2nd International Conference on

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Scientific Tracks & Abstracts

(Day 1)

Ben Weinstock, J Alzheimers Dis Parkinsonism 2016, 6:6(Suppl)
http://dx.doi.org/10.4172/2161-0460.C1.024

Preventing Parkinson's

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Despite the fact that there is a growing movement towards the prevention of diseases (including Alzheimer's), the concept of preventing Parkinson's has gained very little attention. However, this is poised to change with the development of blood tests that predict one's risk of developing the condition (based upon microRNA or other biomarkers). The recent, groundbreaking book Preventing Parkinson's: How to Cut Your Risk by Strengthening Your Multiple Shields is a comprehensive compilation with over 1,000 peer-reviewed references. It is the only book available that provides proactive lifestyle recommendations for lowering one's risk of developing PD. Concepts include: Protection of the blood brain barrier; a diet that prevents the development of misfolded proteins, lowers the activity of the mTOR pathway, as well as being anti-inflammatory and rich in antioxidants; an exercise regime that promotes methylation, as well as increasing cellular recycling of misfolded proteins; enhancement of sleep and the glymphatic system; properly timed light exposure to enhance melatonin production; stress reduction to decrease the negative effects of stress hormones; minimization of one's exposure to toxins and radiation; and avoidance of head injuries. In summary, the synergy of healthy habits may be the best hope for preventing the predicted doubling of PD by the year 2030.

Biography

Ben Weinstock specializes in the rehabilitation of people with neurodegenerative diseases. He is the author of the only book about the prevention of Parkinson Diseases, "*Preventing Parkinson's: How to Cut Your Risk by Strengthening Your Multiple Shields (2015)*". Another innovative approach that he has developed is EPIC-PD (Exercise Prescription, Individualized Care for Parkinson Diseases) which gives physical therapists a unique methodology for developing personalized lifestyle plans for each patient with PD. He also teaches continuing education seminars to undergraduate and post-doctoral physical therapists. He has completed his DPT from University of Montana City and continued his education at University of New York.

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Notes:

S A Venkatesan et al., J Alzheimers Dis Parkinsonism 2016, 6:6(Suppl)
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Articulatory kinematics and speech dysfunction in patients with Parkinson's disease

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Objective: Speech Impairment occurs in 60-89% in Parkinson's patients and little is known about as how it affects the different speech subsystems. In this communication, we report the articulatory kinematics and speech kinematics and speech dysfunctions in 12 consecutive Parkinson's patients in scale II and III of Hoehn and Yahr.

Methods: The cross-sectional study on 12 patients aged between 30 and 76 (10 males and 2 females: Hoehn and Yahr scale II and III) were analysed with Buffalo voice profile to identify laryngeal tone and tension, loudness, pitch and it breaks, diplophonia, resonance, nasa emissions, rate articulations tests were also done to study plosives, fricatives, affricatives, aspirates, glides, nasals and blens. Hoehn and Yahr scale IV and V Parkinson's patients were excluded, patients were video filmed in out Movement Disorder Clinic.

Results: 25% laryngeal tone abnormality, no vocal abuse, 50% loudness being too soft. Pitch was normal in 33% patients and phonation duration varied between 5-15 sec (normal being 20); overall speech disturbance was 50%. Eight percent had plosives error, 33% fricatives error, 8% had affricative error, 8% aspirates error, 8% glide, 8% nasal error and 50% had blends error.

Conclusion: This study highlighted the monotonous quality, laryngeal tone abnormality and loudness, abnormality associated with predominant articulation errors in blends and fricatives. This will help us in the quantitative analysis of the effectiveness of speech therapy in patients with Parkinson's disease.

Biography

S A Venkatesan serves as an Emeritus Professor at The Tamil Nadu Dr. M.G.R. Medical University; Former Adjunct Prof. IIT Madras and Visiting Professor at Cleveland – Ohio – USA; Hershey Medical College, USA. He has been rewarded with many national & international awards like AINA AWARD-Association of Indian Neurologists in America-2001. He has presented more than 60 papers in national conferences and 25 in international conferences. He has published works include 30 papers & 15 chapters.

