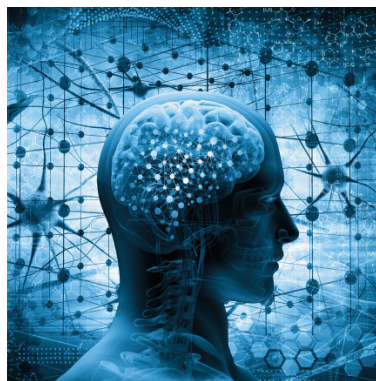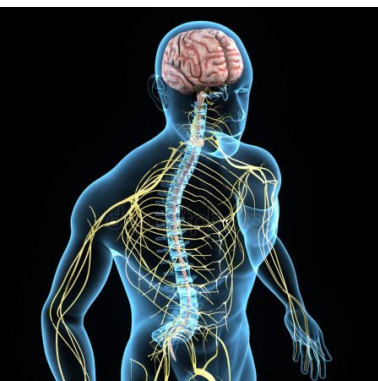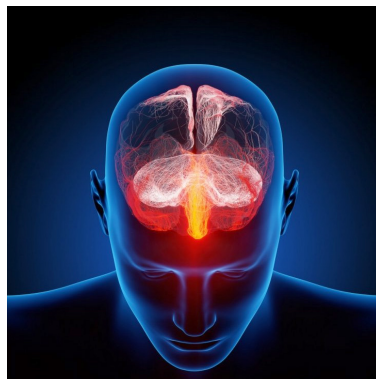# Poster Presentation

Vascular Dementia 2019
Stroke 2019

12th International Conference on
Vascular Dementia and Dementia
&
8th International Conference on on
Neurological Disorders and Stroke
March 14-16, 2019 | London, UK

Joint Event

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Neurological Disorders and Stroke

March 14-16, 2019 | London, UK

Blood-Brain Barrier permeability in mid-age APOE e4 carriers

Nourah Alruwais[1], Jennifer Rusted[1], Naji Tabet[2] and **Nicholas Dowell[2]**
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Background: Studies suggest that neuropathology of Alzheimer's disease (AD) begins years before clinical diagnosis is made. Early structural brain changes may include increased permeability of the blood-brain barrier (BBB), microhaemorrhages, and increased deposition of haemosederin. We ask whether such changes are present in healthy people at a higher risk for late onset, non-familial AD, namely carriers of the Apolipoprotein E epsilon-4 genotype.

Objectives: To assess whether APOE4 status is associated with subtle brain changes in mid age and whether such changes, if any, are related to fine deficits in cognition.

Methods: Healthy mid-age adults (45-55) will be genotyped and pseudo-randomly selected to participate in the second part of the study, which comprises a blood sample for biomarker analysis, a memory task and a Gadolinium-based MRI scan.

Measures: Measures will include structural imaging to measure brain volume differences, quantitative susceptibility mapping to look at microbleed information and iron deposits, post gadolinium T1 weighted imaging to measure BBB permeability, blood markers to measure inflammation and Ferritin levels, and prospective memory and attention.

Expected Outcomes: Significant differences are anticipated in the composite profiles between healthy mid-age APOEe4 carriers and non-carriers, matched on age, education and gender. Biomarker differences are anticipated to correlate with cognitive performance and indices of the presence of inflammation. The results from this study will have a significant potential for impact on early diagnosis of Alzheimer's disease before symptoms even show and will facilitate early interventions to help reverse and/or slow down the trajectory of decline.

Speaker Biography

Nourah Alruwais is a second year PhD student at the college of Psychology, Sussex University, UK. She completed her MSc in Medical Imaging from Surrey University, UK in 2014. She is a scholar from King Saud University, Saudi Arabia where she has taught Medical Imaging Courses since 2006. She is interested in Neuroimaging research and Dementia.

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Analysis of the onset of Ischemic Stroke and an atmospheric parameter (anomalous Equivalent Potential Temperature – EPT)

Andras Folyovich[1], Biczó D[1], Al Muhanna N[1], Jarecsny T[1], Béres Molnár KA[1], Pintér F[2], Pintér Á[3], Fejős Á[2], Pálosi M[4] and **Bereczki B[5]**

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Introduction: Among the risk factors of stroke meteorological conditions are present. They are forecastable and have practical importance in the acute care. Previously we demonstrated a meteorological parameter, the equivalent potential temperature (EPT), anomalous value of which (aEPT) indicates an unfavourable effect on acute ischemic stroke (AIS) outcome. As compare ischemic stroke and myocardial infarction, we found different behaviour of these two disorders. The EPT characterizes air masses from different regions, a significant deviation from the 30-year average is the anomalous period or day (AD). In present work aEPT was compared to the onset of AIS. The indicator for AIS was the number of thrombolysis (TT). The narrow time window of TT enables the precise determination of the disease onset. Patients and method: We compared the number of TTs and aEPT periods in Budapest region during 01.12.2014-28.02.2015 (the period was chosen to have possibility of comparison with previous data). Because of the atmospheric conditions of the Carpathian Basin we analyzed the winter months. Patients' data were analyzed anonymously. The daily numbers of TTs were provided by the National Institute of Health Insurance Fund Management. Statistics were done by Student's t-test.

