement of the conventional mode of selection with a mode targeted to induce EEG-desynchronization, the objective of which is based upon strong documentation of the potent antiepileptic influence exerted by EEG-desynchronization with possibly possession of an additional anti-kindling effect that can suppress or even arrest the ongoing process of epileptogenesis in the patients with intractable epilepsy in addition to exercising control over the IS. Fortunately, the EEG changes induced by the adjustments of the DBSPs are immediately visualized in the ongoing simultaneous EEG recording. It is further claimed that the innovative EEG-guided approach can successfully optimize the DBSPs resulting in minimum sessions of DBSP adjustments reducing the frequency of hospital visits, minimum side effects and minimum consumption of the device battery thus prolonging its life. Preliminary results of the clinical application of the novel approach in the selection of the DBSPs in a small case series have been very promising and encouraging despite which it is strongly recommended that well designed large sized studies are required for its validation and successful clinical outcome. EEG guidance is already in vogue in the conventional mode of selection of the DBSPs, albeit for the verification of the placement of the DBS electrodes.

Biography

Dr Harinder Jaseja has worked as Professor in Physiology in G R Medical College, India and is presently consultant to Vellore EEG Center, Gwalior, India. He was ranked Second in Epilepsy Research in India in a 2013-published national journal. He has discovered a not target (pedunclopontine nucleus) for deep brain stimulation in intractable epilepsy and an innovative approach to the selection of anterior thalamic nucleus deep brain stimulation parameters in patients with intractable epilepsy. He has also published novel guidelines for management of patients with cerebral palsy. He has published more than 80 international papers and is member of several editorial boards.

INTERNATIONAL CONFERENCE ON NEURO & BRAIN DISORDERS



Estimation and confidence interval of volume of brain structures: Case studies on phenomena

Mehmet Niyazi Cankaya

Usak Univeristy, Turkey

The most challenging topic in science is about correct measurement of geometrical objects and its counterparts. As it well-known, inside of body is hidden box which is never known. We just only observe the working principle of phenomena. A tumour, atrophy, lesion, blood, bleeding, etc. in a nervous system and vivo organs are phenomena which are necessary to be examined. The computed tomography (CT) and magnetic resonance imaging (MRI) are important tools to get the quantitative results from the scanned geometrical objects via invasive and non- invasive methods. The geometrical objects are in our main fields which work to estimate the volume of them. For the estimation of objects, the Cavalieri principle for acquisition of sagittal, axial and coronal planes from MRI which scans the brain, tumour, etc. works based on the systematic sampling on the real line. In this talk, we introduce some functions which can represent the area of planes at sagittal, axial and coronal directions. The connection between the functions and the variance formula of systematic sampling is explained to show how a researcher should be careful while using the variance formula. The sheep brain and their scanned form via MRI are introduced. The confidence interval (CI) which trusts the variance formula and the coefficient of CI is given and the role and importance of CI are represented for researchers who work on the applied science. The results of simulation are given to observe the idea between the chosen function and the performance of the variance of the systematic sampling. In the second part of talk, the CT images of lung infected with COVID-19 are shown and the newly defined entropy functions which are used to perform the analysing the images with COVID-19 are briefly introduced. The future standing studies will be presented for the researchers to analyse and examine the images quantitatively as a statistical evaluation which provides a result showing what and how researchers who work on the applied field should behave and give their comments for the next steps in which experts at radiological unit or surgeons who want to learn the quantitative results of images work on the health center.

Biography

Mehmet Niyazi Çankaya received her B.Sc., M.Sc. and Ph.D. degrees in Statistics from the Ege University (2005), Mugla University (2010) and Ankara University (2015), respectively. He is currently working as an associate professor (2021) in the International trading and finance and department of statistics at Usak University, Turkey. His research interests cover stereology, probabilistic geometry, fractional calculus, time scale calculus and its applications, entropy, statistical inference, and modelling. He has the published papers indexed by WOS. The fields of papers in WOS are from brain, neurosciences, probability, statistics, multidisciplinary, physics.