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Charlene Aldrich, J Alzheimers Dis Parkinsonism 2016, 6:6(Suppl)
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Clinical trials using MRI guided focused ultrasound (ExAblate Transcranial System) for the management of medically-refractory dyskinesia symptoms of advanced idiopathic Parkinson's disease and in patients with benign essential tremors

Charlene Aldrich
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The UMD is participating in collaborative studies for treatment of ET and PD. MRI guided focused ultrasound (MRgFUS) is an attractive modality for non-invasive, thermal ablation of soft tissue and brain. This novel technology utilizes the combination of diagnostic imaging with high-intensity focused ultrasound. It concentrates energy from a source outside of the body on a small target-for PD and ET deep inside the brain. "Think sun–magnifying glass–leaf" PD and ET are caused by dysfunction of a circuit and system imbalance caused by functioning parallel circuits. Interruption of a specific parallel circuit using FUS rebalances the system, reducing symptoms (tremor/rigidity). Historical FUS lacked necessary precision; today precision have been overcome by coupling FUS to MRI simultaneous imaging of the target and the applied energy. The studies are designed as prospective, multi-center, single-arm feasibility studies to evaluate the safety and initial clinical effectiveness of ExAblate Transcranial unilateral thermal ablation of the globus pallidus of subjects suffering from medication-refractory advanced idiopathic PD. To Evaluate the Effectiveness and Safety of ExAblate Transcranial MRgFUS Thalamotomy Treatment of Medication Refractory Essential Tremor Subjects, Subjects age 30 and older with confirmed medication-refractory, advanced idiopathic Parkinson's disease or benign essential tremors are eligible for these studies.

Biography

Charlene Aldrich has a Master's degree in Nursing and has been involved in clinical trials in neuroscience for 25 years. She is the Clinical Research Manager in the Department of Neurosurgery and manages on an average 10 trials ranging from device trials to drug trials. Typical trials are multi-center national/international, prospective and are Federal or industry funded. She initiates and maintains all trials regulatory and clinical conduct for the respective principal investigators in the Department of Neurosurgery.

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Notes:

Rudy Capildeo, J Alzheimers Dis Parkinsonism 2016, 6:6(Suppl)
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Parkinson's disease is not a disease

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Since the time of James Parkinson, we have come to recognize a medical condition characterized by the gradual appearance of stiffness, slowness, reduced mobility, feeling old for one's years, altered gait with stumbles, and even falls. Tremor is not always present. Families are often aware of these changes before the patient. At no stage in this condition is there an obvious illness. Parkinson, in his essay described just six cases. He recognized the slow progress of the condition over many years and that the clinical signs were asymmetric. Charcot and Gower found no neuropathological changes. Gower famously said "you do not die from Parkinson's Disease (PD) but with it". We recognize "Non-Motor" features of PD, the slow onset of PD over many years and the positive response of PD to L-Dopa Therapy. PD is now considered to be a disorder of the basal ganglia and with DAT scanning we can measure dopamine transporter uptake. Qualitative assessment of DAT scans reveals loss of the "Comma Shape" in PD cases but quantitative measurements reveal an obvious asymmetry in early PD cases. This data will be presented to show that PD (as opposed to Parkinsonism or PD plus syndromes) is a dopamine deficiency disorder and not a disease.

Biography

Rudy Capildeo is a Consultant Neurologist who set up one of the first PD clinics in London, UK in 1973 at The Charing Cross Hospital, where he also organized the first major International PD Symposium in 1979 when Sinemet Plus was first introduced by MSD. He was a Senior Investigator in the 5-year Sinemet CR First Trial. A frequent presenter in national and international meetings, he continues his interest in PD in his work and in his role as a Teacher.

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Bhanu Kesavamurthy et al., J Alzheimers Dis Parkinsonism 2016, 6:6(Suppl)
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What makes a Parkinson patient fall?

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Introduction: Falls are a recurrent phenomenon in Parkinson disease. 40%–70% of patients fall, which occurs during daily activities and when patients are optimally medicated, lead to fractures and restriction of mobility and activities, loss of independence, increased risk of nursing home admission and reduced survival. The fall is many times a life changing event for the patient and affecting quality of life. This is to be considered in treatment planning and ideally, intervention should occur before the first fall has occurred. We carried out a cross sectional study of an unselected group of idiopathic Parkinson disease patients of various ages and disease duration, taking into account most of the clinical variables potentially associated with falls. Detailed analysis of history, clinical features and disease severity of patients with idiopathic Parkinson disease were done.