Results: Of the 90 days 32 were ADs. The number of TTs was 243, 69 (28.4%) of it were performed on ADs. The average number of TTs was 2.16 on ADs and 3.00 on non-ADs. TT rate was 1.86 during positive, 2.8 during negative aEPTs periods. There was no statistically significant difference (p=0,3684) between ADs and non-ADs.

Conclusion: we did not find an increase (but rather a decrease) in AIS during aEPT periods. This apparently contradicts the relationship between the aEPT value and the fatal outcome of stroke. The reason may be that patients treated with TT are not among the most serious cases, which increase the mortality rate.

Speaker Biography

Andras Folyovich graduated at the Medical Faculty of Semmelweis University, and trained at the Department of Neurology of the same university. He obtained Board Certification in Neurology in 1983, in Psychiatry in 1993 and in Vascular Neurology in 2015. His PhD dissertation dealt with socio-economical aspects of stroke. He has been a pioneer in widening medical enteral nutrition of acute stroke patients in Hungary. He is the editorial board member of Clinical Neuroscience/Ideggyógyászati Szemle and Journal of Hungarian General Practitioners. Membership of scientific societies: Hungarian Neurological Society, Hungarian Stroke Society, Hungarian Medical Nutrition Society, Hungarian Meteorological Society. He is the medical director of Hungarian National Stroke Prevention and Rehabilitation League.

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Analysis of medical enteral nutrition of Acute Stroke patients in a Hungarian Stroke Center

Béres-Molnár KA[1], Jarecsny T[1], Al-Muhanna N[1], Jánoska D[1], Dudás E[1], Köles B[1], Folyovich A[1], Kovács A[2] and Molnár A[3],
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Introduction: 30-50% of acute stroke patients (ASPs) suffer from dysphagia. These patients have a higher risk for dehydration, malnutrition, aspiration pneumonia, pressure ulcer. Their prognosis is worse, mortality is higher. However, the medical enteral nutrition (MET) is not sufficiently known at neurological departments. To change it, it is necessary to know the number and characteristics of patients with dysphagia. Early malnutrition, sarcopenia, dysphagia screening and management are recommended.

Patients and method: malnutrition universal screening tool (MUST) and clinical bedside dysphagia assessment (CBA) by trained speech therapist were the screening methods. Latter contained Water-Swallowing-Test (WST), Multiple-Consistency-Test, Gugging Swallowing Screen (GUSS), Swallowing-Provocation-Test (SPT) were carried out in all ASPs after hospital admission. Our prospective study contains the data of ASPs admitted to our department. Their routine therapeutic protocol was supplemented by MET. We analyzed the history of the first 31 (23 women, 8 men) ASPs.

Results: The average age of the patients was 79.66 years, neurological state (modified Rankin Scale - mRS – average value: 4.84) was serious, nutritional risk was high (MUST-score - average: 2.90). The most common co-morbidities were hypertension, diabetes, atrial fibrillation. 4 patients had Clostridium difficile infection. 10 patients had remarkable dysphagia. At the time of admission 9 patients were malnourished, 3 overweight. During the hospitalisation 5 patients were fed orally, 25 by nasogastric tube, 1 via PEG. 18 patients died, 10 patients were transmitted to chronic or rehabilitation ward, 3 were discharged home. The mRS value of the survivals fell down from 4.58 to 4.08.

Conclusion: MET is administrated usually for ASPs with serious general and neurological condition independently from dysphagia. Improvement can be achieved in survivors of this group as well and the role of MET is presumable. MET for patients with less severe condition is certainly useful, for this purpose further cost-effectiveness studies are needed.

Speaker Biography

Béres-Molnár KA was graduated at the Medical Faculty of Semmelweis University, and trained at the Department of Neurology and Stroke of Szent János University Hospital, Budapest. She obtained Board Certification in Neurology in 2017. Her main areas of scientific interest are immunological changes during acute stroke, stroke epidemiology and medical enteral nutrition of stroke patients. She is the Secretary of Horányi Béla Clinical Neuroscience Society and of Board of Trustees of Csanda Endre Neurological Foundation.

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Evaluation and objective characterisation of Brain function by quantitative EEG in normal controls and patients of major Depressive Disorder

Tamal Basak
Kolkata Medical College, India

Introduction: EEG Signal Processing: Signal processing is the enabling technology for the generation, transformation, and interpretation of information. At different stages of time our brain reacts differently. These brain signals used for various purposes so that it is possible to study the functionalities of brain properly by generating, transforming and interpreting the collected signal. This process is known as brain signal processing. Researchers have focused on brain signals since the beginning of the last century and several attempts to understand and interpret those signals have been proposed. Characteristics of EEG Wave Bands: The EEG signal is traditionally divided into spectral broad frequency bands related to EEG generators and rhythms: delta, theta, alpha, and beta.