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Case series on isolated type 2 odontoid fracture

Almas Ashraf, Zaheer-ud-Din Babar, Aisha Ahmed Khan, Ammad Fahim

Shifa International Hospital, Pakistan

Overall, the focus of discussion will be odontoid fractures, isolated fracture, management options and preferred management. Among all cervical fractures, type II odontoid fractures are 66% that are mainly due to high energy trauma, for example motorbike accidents. For surgery, there are two acceptable methods; anterior odontoid screw fixation (AOSF) and posterior cervical instrumented fusion (PCIF).

Cases

In this, retrospective case series, we described presentation of 5 such cases, mostly after trauma. Ages for one of them was of 17 years, another was of 23 years and three cases were of 45 years, (three more patients presented but refused to have surgery). Three patients had no neurological deficits but only neck pain. One patient had weakness in extremities while one patient was in coma due to brain trauma. Placement of screws and spinal stabilization with early mobilization was achieved in all patients. There were no neurological symptoms after surgery. Only one patient had decreased power as was before and it takes time to recover, but he was able to move his neck without any pain. In patient who had a low GCS due to brain trauma, the odontoid process was aligned successfully with screw fixation. Usually, patients have no neurological symptom but has neck pain. Patient selection was based on radiological characteristics and clinical status. AOSF helps to retain most of the cervical rotation; show quick recovery, has higher fusion rate and less risk of damage to vital and surrounding tissues and safer approach. Therefore, it can be considered as the first line of treatment but in carefully selected patients.

Biography

Dr Almas Ashraf did her graduation from Shifa International Hospital in 2017, worked as a researcher in genetics, biochemistry and neurosurgery; as a teacher of neurosciences and biochemistry and medical officer in neurosurgery department. She has published 5 papers including the one to be presented in neurosurgery and emergency medicine. She is passionate about research and will continue her training in emergency medicine.

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SPATIAL MEMORY, EXERCISE AND AGING

Ricardo C. Cassilhas

Universidade Federal dos Vales do Jequitinhonha e Mucuri, Brazil

Aging lead to changes in cognitive function:

Brain structure and brain function (atrophy in various brain regions, especially the prefrontal cortex and medial temporal lobes).Declines in cognitive performance (memories, speed, reasoning and executive functions).The integrity of spatial memory is fundamental for normal daily life activities. A decline is often reported in healthy and pathological elderly people;

Visuospatial and spatial memory deficits have been documented and healthy elderly people, pre-clinical and AD groups. Healthy elderly people find it increasingly difficult to acquire environmental map-like knowledge, an ability sustained by visuospatial working, Critical visuo spatial factors that differently modulate map learning in healthy young and older adults.The complaint about spatial navigation was associated with severe cognitive impairments.This can induces a difficulty to interact with the environment.



KEYNOTE FORUM

DAY 2

INTERNATIONAL CONFERENCE ON NEURO & BRAIN DISORDERS



Epileptiform activity index in different brain functional states as a diagnostic and prognostic marker in adult patients with epilepsy

Vlasov Pavel, Vladimir Karlov, Angela Kozhokaru, Asya Azhigova

Moscow State University, Russian Federation

1. Introduction. The quantitative estimate of interictal epileptiform activity may be used as an additional objective diagnostic means in focal and generalized epilepsy, however, to date unified protocol on its implementation has not been developed. **Aim.** We aimed to assess the possible use of epileptiform activity index (EAI) dynamics as a measure of effectiveness of treatment with Valproic acid (VA), controlled-release Carbamazepine (CR CBZ), Oxcarbazepine (OXC), Levetiracetam (LEV), Lacosamide (LCM) in patients with newly diagnosed idiopathic generalized (IGE) and focal epilepsy (FE). **Material and methods.** 4-24 h long video-EEG was performed at the time of epilepsy diagnosis, and at every following visit. Each EEG recording was analyzed for the presence of focal, diffuse and generalized epileptiform activity in different brain functional states, namely before sleep, during sleep, after sleep and during night awakenings with an estimation of EAI. Thus, an EAI analysis and the efficacy were performed at the initiation of therapy, in 1, 3, 6, and 12 months. **Pharmacodynamic aggravation (PA)** was investigated in cases of sodium channel blockers use. Adverse events were assessed using "SIDAED" scale (SIDE Effects of Antiepileptic Drugs) separately for each antiseizure drug (ASD). Idiopathic and age-dependent focal epilepsy were not included in this study.