Aim: To study various risk factors associated with fall and analyze them to see which are predictors of falls.

Materials & Methods: Study was conducted in Institute of Neurology, Madras Medical College, Chennai. 112 consecutive patients with idiopathic Parkinson disease who attended both outpatient department and inpatient ward were studied between: August 2013 to December 2015 and detailed analysis of falls was documented. The diagnosis of Parkinson disease was confirmed according to the United Kingdom Parkinson Disease Brain Bank criteria. Clinical data were obtained from the patients and checked with patient's relatives, caregivers and case records for accuracy. All patients' baseline laboratory investigations and brain imaging studies were recorded to identify associated illnesses. All patients underwent a multidisciplinary baseline assessment comprising demographic and historical data, disease specific rating scales, including Tinetti gait and balance test and freezing of gait questionnaire.

Results: In this study, fall occurred in 49.1% of the subjects. Tinetti Balance score and Hoehn and Yahr staging were the best independent variables associated with falls. Previous falls, disease duration and severity, freezing of gait, high dose levodopa, dyskinesia and loss of arm swing were independent predictors of falling in our study.

Conclusion: Falls are a common problem in Parkinson disease and some of the risk factors are modifiable. In this study previous falls, disease duration, disease severity, worse Tinetti score and loss of arm swing are independent predictors of the risk of falling. Freezing of gait, dyskinesia and higher dose of levodopa also associated with increased risk fall in our study. There is a need for future studies to look at interventions to prevent falls in Parkinson disease.

Biography

K Bhanu is Senior Neurologist with 30 years of experience and wants to teach basic bedside neurology and how the findings improve patient care. She has awarded the commonwealth fellowship in Neurology at University of Newcastle, Newcastle upon Tyne, UK, from October 1997 to Sep 1998 & also trained at Walton Centre for Neurology & Neurosurgery at Liverpool, UK under Dr David Chadwick, and is also a holder of many prestigious awards. She is currently serving as the Director of Neurology and neurosurgery at Mehtas Hospitals, India.

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Impact of sirtuin-3 in cognitive deficits of Parkinson's disease

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Parkinson's disease (PD) exhibits non-motor symptoms (NMS), including cognitive and neuropsychiatric deficits, and often appear a decade or more before the first signs of motor symptoms. Sirtuin-3 (SIRT3) is a member of the sirtuin family of mitochondria NAD(+)-dependent deacetylase that acts as a regulator of mitochondrial protein function. Emerging evidence demonstrates that activation of SIRT3 exhibits neuroprotection, while reduced SIRT3 exacerbates neuropathogenesis, suggesting SIRT3 is a critical target for neurodegenerative pathogenesis and therapeutics. Here, we evaluated the impact of SIRT3 in PD cognitive deficits including hippocampal synaptic and neural network impairments in PD mouse models. First, we compared hippocampal synaptic function between SIRT3 KO and WT mice, and found that 4-month-old SIRT3 KO mice showed deficits of hippocampal functions including impaired both hippocampal CA1 LTP maintenance and fEPSP amplitude after 40 Hz stimulation for 4 seconds. Second, we found that hippocampal theta oscillations (induced by 50 μM CCh) and gamma oscillations (induced by 100 Hz stimulation for 200 ms) were significantly impaired in SIRT3 KO mice compared to WET mice. Third, when mice were treated with low dose rotenone (RTN, 0.8 mg/k.g., i.p. for 7 days), WT mice did not show detectable change of synaptic function and network synchronizations, while SIRT3 KO mice showed impaired hippocampal CA1 region PPF, LTP and gamma oscillations. Finally, mitochondrial dysfunction in hippocampal slices can be restored by SIRT3 activator, ketone. Collectively, our data suggest an important role played by SIRT3 in hippocampal synaptic and neural network function, which may underlie the cognitive deficits in PD.