Objective:

- To evaluate and characterise brain electrophysiology by quantitative EEG in normal controls and patients of major depressive disorder

- To assess the efficiency of quantitative EEG in studying brain electrophysiology

- To correlate qEEG parameters with clinical scoring parameters in assessing brain electrophysiology in major depressive disorder

- To evaluate the event related potential against visual and auditory stimuli in major depressive disorder as compared to normal controls

- To compare qEEG parameters in major depressive disorder with that of in schizophrenia and obsessive compulsive disorder

Methodology: Recording procedure: Regular EEG will be recorded with routine Bipolar and Referential montages. Along with that, a registry of the long latency event-related potentials will be carried out with visual and auditory task (Sternberg paradigm, 1966). Both memory task and reaction time evaluation should be conducted. Data mining: The digital data of the subject specific (both Control and Case) EEG time series were retrieved and archived in specific drive destination, in ASCII format. They were categorised in accordance with their independent variable. Descriptive: Analysis of the amplitude, duration, latency, phase of the different waves were first carried out manually and with the cursor on the screen, identifying each one of the waves visually, paying attention to both the negative as well as positive inflections that occur sequentially to the stimulation performed, with an analysis window of 1,000 msec from the onset of the visual stimulus. Necessary rejection of the artefacts was carried out.

Objective: The digital data of the subject specific EEG time series will be analysed using standard software algorithm in MATLAB platform. Another option EEGLAB tool box, which is an open source utility for analysis of EEG dynamics, can be used. Statistical analysis: The statistical analysis of the results will be performed by using different statistical designs; depending upon the characteristics of the variables, and inter-relation between them. Implications: Quantitative EEG (qEEG) deals with the evaluation of the brain electrophysiology for objective characterisation of the wave pattern and extraction of the embedded information, utilising standard and customised software tools and mathematical algorithm to undertake various transformation procedures to decompose the complex brain signals, both in time-domain and frequency-domain analysis platform. Major Depressive Disorder (MDD) has been associated with alterations in cognitive function as well with memory and attention problems; the neurophysiological mechanisms of which are still unknown. Characterisation of brain electrophysiology by qEEG in MDD patients by correlation of qEEG parameters with clinical scoring parameters will likely elucidate the underlying mechanism.
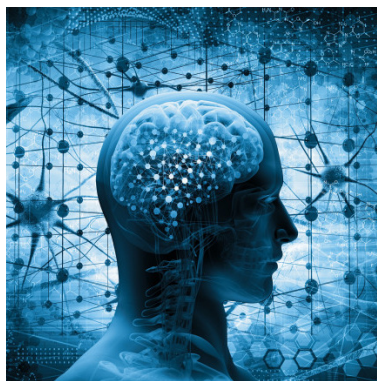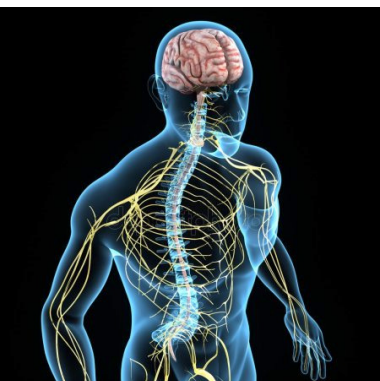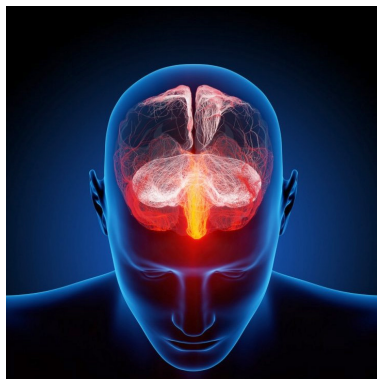
Speaker Biography

Tamal Basak is a final year medical student of Medical College, Kolkata, India. He has actively participated in the several health camp organised by South Asian Medical Students' Association. He has participated in ICMR- STS programme in 2016.

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e - Poster

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Memory Recollection Program of Dancing

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[3]Himeji University, Japan
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Introduction: Since dementia has no effective drug therapy, it is necessary to accumulate evidence of preventive therapy. Therapies that have been considered effective include exercise therapies and delayed recall tasks. This time, we developed a new therapy combining dance, which is an aerobic exercise, and delayed recall tasks, and conducted a clinical trial with elderly people living in the local area.

Method: We recruited elderly people openly, and carried out a therapy combining dance and delayed recall tasks on them once a week, seven times total. We used the cognitive test which the National Police Agency uses for driver's license renewal in Japan. Those who get 76 or more scores are normal, and those who get the scores between 49 and 76 have mild cognitive impairment. And those who get less than 49 scores have cognitive decline. In order to compare the cognitive ability before and after the clinical trial, a paired t-test was used.

Result: Among 58 participants, we analyzed the data of 42 subjects who participated continuously and could have a paired t-test. The average age of subjects was 70.5 ± 5.9 years old. 3 of them were males and 39 of them were females. The average score increased from 88.0 to 94.6. The number of those who have normal cognitive functions increased from 37 to 41. The number of those who have mild cognitive impairments decreased from 5 to 1. The number of those who have dementia was 0 (p <0.01).

Conclusion: Since dancing is an aerobic exercise, it increases the cerebral blood flow rate and increases brain-derived neurotrophic factors. In addition, their memories were improved by adding memory tasks. As a result, 4 participants with cognitive impairment returned to normal evaluation scores. This is a very significant result. In the future, we would like to further increase the accuracy of the program and accumulate the necessary data to verify its efficacy. This research funding is scientific research expenses of the Japanese Ministry of Health, Labor and Welfare. We are grateful to Nippon Street dance Studio Association for their contributions to the study.