VA n=93 patients (male n=55, female n=38) with FE n=27 and IGE n=66, aged 14-71 year.

LEV n=107 patients (male n=46, female n=61) with FE n=42 and IGE n=65 aged 14-78 year.

Controlled-release CBZ n=62 (male n=38, female n=24) with newly diagnosed FE aged 18-79 year.

OXC n=103 patients (male n=56, female n=47) with newly diagnosed FE aged 16-81 year.

LCM n=36 patients (male n=22, female n=14) with FE aged 16-78 year.

Results. The highest level of EAI was registered prior to therapy start, and index levels lowered with the therapy with each of five ASDs by the 12 months of observation, these changes being statistically significant.

EAI may serve as an additional objective diagnostic criterion by means of total index, index prior to sleep, index after sleep and index during fragmentary night awakenings evaluation, thus helping to differentiate between the IGE and FE in difficult cases as early as the first 1-3 months of therapy.

EAI may reflect adverse events occurring with use of ASDs.

Total EAI and EAI prior to sleep may be used as a predictor of PA development with use of sodium channel blocking ASDs. PA was identified in 1.9% of cases when using OXC (2/103), 3.2% with CR CBZ (2/62), 2.8% with LCM (1/36). EAI increased in all cases of aggravation, decreasing after ASD change. This decrease was statistically significant.

Conclusion. EAI is an objective criterion of differential diagnosis between the IGE and FE in different brain functional states, reflecting dynamics of effectiveness of treatment with ASDs. These dynamic changes may serve an early objective marker of focal epilepsy in adult patients and reflect development of adverse events.

Biography

Vlasov Pavel

Academic title: MD -1985, PhD -1993, DM (Doctor of Medicine)-2001, Professor-2004

Present position: Professor of Neurology Department of Neurology of General Medical Faculty of Federal State Budgetary Educational Institution of Higher Education "A.I.Yevdokimov Moscow State University of Medicine and Dentistry" of the Ministry of Healthcare of the Russian Federation, Moscow. Neurologist-Consultant of Moscow Regional Research Institute of Obstetrics and Gynecology, and Neurologist-Consultant of Moscow City Hospital №29 and Perinatal Center. Research Interests - epilepsy, treatment, women with epilepsy. Member of the Expert Council of the RLAE.



ORAL SESSIONS

DAY 2

INTERNATIONAL CONFERENCE ON NEURO & BRAIN DISORDERS



Classification of stroke risk percentage in stroke riskometer among adult and elderly population

N. Shazia Neelam, S. Saina Swathi, P. Senthil

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a) Purpose of the study

To classify the range of stroke risk percentage prevalent in two age groups (adult and elderly population).
To identify the individuals at risk of stroke.

b) Background and Introduction

Risk factors of stroke are prevalent Worldwide, predicting stroke in order to prevent it still remains challenged. Stroke Riskometer comprises of 21 questions and gives absolute risk percentage value for 5 and 10 year and a relative risk is also predicted. Classification of stroke risk will provide better understanding to the people and might help in controlling the risk factors. Framingham stroke profile is one of the methods to assess the risk factors of stroke and cardiovascular diseases. It predicts the 10 year risk and classifies in low, moderate and high risk values. Stroke riskometer is compared with Framingham stroke profile to validate and classify the risks. Two age groups that are adult 40-60 and elderly >60 are surveyed, their identifiable risk factors are noted and risk percentage of stroke is calculated using the app.

Stroke Riskometer App is one of the easiest method present to know the risk percentage of stroke of an individual. Awareness of the App will be discussed and a study done to classify the percentage into low, moderate and high risk values will also be presented.