Biography

Jie Wu has completed his PhD from Sun-Yat Sen University of Medical Sciences, China in 1990 and Post-doctoral studies from Tohoku University, Japan and New Mexico University School of Medicine, USA between 2013 and 2017. Now, he is a Professor and the Director of Neurophysiological Laboratory at Barrow Neurological Institute, St. Joseph's Hospital. He has published more than 140 papers in reputed journals with total citation of 2,883, h-index 31 and i10 index 82. He has been serving as an Editor in Chief and Editorial Board Member of repute.

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Scientific Tracks & Abstracts

(Day 2)

Hong Jiang et al., J Alzheimers Dis Parkinsonism 2016, 6:6(Suppl)
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Nesfatin-1 protects dopaminergic neurons against MPTP neurotoxicity through C-Raf/ERK1/2 dependent anti-apoptotic pathway

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Some brain-gut peptides have been reported to have a close relationship with the central dopamine system. Nesfatin-1, a satiety brain-gut peptides co-expressed with ghrelin in X/A like endocrine cells in the gastric glands, has been reported exerted neuroprotective efficacy in center neurons system. Here we defined the neuroprotective effects of nesfatin-1 against MPTP-induced dopaminergic neuron degeneration *in vivo* and MPP+-induced cytotoxicity *in vitro* with its anti-apoptotic action via ameliorating mitochondrial dysfunction by activation of C-Raf/ERK1/2 pathway. In MES23.5 dopamingernic cells, nesfatin-1 pretreatment antagonized MPP+-induced mitochondrial dysfunction related apoptosis cascades including ΔΨm collapse, mitochondrion Cyt C releasing, caspase-3 activation and morphological changes of nuclei. This protective effect was abolished by selective inhibitor of C-Raf and ERK1/2. In C56BL/6 mouse, intracerebroventricular nesfatin-1 pretreatment attenuated MPTP-induced dopaminergic neuronal degeneration in the SNpc, dopaminergic fibers depletion, dopamine and its metabolites contents depletion in the striatum. Our data suggested nesfatin-1 had the potential to be considered as an agent for therapy of Parkinson's disease.

Biography

Hong Jiang has completed her PhD from Qingdao University and Post-doctoral studies from Sun Health Research Institute. She is the Vice Dean, Medical College of Qingdao University. She has published more than 50 papers in reputed journals and has been serving as an Editorial Board Member of *Current Alzheimer's Disease*.

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Exercise prescriptions for Parkinson diseases

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Although detailed, individualized exercise prescriptions have been developed for a wide range of conditions, none have been developed for PD. Unfortunately, numerous cognitive errors have been woven into experimental designs of exercise and PD, including: Overlooking the heterogeneity of PD, leading to the assumption that PD is one disease; a lack of evaluating for PD mimics; the myth that PD is only a movement disorder, with the resulting failure to check for exercise-limiting non-motor dysfunctions (such as cardiac denervation); the belief that what is sound for healthy individuals will also work in a diseased state; the lack of awareness of the dangers of exercise in PD; and a failure to address other factors that influence exercise responses (such as circadian rhythms, medications, diet, sleep, etc.). EPIC-PD (Exercise Prescription, Individualized Care for Parkinson Diseases) overcomes these shortcomings by recognizing and applying cutting-edge research. This translational approach utilizes the evaluation of sensorimotor and autonomic responses to movement as well as through detailed questionnaires of medical and lifestyle factors. Exercise is recognized as the integration of motor and non-motor systems. The consistent application of critical clinical thinking is emphasized to determine when referrals need to be made to other members of the healthcare team, and when exercise should be halted to avoid exercise-induced dysfunctions. In summary, personalized exercise prescriptions and lifestyle management have the potential to maximize quality of life in persons afflicted with PD.

Biography

Ben Weinstock specializes in the rehabilitation of people with neurodegenerative diseases. He is the author of the only book about the prevention of Parkinson Diseases, "*Preventing Parkinson's: How to Cut Your Risk by Strengthening Your Multiple Shields*" (2015). Another innovative approach that he has developed is EPIC-PD (Exercise Prescription, Individualized Care for Parkinson Diseases) which gives physical therapists a unique methodology for developing personalized lifestyle plans for each patient with PD. He also teaches continuing education seminars to undergraduate and post-doctoral physical therapists. He has completed his DPT from University of Montana City and continued his education at University of New York.