Speaker Biography

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A survey of expectations about using robot therapy for the elderly

Kazue Sawami[1], Kimura M[1], Kitamura T[1], Furusumi M[1], Kawaguchi M[1], Suishu C[2], Morisaki N[3] and **Hattori S[4]**
[1]Nara Medical University, Japan
[2]Shubun University, Japan
[3]Himeji University, Japan
[4]Wakayama Medical University, Japan

Introduction: Japan's life expectancy has grown, with people now able to live until they are 100 years old. It is a wish of all people to spend their old age richly and happily. However, as the population of young people is decreasing, it is necessary to devise measures to support the elderly. With this in mind, we hold seminars about supporting the elderly once every two weeks to train supporters to have the necessary expertise and skills. On top of that we are experimenting in using a communication robot as an assistant. This time at the supporter seminar, we will carry out training in robot therapy for the seminar attendees and announce the results of a questionnaire about the use of robots.

Method: The target of the questionnaire was 41 supporter seminar attendees, and the survey items are opinions on the psychological influence of robot therapy and the use of robots.

Result: The average age of the attendees was 60.1 ± 9.5 years old, 35 females and 6 males. The top five influences of robot therapy were as follows. 1) Fun, 2) Cheers you up, 3) Improvement of mind and body by dancing with a robot, 4) Improvement in cognitive functions through communication, 5) Helps with stress prevention. The opinions of robot therapy were able to be used by elderly people without putting them in any harm, able to be used as a supplement for exercise, provides brain training, someone to talk to and provides psychological care.

Conclusion: Not only for fun and healing, the influence of robot therapy has been mentioned as a way to improve mental and physical functions. In the utilization method, the ability to avoid harm to the elderly is cited first, so the two points of improvement in mental and physical functions and avoiding risk by the robot could be focused on as the goal of robot therapy. This research funding is scientific research expenses of the Japanese Ministry of Education, Culture, Sports, Science and Technology. We are grateful to NTT East for their contributions to the study.

Speaker Biography

Kazue Sawami of the presenter of this research is a professor at Nara Medical University. Her Ph.D. acquisition is a health science, and the recent study is the prevention of dementia in elderly people. Research currently being developed is the intervention by artificial intelligence, and support of the elderly by the information equipment remote control system. Results of their research group can be viewed at the following address.

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Disregard to the left visual space and Neuroticism in the anamnesis of the Cerebral Stroke survivor with unilateral visual neglect and moderate depression

Makashvili M[1], Kotetishvili B[2], Khachidze I[3], Gubianuri T[4] and **Kotetishvili A[5]**

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Premorbid personality traits and cognitive abilities are suggested to predict the changes in personality and cognition after the cerebral ischemic stroke in stroke survivors. However, the data are limited to the relatively small number of studies. To extend the data in this direction, we report on the pre-and post-stroke cognitive abilities and personality traits of the patient, male, 65, right-hander, who survived after the cerebral ischemic stroke to the frontal and temporal regions in the left brain hemisphere. Patient displayed right hemiparesis, motor aphasia and partial inability to understand the verbal instructions. Bell test (BT) and the task on copying and drawing the clock were administered to assess the post stroke unilateral visual neglect (UVN). Omissions of the details in the left part of the clock were registered. Patient failed to cancel some figures in the left space in the BT. Patient was diagnosed as having UVN. Caregiver was asked to describe the behavior and personality traits of the patient 2-3 months before the stroke and to fulfill the Beck depression inventory (BDI) to assess the mood of the patient for throughout the year after the stroke. According to caregiver, two months before the cerebral stroke patient displayed trouble in paying attention to the left side of the visual space. In particular, when driving a car, he disregarded the obstacles in left part of the road and felt into car accident two times. BDI scores (21) pointed to the moderate depression after the stroke. Caregiver witnessed increased neuroticism of the patient 3 months before the ischemic insult. We suggest association between the premorbid incidents of the disregard to the left space and after-stroke UVN. Premorbid neuroticism is suggested to associate to the after-stroke depression.

Speaker Biography

Makashvili M is the professor of Ilia University, Tbilisi, Georgia. He completed his PhD at the I.Beritashvili Institute of Physiology, Tbilisi, Georgia. He is an author of 15 scientific articles in the field of neuropsychology and neurophysiology, cited 14 times. Kotetishvili B is a doctor of medicine, leading neurologist at the Psycho-Neurological clinic, Tbilisi, Georgia. Khachidze I is a doctor of sciences, physiologist at the I.Beritashvili Center of Experimental Biomedicine. Gubianuri T is a MB of psychology at the Ilia State University, Tbilisi, Georgia. Kotetishvili A occupies the position of the intern at the Psycho-Neurological clinic, Tbilisi, Georgia.

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Accepted Abstracts

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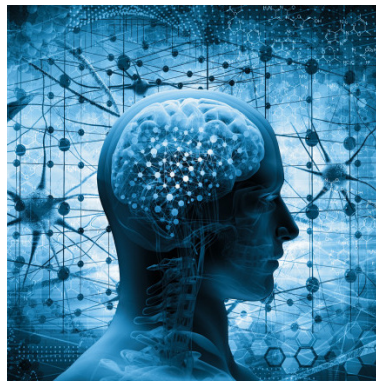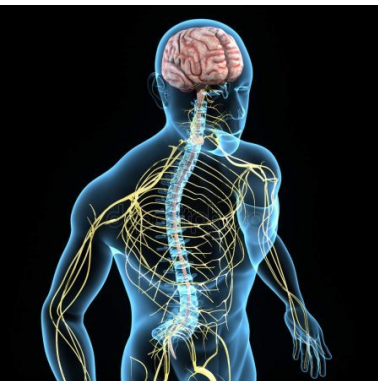
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Dementia: Alzheimer as a run-away Auto-immune disease