Biography

N. Shazia Neelam is Ph.D Research Scholar at Chettinad School of Physiotherapy, Chettiand Academy of Research and Education (CARE), kelambakkam, Chennai, India. She is having both Academic and Clinical experience for about 5 years in the field of Physiotherapy. She is a life member of the Indian Association of Physiotherapy (IAP). She has been awarded as a best Outgoing Student in the year 2014 and has a special interest in Neurological Physiotherapy mainly towards Stroke Rehabilitation and Prevention. Completed Master of Physiotherapy in Neurology in the year 2016 and published 3 articles on International Journals and published a book on Emerging Trends in Physiotherapy on July 2021.

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RNA Binding Protein, Lipids Pathways, Diacylglycerol and FMRP: Linkage in SARS-CoV-2 and Fragile X Syndrome

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University of Cantabria, Spain

SARS-CoV-2 interacts with angiotensin-converting enzyme 2 (ACE2) and infects ACE2-expressing cells leading to the down-regulation of ACE2 and angiotensin II (Ang II) accumulation. The interaction of Ang II with its G-protein coupled receptor results in the activation of phosphodiesterase phospholipase C (PLC) that degrades membrane-bound phosphatidylinositol 4,5-bisphosphate (PIP2) to inositol 1,4,5-triphosphate (IP3) and diacylglycerol (DAG). This leads to the release of cytokines and eicosanoids (leukotrienes, prostaglandin, and thromboxane A2). Inositol triphosphate (IP3)/DAG contribute to Ca²⁺ release from endoplasmic reticulum (ER) increasing intracellular Ca²⁺ and activating protein kinase C (PKC) and NF-κB, PI3K/AKT/mTOR and Ras/MAPK/ERK pathways releasing pro-inflammatory cytokines and regulating the transcription of viral and host proteins. In the absence of fragile X retardation mental protein (FMRP) as occurs in fragile X syndrome (FXS), it has been described an increased DAG level that activates the pathologic features of FXS. Then, the absence of FMRP would lead to increased DAG levels, hence elevation of the Ca²⁺ intracellular, and contribute to damaging effects of calcium entry. In addition, inflammasome NLRP3 is involved in the pathogenesis of diseases characterized by an excessive maladaptive inflammatory activation such as acute lung injury and recently described in COVID-19. It is regulated by DAG, as well as DAG increase results in the lack of B cell-T cell communication and abnormal antibodies function. This work collects for the first time the links between both COVID-19 and FXS, and propose FXS as a risk factor in COVID-19, as well as COVID-19 could impair FXS symptoms. It shows the potential role of described pathways in potential drugs for COVID-19 and FXS treatment

Biography

M.D. Bachelor's degree in Medicine with honors (2000).

Faculty of Medicine. University of Cantabria. Spain. Neurologist formed at University Hospital Marqués de Valdecilla (Santander).

MSc Pediatric Neurology and Neurodevelopment Disorders

MSc Neurology

MSc Neuropsychology

ADHD and child psychology specialist

I was born in Santander (Spain) where I studied Medicine and started my doctorate. I was trained in Neurology at the Marqués de Valdecilla University Hospital in Santander.

Since then I have dedicated my time to the practice of clinical neurology, to publications in various spaces (scientific journals and congresses at national and international level, newspapers, books, web pages, etc.) and the continuous study and updating in Neurology, Neuropediatrics, Neuropsychology and Child Psychology. As well as in diagnoses by neurophysiology and ultrasound.

I currently reside in Ceuta where I founded and direct Neuroceuta, a project specialized in the care, diagnosis and treatment of neurological diseases in an interdisciplinary way. Immersed in various studies on ADHD, dysphasias, Parkinson disease, Alzheimer's disease and COVID-19.