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Disrupted-in-schizophrenia1 (DISC1) L100P mutation alters synaptic transmission and plasticity in the hippocampus and causes recognition memory deficits

Yu Zhou, Lin Cui, Ming Yu and **Nan Li and Li Guo**
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Disrupted-in-schizophrenia 1(DISC1) is a promising candidate susceptibility gene for a spectrum of psychiatric illnesses that share cognitive impairments in common, including schizophrenia, bipolar disorder and major depression. Here we report that DISC1 L100P homozygous mutant shows normal anxiety- and depression-like behavior, but impaired object recognition which is prevented by administration of atypical antipsychotic drug clozapine. Ca2+ image analysis reveals suppression of glutamate-evoked elevation of cytoplasmic [Ca2+] in L100P hippocampal slices. L100P mutant slices exhibit decreased excitatory synaptic transmission (sEPSCs and mEPSCs) in dentate gyrus (DG) and impaired long-term potentiation in the CA1 region of the hippocampus. L100P mutation does not alter proteins expression of the excitatory synaptic markers, PSD95 and synapsin-1; neither does it changes dendrites morphology of primary cultured hippocampal neurons. Our findings suggest that the existence of abnormal synaptic transmission and plasticity in hippocampal network may disrupt declarative information processing and contribute to recognition deficits in DISC1 L100P mutant mice.

Biography

Yu Zhou has completed her PhD from the Chinese Academy of Sciences (CAS), Shanghai Life Science Center and Postdoctoral training from Department of Neurobiology, University of California at Los Angeles (UCLA). She is currently appointed as a Full Professor in the Medical School of Qingdao University. Her research interests are focused on neurobiology of cognition and associated disorders. She has published more than 25 research papers in reputed neuroscience journals.

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Notes:

Prabaharan Chellamuthu et al., J Alzheimers Dis Parkinsonism 2016, 6:6(Suppl)
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Dystonia profile in a tertiary care hospital from southern India

Prabaharan Chellamuthu, Lakshmi Narasimhan R, Gobinathan S and **Bhanu K**
Madras Medical College, India

Dystonia is a movement disorder characterized by sustained or intermittent muscle contractions causing abnormal, often repetitive, movements, postures, or both. The aim of the study is to present the profile of patients presenting with dystonia in a tertiary care center in southern India. The study period is from January, 2015 to June, 2016. Data of patients admitted in neurology ward or attending movement disorder clinic of Madras Medical College, Chennai, India were collected retrospectively and were analyzed. A total of 30 patients with dystonia were included in the study of which 43% (n=13) were males and the rest were females; 40% (n=12) patients had isolated dystonia while the remaining 60% (n=18) had combined dystonia syndromes. Based on the age of onset, 30% (n=9) patients had adolescent onset (13-20 yrs), 43% (n=13) had early adulthood onset (21-40 yrs) and 27% (n=8) had late adulthood onset (>40 yrs). Based on body distribution, 33% (n=10) patients had focal dystonia, 7% (n=2) had segmental, 47% (n=14) had multifocal dystonia, 7% (n=2) had hemidystonia and 7% (n=2) had generalized dystonia. Based on the etiology 47% (n=14) patients had degenerative cause [43% (n=13) cases had Wilson and 3% (n=1) had neuro acanthocytosis], 13% (n=4) patients had acquired cause [10% (n=3) cases were drug induced and 3% (n=1) due to hypoxic brain injury and in the remaining 40% (n=12) patients, no cause could be found. Based on the progression, 47% (n=14) patients had progressive disease and in the remaining patients the disease was static or recovered. Wilson's disease is by far the common degenerative disease presenting with dystonia in our center & cervical dystonia is the most common idiopathic cause.

Biography

Prabaharan Chellamuthu is currently doing his Neurology residency in Institute of Neurology, Madras Medical College, Chennai, India. He has done his under graduation from 2004-2010 in Stanley Medical college, Chennai. He has done MD Paediatrics from 2011-2014 at Lady Hardinge Medical College, New Delhi, India. He has received Dr. C.B. Rama Rao prize and N. Radhakrishna Iyer prize in Stanley Medical College. He has published paper on infantile spasms and presented posters in both national and international conferences. His areas of interest are paediatric epilepsies and movement disorders.