Alain L Fymat

International Institute of Medicine and Science, USA

Dementia is a broad category of brain diseases that cause a long-term and often gradual decrease in cognitive, emotional, functional and behavioral ability, resulting ultimately in death. The affected person's consciousness is not impaired. The most common type of dementia is Alzheimer disease (AD), which makes up 50% to 70% of cases. Other common types include vascular dementia (25%), Lewy body dementia (15%), and frontotemporal dementia. Less common causes include normal pressure hydrocephalus, Parkinson's disease dementia, syphilis, and Creutzfeldt–Jakob disease among others. More than one type of dementia may exist in the same person. A small proportion of cases run in families. I will concentrate on AD which, once considered a rare disorder over the past few decades, has emerged from obscurity to become a major public health problem. Based on a lack of treatment, it has generally been considered as an irreversible, progressive brain disease. It is a chronic neurodegenerative disorder of poorly (or not) understood cause(s). Based on identified risk factors, beyond genetics, several theories (15 or more), have been propounded for its cause(s). Such a wide array of hypotheses is by itself indicative of our lack of true understanding and knowledge of the disease notwithstanding the fact that the disease has been identified since 1901 and has been the subject of a considerable number of publications dealing with it (in excess of 50,000, according to some authors). Despite claims by some

research clinicians, there are currently no known treatments if only to stop or reverse its progression. Some of these alleged "treatments", including the advocated program ("DESS": Diet, Exercise, Stress, Sleep, and variations on this theme) are palliative in nature, temporarily improving symptoms, while the disease progresses unabated. One must keep in mind that risk is not causation and risk management is not cure!

Research has rather focused on diagnosing the condition before symptoms begin. Thus, a number of biochemical tests have been developed to attempt earlier detection. Again, however helpful, such tests are not curative. I will posit that the compromised integrity of the blood brain barrier is a component of the etiology of the disease, not a consequence of it. I will further submit that the root cause of the disease is the brain's autoimmune system having gone rogue (a sort of "run away" effect) in its unsuccessful attempts to maintain brain homeostasis between the antagonistic synaptoblastic and synaptoclastic pressures. The cure would be to balance these pressures by regulating the system rather than fiercely combating either the hyper-excited synaptoblastic pressures or/and suppressing the synaptoclastic ones. I will review and discuss the above factors and also offer some potential curative approaches, including natural and synthetic (chimeric antigen receptor CAR T-cells) cell-based immunotherapies utilizing Treg-cells.

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The many faces of Concussion

David Wang
Connecticut Children's Medical Center, USA

Previously stated in the international consensus statements, a concussion is defined as a complexed pathophysiologic process. Inherent in the term "complexed pathophysiologic process" is the fact that the presentation of concussion can be widely varied. Concussion presentations include variable symptoms, symptom clusters, and severities. Consequently, the diagnosis of concussion has not always been straightforward, especially when premorbid conditions exist. Those who evaluate concussions are saddled with the fact that they must often rely upon the patient's reported symptoms. These well-recognized symptoms are often followed until there has been a resolution of the concussion. To help diagnose concussions, easy to administer neurocognitive tests were created. These neurocognitive tests, which were once relied upon, are now being used less frequently due to the inherent weaknesses and inconsistencies of the tests. Concussion diagnosis is now facilitated by other more measurable deficiencies such as ocular motor dysfunction, balance impairments, or impaired physiologic response to exercise. More recently, biomarkers have been studied to help facilitate the diagnosis of concussion, but are not yet proven to be effective in the management of concussion within the general population. To date, imaging studies have been ineffective in the diagnosis of concussion, as a concussion is a functional injury rather than a structural one. More advanced imaging studies such as DTI MRI's and functional MRI's are being studied at research centers, but are not ready to be used outside of the research environment. Outside of imaging, a functional assessment of concussion using EEG or a variant of EEG is also being studied. Although there is an abundance of new and exciting research currently being performed regarding the diagnosis of concussion, the mainstay of the current concussion diagnosis and management still relies upon a thorough history and physical examination.

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Framework utilizing machine learning to facilitate gait analysis as an indicator of Vascular Dementia

Arshia Khan
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Vascular dementia (VD), the second most common type of dementia, effects approximately 13.9 per cent of people over the age of 71 in the United States alone. 26% of individuals develop VD after being diagnosed with congestive heart failure. Memory and cognition are increasingly affected as dementia progresses. However, these are not the first symptoms to appear in some types of dementia. Alterations in gait and executive functioning have been associated Vascular Cognitive Impairment (VCI). Research findings suggest that gait may be one of the earliest affected systems during onset of VCI, immediately following a vascular episode. The diagnosis tools currently utilized for VD are focused on memory impairment, which is only observed in later stages of VD. Hence we are proposing a framework that isolates gait and executive functioning analysis by applying machine learning to predict VD before cognition is affected, so pharmacological treatments can be used to postpone the onset of cognitive impairment. Over a period of time, we hope to be able to develop prediction algorithms that will not only identify but also predict vascular dementia.