In the last year, author of 13 published articles (several Q1, Q2 and Q4 journals) and two books about Neurology and COVID-19. Editor and reviewer of multiple international scientific journals (Nature editorial among others). Several articles published in World Health Organization (WHO) COVID-19 collection. Two investigations project at World of Pandemic Research Network (WPRN). Publication in Centers for Disease Control and Prevention (CDC) of USA and Europe. Listed in Research Expertise and Collaborations indexed by Scopus, Elsevier. Listed in Public Health Emergency COVID-19 Initiative and Emerging Sources Citation Index

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Neuropsychology of executive functions

Emilio Diaz-Moreno

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Currently, there are a significant number of researchers who consider that Attention Deficit Hyperactivity Disorder (ADHD) is a reflection of executive dysfunction and more specifically of a deficit in inhibitory behavioural control. Research to date has shown that the frontal lobe plays a fundamental role in the regulation of many of the cognitive processes involved in ADHD, placing this area and its cortical extensions as responsible for behavioural inhibition.

Since Muriel Lezak, in 1982, designated the term executive functions as the essential abilities oriented towards problem solving, innumerable investigations have been carried out to understand the structure of this set of processes, mainly linked to the coordinated functioning of the cortical and subcortical systems of the frontal lobes.

In this sense, and thanks to the discovery of the mechanisms involved in these processes, a better understanding of disorders such as ADHD has been achieved, given the strong link between executive functions and planning, inhibitory control and inhibition processes, which are very common dysfunctions in subjects with this type of pathology.

Despite the relevance of these functions, two decades later, we still do not have a single effective model capable of explaining the complexity of these functions, mainly due to the multidimensionality of these processes.

That is why, as a starting point, we are going to present a model of executive functions based on cognitive processes, which would make it possible to assess and establish assessment protocols in a more effective way. In this way, we could solve the current problems surrounding the neuropsychological assessment of executive functions with greater precision and validity.

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The present study aims to evaluate gender specific lifestyle factors leading to stroke in general population

Priyanka Sethi

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Stroke is the second leading cause of death and third major cause of disability worldwide. Stroke is 4th leading cause for death and 5th leading causes for disability adjusted life years in India. Changes in lifestyles, behavioral patterns, demographic profile (aging population), socio-cultural and technological advancements are leading to increase in the prevalence of stroke.

The global burden of stroke is high inclusive of its increasing incidence, mortality, disability affected life years and economic impact, particularly in low- and middle-income countries. Stroke is estimated to have an overall incidence rate of 2-25 per thousand population and a total prevalence rate of around 5 per thousand population. This study aimed at finding association between lifestyle risk factors with gender and sex differences in prevalence of these 5 factors- Physical activity levels, smoking status, overweight/obesity, stress levels and alcohol intake. As Stroke is one of the most devastating neurological conditions often leading to disability or death. Lifestyle factors and their association with gender have an important role in stroke prevention which has not been emphasized much in the past. Previous studies either focused on establishing vascular risk factors for stroke or identifying lifestyle factors in people who already had stroke. Present study emphasizes on studying the prevalence of lifestyle risk factors for stroke including obesity, physical activity, stress, alcohol intake and smoking in males and females for stroke prevention in healthy population.

Biography

Dr. Priyanka Sethi is working as Assistant Professor, Department of Physiotherapy, Faculty of Allied Health Sciences, MRIIRS. She has a rich experience of 12.5 years in the field of Physiotherapy practice majorly in Academics, Clinical and Healthcare IT (Health fore Technologies) - the first Healthcare domain in North India with PAN India. Beside this, she has worked in various health related projects like Stroke rehabilitation, Ergonomics, Lifestyle management for Elderly and Diet counselling for diabetic patients for the Fortis Hospital. She has done her Graduation in 2007 from Guru Nanak Dev University (Punjab) and Masters in Physiotherapy IN 2009 from Lovely Professional University Phagwara (Punjab) with Specialization in Advanced Neurological Conditions, with specific interest in stroke rehabilitation. She is pursuing PhD in Physiotherapy from GD GOENKA University, Gurugram. She has completed various certifications in Taping Techniques conducted by Dr. Vikas Dhawan, Sports physiotherapist INDIAN WOMEN HOCKEY TEAM, also certified for Wheelchair Training, Hydrotherapy; Gait training, Hippo therapy for Spinal Cord Injury patients at Indian Spinal Cord Injury Centre, Delhi. She has treated more than 4000+ patients of different health conditions with neurological conditions.