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Matteo Santoro, J Alzheimers Dis Parkinsonism 2016, 6:6(Suppl)
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Parkinson's disease and movement disorders-inhibition of high mobility group box 1 (HMGB1) as a neuroprotective treatment in the MPTP mouse model of Parkinson's disease

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Background: High-mobility group box 1 (HMGB1) is a nuclear and cytosolic protein that is released during tissue damage from immune and non-immune cells – including microglia and neurons. HMGB1 is implicated in the progression of numerous chronic inflammatory and autoimmune diseases. There is increasing evidence from *in vitro* studies that HMGB1 may link the two main pathophysiological components of Parkinson's disease (PD), i.e. progressive dopaminergic cell degeneration and chronic neuroinflammation both of which underlie the mechanistic basis of PD progression.

Materials & Methods: Pharmacological trials - Male mice C57BL6J ten weeks old were randomly divided in four experimental groups (n=5 per group). i) saline control group, ii) MPTP treated groups (sub-acute regimen 30 mg/kg of MPTP intraperitoneally (i.p.) once a day for five consecutive days), iii) MPTP treated group plus i.p. dose of 50mg/kg glycyrrhizin, iv) MPTP treated group plus i.p. dose of 200 ug HMGB1 neutralizing antibody. HMGB1 nuclear translocation was assessed in mice and human brain tissue via co-immunolocalization in three different nigral cell populations: tyrosine hydroxylase (TH) positive neurons, microglia and astrocytes. Western blotting was performed on protein samples extracted from ventral midbrain.

Results: In a mouse model of PD induced by sub-acute administration of 1-methyl-4-phenyl-1, 2, 3, 6-tetrahydropyridine (MPTP) the small natural molecule glycyrrhizin, a component from liquorice root which can directly bind to HMGB1, both suppressed MPTP-induced HMGB1 and RAGE upregulation while reducing MPTP-induced dopaminergic cell death in a dose dependent manner.

Conclusion: HMGB1 serves as a powerful bridge between progressive dopaminergic neurodegeneration and chronic neuroinflammation in a model of PD, and suggest that HMGB1 is a suitable target for neuroprotective trials in PD.

Biography

Matteo Santoro was born in 1988 in south of Italy. He is currently working on Parkinson's disease and investigating the role or a protein called HMGB1 in the pathophysiology of the disease. During his PhD Matteo Santoro has received four different prizes for best PhD student poster presentation and talks at different conferences within and outside the University of Aberdeen. He successfully co-authored two peer reviewed research articles on Parkinson's disease. The latest publication has seen him the main contributor of the study. He is currently working as PhD student on the behavioural characterization of three different MPTP mouse models of Parkinson's disease and investigating the role of acquired and innate immune system in Parkinson's disease.

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Effect of delayed post-treatment with adult-sourced adipose-derived mesenchymal stem cells on motor function and striatal medium-spiny projection neurons after neonatal rat hypoxia-ischemia

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Hypoxic-ischemic (HI) brain injury can cause disabilities in term-born infants. This study investigated the therapeutic effects of adult-sourced adipose-derived mesenchymal stem cells (MSCs) on motor skills, and on neuronal restoration in the anterior striatum, following HI-induced brain injury. On postnatal day (PN) 7, Sprague-Dawley rat pups were exposed to HI right-sided brain injury, weight-matched and assigned to groups (n=8-10/group)–untreated (HI+Dil), normal controls (Normal+Dil), single stem cell-treated (HI+MSCs×1) and double stem cell-treated (HI+MSCs×2). On PN14 and 16, all groups were treated with either diluent or stem cells. All animals were then tested repeatedly on the cylinder and staircase tests for their motor skill ability and perfused on PN106/107. Serial 5 μm thick frozen sections were cut coronally through the brain using a cryostat and immunohistochemically stained for striatal dopamine- and cAMP-regulated phosphoprotein-32-positive spiny projection neurons. The absolute number of these neurons was estimated using the Cavalieri's, physical dissector and Abercrombie/unfolding methods. HI groups were significantly impaired on left- versus right-sided motor skills on the staircase test (e.g. HI+MSCs×1, repeated ANOVA, $p<0.005$), but the control animals were not. The absolute number of DARPP-32-positive neurons in the striatum was significantly greater (Student's t-test, $p<0.04$) in the control group compared to all HI groups. There was no statistically significant rescue of motor skills or striatal spiny projection neurons by delayed single- or double-treatment with adipose-derived MSCs. These results suggest that treatment with this particular type of stem cell has limited therapeutic potential for rescuing striatal neurons and motor deficits after neonatal hypoxia-ischemia.