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Solving the care giving crisis

Tracey S Lawrence
Grand Family Planning LLC, USA

Our Mission

• End the current cycle of misery and impoverishment

• Enable quality of life through education and implementation

• Establish a data collection system that is secure, HIPAA compliant, enabling premium self-care, enlightened caregiving, effective and timely treatment, as well as research data that can lead to cures and new enabling technologies

• Facilitate collaboration between medical and professional communities and the consumers they serve

• Keep people at home where they thrive longer

Our concept is to use this Community model that brings all interested and appropriate individuals and organizations together to work collaboratively on the solution. Sharing of data, insights, methodologies and other ideas will be accessible to all information gathered will be maintained under HIPAA compliant standards.

Technologies

• Existing collaborative web platform (20 years, 2 million users)

• Wearable health-monitoring devices

• Telemedicine-enabled environment

• Solid education-delivery system with expert, custom content, for consumers and professional certifications training

• Web-conferencing for caregiver support and education

• Call Centres for member intake, triage, care management

• Block chain data mining and management

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Alzheimer's disease and severe cerebral Amyloid Angiopathy; (CAA), CAA related Leukodystrophy leading to synergistic rapidly progressive Dementia

John P Provias
Hamilton Health Sciences, Canada

We present an informative case of a female with a rapidly progressive dementing illness clinically, initially thought to represent a form of prion encephalopathy. The patient succumbed to the illness after an approximate two month course and came to a neuro autopsy. Examination of the brain showed no changes of prion disease, but rather typical Alzheimer's disease neuropathology with a severe cerebral amyloid angiopathy (CAA). No other significant small vessel disease such as hyalinizing arteriosclerosis was present. The severe CAA was widespread, was unassociated with infarction, but lead to a marked generalized secondary leukodystrophy. We emphasize the interrelationship of Alzheimer's disease and CAA, in particular severe CAA which can produce a vascular based leukodystrophy. This in turn can synergize with and contribute significantly to the dementia. This can contribute to the underlying pathogenesis of the dementia through a white matter disconnection syndrome with acceleration of progression of the Alzheimer-type pathology. Furthermore, the accelerated clinical course due to the synergism can mimic other dementias such as prion disease.

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Stroke awareness: Comparing Brazil to the rest of the world

Fidel Meira

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Stroke is one of the main causes of death worldwide and a leading cause of permanent disability among adults in developed countries. In Brazil, the incidence of ischemic stroke varies from 105 to 137/100,000 inhabitants, and patients with stroke exhibit high prevalence rates of ischemic heart disease, hypertension, and diabetes mellitus. Some studies have shown that campaigns on television and in printed materials are good tools to improve the population's awareness about stroke and the need to contact emergency services. The correct (and prompt) recognition of stroke signs has been just as crucial as the admission to a stroke service to the achievement of better results in stroke care, including a reduction in mortality and disability.

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Notes:

Joint Event

12th International Conference on

Vascular Dementia and Dementia

&

8th International Conference on

Neurological Disorders and Stroke

March 14-16, 2019 | London, UK

Noninvasive Magnetic Resonance Imaging for Quantitative Brain Assessment

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Magnetic Resonance Imaging (MRI) for the assessment of cerebral blood perfusion has been routinely used for an increasing number of clinical indications, including cerebrovascular diseases, neoplasms, degenerative and psychiatric disorders. Noninvasive and quantitative MRI techniques include the Arterial Spin Labeling (ASL) and Intravoxel Incoherent Motion (IVIM). ASL uses hydrogen present in arterial blood as an endogenous contrast agent. Briefly, the method consists of magnetically labeling arterial blood by applying radiofrequency pulses. After the labeled blood reaches the region of interest, the images are acquired and then subtracted from control images (without labeling), resulting in a perfusion-weighted map proportional to the cerebral blood flow (CBF). Then, image processing and signal modeling enable CBF quantification. In addition to CBF maps, ASL provides information about perfusion territories of main cerebral arteries, vascular reactivity to hypercapnia challenge, and functional response of the brain during a task or at rest. Moreover, IVIM is a diffusion-weighted MRI method, which can separate the intravoxel signal into classical diffusion and perfusion-related contributions. Its combination with ASL enables quantitative assessment of the blood-brain barrier permeability without using an exogenous contrast agent, as the gadolinium. Therefore, I will discuss the basic principles, main applications, methodological difficulties and limitations of both ASL and IVIM for the assessment of neurological disorders.

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Cavern lesion in brain-stem diagnosis and treatment

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Cavern lesions are formed by sinusoidal vascular spaces with no cerebral parenchyma between them are a common cause of spontaneous brainstem hemorrhage. Seizures are the most usual clinical presentation, magnetic resonance demonstrates characteristic findings of multiple hemorrhages of varying ages surrounded by a hypointense peripheral zone of hemosiderin, the majority are located in the supratentorial region. Surgical exploration should be considered for vascular brainstem malformations, when the diagnosis is confirmed by magnetic resonance criteria and the clinical course and lesion are both progressive in character.

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Effect of Essential Oils of *Citrus sinensis* (L.) Osbeck on memory mediated by Acetylcholinesterase inhibition

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Introduction: Alzheimer's disease (AD) is a chronic neurodegenerative disorder characterized clinically by the progressive loss of cognitive function, neuropsychiatric and behavioral disorders. There are few studies on inhibition of enzymes linked with AD by plant essential oils (EO), despite its advantages, such as availability, few side effects or toxicity, and biodegradability.