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Circadian clock and dawn phenomenon

Sun Zheng, Ding G, Li X, Hou X, Zhou W, Gong Y, Liu F, He Y, Song J, Wang J, Basil P, Li W, Qian S, Saha P, Wang J, Cui C, Yang T, Zou K, Han Y, Amos CI, Xu Y, Chen L.

Baylor College of Medicine, USA

Systemic insulin sensitivity shows a diurnal rhythm with a peak upon waking. The molecular mechanism that underlies this temporal pattern is unclear. Here we show that the nuclear receptors REV-ERB- α and REV-ERB- β (referred to here as 'REV-ERB') in the GABAergic (γ -aminobutyric acid-producing) neurons in the suprachiasmatic nucleus (SCN) (SCNGABA neurons) control the diurnal rhythm of insulin-mediated suppression of hepatic glucose production in mice, without affecting diurnal eating or locomotor behaviours during regular light-dark cycles. REV-ERB regulates the rhythmic expression of genes that are involved in neurotransmission in the SCN, and modulates the oscillatory firing activity of SCNGABA neurons. Chemogenetic stimulation of SCNGABA neurons at waking leads to glucose intolerance, whereas restoration of the temporal pattern of either SCNGABA neuron firing or REV-ERB expression rescues the time-dependent glucose metabolic phenotype caused by REV-ERB depletion. In individuals with diabetes, an increased level of blood glucose after waking is a defining feature of the 'extended dawn phenomenon'. Patients with type 2 diabetes with the extended dawn phenomenon exhibit a differential temporal pattern of expression of REV-ERB genes compared to patients with type 2 diabetes who do not have the extended dawn phenomenon. These findings provide mechanistic insights into how the central circadian clock regulates the diurnal rhythm of hepatic insulin sensitivity, with implications for our understanding of the extended dawn phenomenon in type 2 diabetes.

Biography

Dr. Zheng Sun is Associate Professor at Baylor College of Medicine. Dr. Sun is a basic scientist in neuroendocrinology and metabolism. His research involves epigenome and circadian rhythm in metabolic and neurological diseases. He has made seminal findings regarding how the circadian clock regulates nutrient metabolism and how endocrine factors affect neurocognition.

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An Update on Management and Documentation of Care of Status Epilepticus

Olga Selioutski

University of Rochester, Newyork, USA

Status Epilepticus is a neurological emergency requiring timely diagnosis and rapid treatment to minimize comorbidities, improve outcomes and decrease overall cost of disease management. Several societies published updates on guidelines on pharmacological management of status epilepticus with the goal to improve care for this critical condition. At our institution we have adopted local guidelines for management of SE. In addition, we created an order set and formalized documentation in the electronic medical record that can facilitate care and ease documentation process.

Biography

Dr. Selioutski is an Associate Professor of Neurology at the University of Rochester. She has a subspecialty training in epilepsy with a major focus in neurophysiology, specifically in Critical Care EEG Monitoring. Management of Status Epilepticus is her clinical and academic focus.

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Natural compound honokiol acts as a neuroprotective agent in neurodevelopmental disorders