Biography

Benjamin E Aghoghovwia has completed his MSc from the University of Lagos, Nigeria. He is currently near the end of the second year of his PhD at the Department of Anatomy and the Brain Health Research Centre, University of Otago, Dunedin, New Zealand. He has published 3 papers in reputed journals, including the *Journal of Anatomy*, and has been serving as a Laboratory Demonstrator in undergraduate courses on neuroscience and health sciences at the University of Otago.

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Scientific Tracks & Abstracts

(Day 3)

Jes Paul, J Alzheimers Dis Parkinsonism 2016, 6:6(Suppl)
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Dopamine D_1 and D_2 receptor subtypes functional regulation in unilateral rotenone lesioned Parkinson's rat model: Effect of serotonin, dopamine and norepinephrine

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Introduction: Parkinson's disease (PD) is due to widespread degeneration in the central and peripheral nervous systems. The hallmark pathology remains in the dopaminergic striatal insufficiency and degeneration of dopaminergic neurons in the substantia nigra (SN).

Objectives: The present study analyzed the effect of serotonin (5-HT), dopamine and norepinephrine (NE) as treatment on rotenone induced hemi-Parkinson's disease in rats and its role in the regulation of Dopamine receptor subtypes in the Corpus Straiatum (CS) of the experimental rats.

Methods: Unilateral stereotaxic single dose infusions of rotenone were administered to the substantia nigra of adult male Wistar rats. Neurotransmitters –serotonin (5-HT), dopamine and norepinephrine (NE) treatments were given to rotenone induced hemi-Parkinson's rats. Dopamine receptor and its subtypes (D_1 and D_2) binding assay were done. Gene expression studies of Dopamine D_1 and D_2 were done using real-time PCR.

Results: Scatchard analysis of Dopamine and Dopamine D_2 receptor showed a significant increase ($p<0.001$) and Dopamine D_1 receptor showed a significant decrease ($p<0.001$) in the B_{max} in Corpus Striatum of the PD rats compared to control. These altered parameters were reversed to near control in the serotonin and norepinephrine treated Parkinson's disease rats and no change was observed in Dopamine treated Parkinson's disease rats. Real-time PCR results confirmed the receptor data.

Conclusion: Our results showed serotonin and norepinephrine functionally reversed in Dopamine receptors in rotenone induced hemi-Parkinson's rat. This has clinical significance in the therapeutic management of Parkinson's disease.

Biography

Jes Paul have done Ph.D. in Neurology & Molecular Cell Biology, stem cells with 3 years' post-doctoral training, Master's degree with 7 years' post-graduate training and Good Laboratory Practice (GLP).My publications include 15(Research gate, Pub med) Papers in international journals (Pub Med) and Presented 16 Abstracts in various international conferences and he is also an Editorial member of IRPH Journal since four years. Currently he is working as a Research Associate (Albany medical centre cardiovascular science).

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Workshop

(Day 3)

Usman Shabbir et al., J Alzheimers Dis Parkinsonism 2016, 6:6(Suppl)
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TREQUANT- Tremor quantifying wearable for movement disorder patients

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[2]CTO & cofounder of Trequant, Pakistan

Trequant is a bio-informatics wearable designed specifically for diagnosing and classifying tremor based movement disorders including Parkinson's, essential tremor, dystonia and others. Tremors affects 221 million people worldwide including 15 million from USA and it is one of the most prevalent and incurable neurological disorder. The complete end-to-end solution we are providing includes a wearable device, an app on a mobile device, and our data analytics platform in the cloud. Currently Trequant device is being used by more than 50 patients and 2 hospitals. With the results and data recorded from our device, doctors are better able to understand their patient's condition and with the help of our remote monitoring portal and they can see the effect of the prescribed medicine and can customize the type and dosage of the medicine according to every individual patient. Mobile app also helps patients in understanding what type of activities can make their tremors condition worse or good. At Trequant, we are all about having people that are afflicted with tremors live a more independent life and be more in control of their condition and actionable data is the answer to this.