Considering the potential of Citrus sinensis (L.) Osbeck to inhibit acetylcholinesterase (AChE), this research aims to evaluate the effect of its EO on memory.

Methodology: To assess spatial reference memory, male albino rats were tested on Morris water maze. The animals were divided into 5 groups: Control (N=7), EO 50mg/kg (n=6), EO 100mg/kg (n=6) and EO 200mg/kg (n=5). All animals received oral administration 24h before training. The latency to reach a hidden platform was recorded.

Results and Discussion: All doses of Citrus sinensis (L.) Osbeck EO significantly reduced the time to find the platform submerged in Morris's water maze test when comparing the control group. The inhibitory effect of the EO on AChE plays a role in memory mediation, as well as in cognitive and behavioral function. AChE inhibitors are currently an important and symptomatic intervention for AD. Their clinical benefit derive primarily from an increase in synaptic acetylcholine levels, leading to enhanced cholinergic neurotransmission which improves activities of daily living, behavior, and cognitive performance.

Conclusion: The Orange's EO increase acetylcholine levels and improve learning and memory impairments. Overall, these results highlighted essential oil of Citrus sinensis (L.) Osbeck as a promising and innovative tool in the therapeutic approach to AD.

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Analysis of Tau in neuron-derived extracellular vesicles

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Introduction: Recent Alzheimer's disease (AD) drug trials have highlighted a need for better diagnosis of study participants, and the development of biomarkers that can be used to monitor response to therapy. Measurement of tau and the amyloid beta-protein in cerebrospinal fluid (CSF) is unpopular with patients, and quantitation of amyloid by PET imaging is expensive. Thus, there is an urgent need for less costly and intrusive, and more widely available, blood-based biomarkers. Measurement of the tau and Aβ in brain-derived blood-borne extracellular vesicles (EVs) should reflect changes occurring in the brain. In addition, EVs have been proposed to drive the spread of neurofibrillary tangles (NFTs) pathology in AD brains. Thus, measurement of tau in EVs may both facilitate biomarker development and provide insight on the molecular pathology of AD. Methods: We used differential centrifugation to isolate and characterize exosomes from cultured primary and iPSC-derived neurons (iNs), as well as from human CSF and plasma. Since the MTBR domain of tau is known to drive aggregation, we set out to determine whether MTBR-containing forms of tau are present in neural EVs. Results: In medium from 2 different iN lines, we detected MTBR-containing tau in exosomes at very low levels. Analysis of the exosomes pellet from CSF revealed low levels of tau, equivalent to ~0.1 pg per ml of CSF. As was evident with EVs from cultured neurons and CSF, neurally-derived exosomes from human plasma also contained aggregation-competent tau. Conclusions: Exosomes contain aggregated-competent tau, but further studies will be required to examine the potential for tau-containing exosomes to seed aggregation in the recipient cells.

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Health & Welfare lasting powers of attorney and the mental capacity act what healthcare professionals need to know

Hillary Cragg
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The Mental Capacity Act has been in force for over a decade, there is a sense that it is familiar and understood, yet in practice is not necessarily as well understood as was intended by Parliament. The health and social care system has created processed intended to comply with the terms of the Mental Capacity Act and yet by becoming process driven can fail to fulfil the empowering obligations that are intended in the Act. When the Mental Capacity Act came into force, it became possible to appoint someone to act for the donor regarding their health and social care decisions. When health and social care professionals are then dealing with an attorney, what should they know and how should they treat the decisions made by the attorney. What exactly are the decisions that the health and social care professional can make and what decisions can the attorney make?

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The importance of independent advocacy for Dementia sufferers and their families

Lyn Jones

Health Advocacy Ltd, UK

Health Advocacy UK are national providers of an Independent Advocacy for Dementia sufferers and their families. Many dementia sufferers and their families feel bewildered and powerless and can often feel that decisions are being made by Health and Social Care Professionals which will have a dramatic effect on their future, but in which they are not given an opportunity to provide an input. Individuals face challenges in communicating with other professionals regarding their relative's care or accommodation requirements. Independent Advocacy provides advice and guidance for families who are living with or caring for a person suffering from dementia in a structured way using 'simple English'.

Pure Advocacy is the provision of options, information and support in order that that they individuals can make informed decisions and choices and can feel supported in the practical application of those decisions and choices.

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An interactive presentation and open discussion of the needs of an LGBTQ+ person living with Dementia

Phil Harper
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Session Objectives:

• To identify key needs of LGBTQ+ people who may be living with dementia

• To think about current service provision for LGBTQ+ people who may be living with dementia

• To explore theories within sexuality and gender and their application for a person living with dementia.

• To demonstrate knowledge about how a person's identity is linked with their sexuality and Gender and the implications this could have for a person living with dementia.

Fictional Case study: Alice is a transgender person who is living with Alzheimer's disease. Alice identifies as a woman, she has had gender reassignment surgery. Alice is in the moderate stage of her Alzheimer's disease. Alice is currently living in a residential care home specialising in dementia care. Alice in later years has identified as a lesbian.