Xiaowen Bai, Thiago Arzua, Yasheng Yan, Sarah Logan

Medical College of Wisconsin, USA

Alcohol consumption by pregnant women can adversely affect the developing fetus, resulting in a spectrum of deficiencies known as Fetal Alcohol Spectrum Disorders (FASD), with a prevalence of 1.1%-5.0% in the USA. One significant consequence of FASD is alcohol-induced developmental neurotoxicity (AIDN) manifesting as cognitive impairment and behavioral problems throughout life, possibly related to neuronal cell loss, with no effective neuroprotective approach available. Honokiol, a non-pharmaceutical natural compound isolated from Magnolia tree bark, traditionally used in eastern medicine, has been recently shown to act as a protective agent in cerebrovascular injuries, epilepsy, and Alzheimer's disease. We have shown that brain organoids derived from human induced pluripotent stem cells are a promising human-relevant in vitro system to study the toxic effects of alcohol. With that, we hypothesized that honokiol could attenuate alcohol-induced toxicity in brain organoids. We found that alcohol concentration-dependently induced neuroapoptosis in organoids as evidenced by the increased activated caspase 3 expression and activity. Pretreatment with honokiol significantly attenuated alcohol exposure-induced neuroapoptosis. RT-PCR analysis showed that honokiol upregulated key neuroprotective genes. Additionally, Seahorse metabolic analysis revealed that honokiol significantly improved mitochondrial function in the alcohol-treated organoids.

Biography

Dr. Xiaowen Bai's research interests are centered on the application of stem cells on disease modeling and tissue regeneration. The current major focus of the laboratory is to examine the novel molecular mechanisms underlying the roles of non-coding RNAs, mitochondria, and genetic factors in neurodegeneration and heart injury in mice, and translate the findings to humans using human induced pluripotent stem cell-derived 3D cerebral organoids and heart tissue.

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Hegel, Lacan and Tienari contra the American Psychiatric Association.

Wilfried Ver Eecke

Georgetown University, USA

In this article I provide an argument against the official position of the American Psychiatric Association. In DSM-V-TR the authors of the book write: "There is a strong contribution for genetic factors in determining the risk for schizophrenia." The sentence continues by saying: "although most individuals who have been diagnosed with schizophrenia have no family history of psychosis" (DSM-V-TR, p. 103). The facts reported by DSM-V-TR contradict the stated belief.

On the basis of this stated belief medication is advocated for the treatment of patients suffering from schizophrenia. One of the possible consequences of this medication is dyskinesia (Dixon et al. 2009, The 2009 Schizophrenia PORT Psychosocial Treatment Recommendations" in Schizophrenia Bulletin 24, n0 1, 1-23).

In this article I argue that schizophrenia is the result of a lack of development of the patient as a child. Originally the child is totally dependent to the mother. This total dependence is not acceptable to a consciousness. Hence the child creates an imaginary solution based on the illusion that the child is everything to the mother. Hence the child can be assured that it will be cared for. This illusion is normally corrected if a father figure enters the psychic life of the child. When that illusion is not corrected then the child, as an adolescent, is vulnerable for a schizophrenic breakdown if an adult behaving as a protective mother puts limits on the adolescent which such an adolescent cannot deal with. I give the example of Hölderlin, the famous German poet, who had a schizophrenic breakdown when his promotor and protector, Schiller, declined Hölderlin's request for financial support for starting his own journal.

I end the article by describing three approaches to heal persons afflicted by schizophrenia: the approach by Prouty, by Karon and by Villemoes. I make use of Lacan's theory to explain the effectiveness of these three approaches.

Biography

Wilfried Ver Eecke obtained a doctorate in philosophy from the University of Louvain. He did doctoral and post-doctoral work in Paris (with Ricouer, Hyppolite, Lacan, and Benveniste), in Freiburg/iBr (with Lohmann) and at Harvard (with Putnam, Cavell, Erikson, Jakobson, Kagan, and Brow). He also obtained an M.A. in economics at Georgetown University. Professor Ver Eecke has been teaching at Georgetown since 1967, where he was also Chairman of the Philosophy Department from 1980-1983. He was awarded research grants from the Belgian Science Foundation, the French Government, and the von Humboldt Stiftung. In 1973, he received the annual prize of the Belgian Academy of Sciences and Humanities for a manuscript later published as *Negativity and Subjectivity*. His research interests include (1) Hegel; (2) philosophy of psychoanalysis with an emphasis on Lacan -- including ethical problems with the treatment of mentally ill persons; (3) ethics and economics -- including public policy implications; (4) Contemporary Continental philosophy; (5) the concept of person; and (6) political and social philosophy -- including distributive justice.

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