Biography

Muhammad Faizan Sadaqat has completed his Electrical Computer Engineering from COMSATS Institute of Information Technology, Pakistan. He has built sound technical base by working on diverse projects related to bio-medical, automotive, big data analysis, extensive computation, electrical and electronics. In the field of MRI, he has earned name by accelerating MR image reconstruction time from minutes to msec. Implementation of MRI reconstruction algorithm on GPU is one of his biggest achievement. He has published research paper in reputed journal and presented in several prestigious conferences.

Usman Shabbir, the CTO & cofounder of Trequant, is an Electrical Engineer and Electronics Expert by profession. He has interest in wearable gadgets, embedded systems and miniaturization of circuits. A passionate person about robotics and artificial intelligence has done different projects on automation of things and robots. He is the hardware geek for Trequant and currently working on hardware design and engineering. He has won fifteen national and international awards presenting his work at different stages.

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Holistics Support Services for Individual's with Movement Disorders

Steven J. Szydlowski
University of Scranton, USA

The use of holistic therapies in physical and behavioral medicine continues to expand nationally. Research supports the use of holistic therapies to improve health outcomes related to back pain, arthritis, and depression to name a few. This case study presentation demonstrates application of holistic therapies for individuals with physical ailments and movement disorders in an integrative medicine clininc in Northeast Pennsylvania. The holistic clinical team approach is discussed. The presenter provides the historical evolution of the clinic and desribes how the clinical protocols where developed. The presenter will also discuss how community-based engagement efforts where used to support individuals with movement disorders beyond physical medicine to include behavioral health. The findings suggest that holistic therapies do support quality of life and positive health outcomes when combined with traditional approaches to care for individual with movement therapies.

Biography

Steven J. Szydlowski has completed his Doctorate of Health Administration in 2007 from the Medical University of South Carolina and Master of Business Administration and Master of Health Administration from the University of Scranton. He is the director of the Master of Health Administration at the University of Scranton. He has published more than 40 papers in reputed journals, presented at over 100 national and international conferences, and has been serving as an editorial board member of repute. He research agena focuses on population health, integrative medicine, and global health. He has over fifteen years of health care administration.

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Integration of Palliative Care in the management of Parkinson's disease

Helen Senderovich
University of Toronto, Canada

Introduction: Parkinson disease (PD) is an increasingly prevalent terminal illness in a globally aging population. Despite optimal medical management, prognosis remains poor – a fact seldom communicated to patients and/or their families. Evidence suggests numerous benefits of palliative care consultation in advanced PD but to date, their services remain woefully underutilized.

Objectives: To identify specific challenges to accessing and implementing palliative care in patients with advanced PD, and to use this information to formulate recommendations for practice.

Methods: Literature review whereby recommendations for practice were formulated on the basis of primary quantitative/qualitative data and consensus expert opinion.

Results: Accessing palliative care services for patients with PD remains a challenge for numerous factors including prognostic uncertainty, misconceptions about what palliative care is, and difficulty recognizing when a patient is suitable for referral. Strategies to improve access/delivery of palliative care to this population include education and proper discussion about prognosis/goals of care. A team-based approach is essential as we move towards a model where symptom palliation exists concurrently with active medical disease-modifying treatment.

Conclusion: Despite evidence that palliative care has a role in improving symptom control and overall quality of life in patients with end-stage PD, a multitude of challenges exist and this ultimately hinders access to palliative care services. Education to abolish pre-existing misconceptions about the role of palliative care and a movement towards a team-based approach focused on simultaneous palliative and traditional medical care will undoubtedly improve access to, and benefit from, palliative care services in this population.

Biography

Helen Senderovich is a physician at Baycrest Health Science System with practice focused on Palliative Care, Pain Medicine and Geriatrics. She is an Assistant professor at the Department of Family and Community Medicine, and Division of Palliative Care at the University of Toronto who actively involved teaching medical students and residents. She has a broad international experience and a solid research background. Her research was accepted nationally and internationally. She is an author of multiple manuscripts focused on geriatrics, patient's centered care, ethical and legal aspect of doctor patient relationship, palliative and end-of-life care.

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