Context: According to the Semlyen (2016) there are no accurate statistics on LGBTQ+ (Lesbian, Gay, Bisexual, Transgender and Queer) people living with dementia. However, it is estimated that there are 1.2 million older gay and lesbian people in the U.K (Semlyen 2016). If you apply this statistic to the fact that one in fourteen people over the age of 65 may develop a form of dementia (Alzheimer's Society 2017), you can estimate that there could be approximately 85,714 gay and lesbian people with dementia. This approximate demonstrates that there is a need for services such as care homes to recognise the specific needs of a Gay and lesbian person with dementia. The estimate however does not take into account transgender or other non-binary people living with dementia, the number of LGBTQ+ people with dementia could therefore be a greater number.

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Cognitive ability assessment in children with Benign Childhood Epilepsy with Centrotemporal Spikes (BECTS)

Antonella Carli

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Epilepsy is one of the most emotionally-related chronic diseases, due to the onset occurs frequently during the age of development and for typical clinical manifestations. The 12-14% of the infant population with the epileptic syndrome has comorbid symptoms of anxiety and depression with an impact on all people small patient surround, but also for hard impact on his cognitive functions. A cognitive assessment at the pathology onset and its clinical course monitoring could detect an alteration of functional cognitive ability and reduce its negative effects. We compared cognitive functions through the Wechsler Intelligence Scale for Children-Fourth edition of a group of children between 6 and 15 age with epilepsy BECTS (Benign partial epilepsy childhood with centrotemporal spikes or Rolandica), a specific benign form that affects between 8% and 20% of entire childhood epilepsies, with a control group selected from the normative sample. Patients reported significantly lower scores of QI total compared with age-matched controls and the specific cognitive performances were lower in specific domino areas. At the onset of the disease, the neuropsychological assessment in children with epilepsy diagnosis, can detect a specific cognitive impairment since its first manifestations (weakness point), but also the child's individual strengths, where action is urgently needed, planning individual customized projects for the type of deficit detected. In addition, provide support to any psychoeducational programs to manage in its context a chronic disease that too often has devastating effects on the quality of life for the entire family. A multidisciplinary approach to the treatment of epilepsy by neurologists, radiologists, psychologists, and therapists are desirable to implement prevention, support and intervention projects. Psychological assessment of epilepsy can exclude any intervening factors with impact on cognitive abilities in patients affected by this pathology.

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The use of Computational Fluid Dynamics in solving the mystery of origin of Cerebral Aneurysms

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To investigate the mechanisms of cerebral aneurysms and the effect of treatment modalities on the genesis of cerebral aneurysms. Seven hundred and twenty four patients with cerebral aneurysms were investigated in the locations of the cerebral aneurysms using the angiographic data. The angiographic data of 140 patients with cerebral aneurysms were processed for computational fluid dynamics (CFD). Different modalities including stent-assisted coiling, coiling alone, stenting alone, single stenting, Y-configuration stenting, and surgical clipping were analyzed for their effects on the mechanisms of CFD. Results: A total of 1018 cerebral aneurysms were detected in these patients. Seven hundred and seventeen aneurysms involved a branch, accounting for 70.4% of all the aneurysms, with the most populous places being the intracranial internal carotid artery (ICA) segments (23.9%), the anterior cerebral artery (17.9%), the middle cerebral artery (17.8%), and the posterior circulation (9.3%). 301 aneurysms were located on a vascular curve (29.6%), with the most populous site being the ICA (25.4%), the intracranial vertebral artery (2.2%), and the distal cerebral arteries (1.5%). Not a single aneurysm was found on a straight segment of vessel. CFD analysis showed some common features that, on the wall where a cerebral aneurysm was generated, two peak values and one minimal value were demonstrated on the curve of wall shear stress while one peak value was revealed on the total pressure curve. Conclusion: Cerebral aneurysms are initiated at sites with both high wall shear stress and total pressure, and stenting especially Y-shaped stenting can decrease the hemodynamic stresses for aneurysm initiation while coiling alone or surgical clipping do not. Stenting with Y configuration is a better choice of treatment than coiling or surgical clipping in managing the genesis of cerebral aneurysms.

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Immediate healing for personality development

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Statement of the problem: clients receiving psychotherapy require several sessions even if with drugs and use of will power over time. Purpose of the treatment: Achieving immediate non medicinal effortless painless healing without complications. For personality development , relief of neuorotic disease, psychosomatic symptoms and diseases, treating emotional obesity and smoking. Method: After joint analysis with Client and definition of psychological and physical goals of treatment, the healer as a trained behavioral, cognitive and logo psychotherapist arrives with client to a new corrected understanding of the case and roots of conflicts in childhood, taking around 2 hours, then in less than an hour performs non verbal interpersonal hypnosis with transfer of energy and telepathy to client till deep sleep when he implants the required personality , ideas, emotions, motives and attitudes into the subconscious embodying the required state. The subconscious and conscious mind will have same agreed upon analysis and targets for immediate results in that session of 3 hours. Results: The healer got patent in Egypt 2016 for his discovery of The Immediate Healing for Personality Development and for mentioned purposes. Up till now treating more than 700 cases aging between 12 and 80 years with relief of more than 80% of cases either totally or mostly. Conclusion: immediate non medicinal revolutionary life transforming healing for a wide spectrum of cases achieving higher grades of maturity, insight, harmony and efficiency saving client time, effort, interests and complications. Also used to maturate community leaders to be a trouble shooter model efficient leaders with team spirit.

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