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Slavikova Barbora et al., J Neurol Neurophysiol 2016, 7:5(Suppl)
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Architecture in the synthesis of steroidal inhibitors of NMDA receptors: Do built new or rebuilt old?

Slavikova Barbora, Kapras Vojtech, Ulli Jahn, Vyklicky Ladislav, Chodounska Hana and Kudova Eva
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Our main avenue of investigation is design and synthesis of steroidal inhibitors of N-methyl-D-aspartate receptors (NMDAR) that could serve as drug-like candidates for CNS disorders as these receptors are essential for synaptic plasticity, learning and memory. However, under pathological conditions, the over-excitation of the NMDAR can induce cell death. Our ongoing structure-activity relationship studies (SAR) are focused on structural modifications of steroidal skeleton that would afford potent inhibitors of NMDAR. In general, the inhibitory effect of neurosteroids on NMDAR is dependent upon the 5β-pregnane skeleton. To elucidate the SAR of the pregnane acetyl moiety, we have prepared a series of compounds with lipophilic D-ring modifications and showed that these analogues are more potent modulators of NMDA-induced currents (IC50 values varying from 90 nM to 5.4 μM) than the known endogenous neurosteroid- pregnanolone sulfate (IC50=24.6 μM). The obtained results emerged us to assess the structural motif of the steroidal D-ring. As such, a series of compounds with partially of fully degraded D-ring was synthesized (IC50 values varying from 15 μM to 224 μM). Finally, using the total synthesis of steroidal A, B and C-ring, we have prepared a series of compounds with non-steroidal structural characteristics of various types that allowed us to define new structural motifs for inhibitors of NMDA receptors.

Biography

Slavikova Barbora has received her Master's degree in 1983 from the Institute of Chemical Technology in Prague. She has been working at the Institute of Organic Chemistry and Biochemistry, Academy of Sciences of the Czech Republic in Prague for almost 25 years with specialization in steroidal synthesis. During this period, she has synthesized thousands of compounds and is the author and co-author in 18 original papers and 4 patents.

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Elena Solntseva et al., J Neurol Neurophysiol 2016, 7:5(Suppl)
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Glycine receptor in hippocampal neurons as a target for lithium ions

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Lithium salts are successfully used to treat bipolar disorder. At the same time, according to recent data lithium may be considered as a candidate medication for the treatment of neurodegenerative disorders. The mechanisms of therapeutic action of lithium have not been fully elucidated. In particular, in the literature there are no data on the effect of lithium on the glycine receptors. In the present study we investigated the effect of Li^+ on glycine-activated chloride current (I_{Gly}) in rat isolated pyramidal hippocampal neurons using patch-clamp technique. Short (600 ms) application of Li^+ caused two effects: (1) an acceleration of desensitization (a decrease in the time of half-decay, or "τ") of I_{Gly} and (2) a reduction of the peak amplitude of the I_{Gly}, Both effects were not voltage-dependent. Dose-response curves for both effects were N-shaped with two maximums at 100nM and 1mM of Li^+ and a minimum at 1 μM of Li^+. This complex form of dose-response may indicate that the process activated by high concentrations of lithium inhibits the process that is sensitive to low concentrations of lithium. Longer application (10 min) of Li^+ caused similar effects, but in this case 1μM lithium was effective and the dose-effect curves were not N-shaped. The inhibitory effect of lithium ions on glycine-activated current suggests that lithium in low concentrations is able to modulate tonic inhibition in the hippocampus. This important property of lithium should be considered when using this drug as a therapeutic agent.

Biography

Elena Solntseva graduated from the Lomonosov Moscow State University (Moscow, Russia) with a degree "neuroscience". She then worked at the Center for Mental Health in Moscow, where she defended her PhD thesis and then a Doctoral thesis. She currently works at the Research Center of Neurology in Moscow. She is the author of dozens of scientific publications.

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Current insight into the neurosteroids effect on function of NMDA receptors

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N-Methyl-D-aspartate (NMDA) receptors (NMDARs) are a major class of excitatory neurotransmitter receptors in the central nervous system. They form glutamate-gated ion channels that are highly permeable to calcium and mediate activity-dependent synaptic plasticity. NMDAR dysfunction is implicated in multiple brain disorders, including stroke, various forms of neurodegeneration, chronic pain and schizophrenia. NMDARs are activated by agonists-glutamate and glycine, and their activity is modulated by allosteric modulators including endogenous neurosteroids pregnenolone sulfate and 20-oxo-5β-pregnan-3α-yl sulfate (PAS) and their synthetic analogues. Our recent research allowed us to identify the site of action of PAS- the extracellular vestibule of the activated/desensitized receptor's ion channel pore. The structure of the open channel and recognition of molecular steps in the transition from closed to the open state provide a unique opportunity for the design of new therapeutic, neurosteroid-based ligands to treat diseases associated with dysfunction of glutamate system. As such, a series of pregnanolone analogues was prepared and these derivatives substituted with a carboxylic acid moiety at the end of an aliphatic chain of varying length at C-3, have the difference in potency between tonic and phasic inhibition increased with the length of the residue. Moreover, pregnanolone hemipimelate (PA-hPim), had no effect on phasically activated receptors while inhibiting tonically activated receptors. In behavioral tests, PA-hPim showed neuroprotective activity without psychotomimetic symptoms.

Biography

Chodounska Hana has completed her PhD in 1983 from Charles University in Prague. She has been working at the Institute of Organic Chemistry and Biochemistry, Academy of Sciences of the Czech Republic in Prague from 1986. During this period, she was the PI of steroidal research group for almost 10 years. She is author or co-author of 52 articles, 7 patents and has many contributions to scientific conferences. She has been Supervisor of undergraduate, graduate and doctoral students and the Lecturer of the course "Chemistry of Natural Products" at the Charles University and various scientific and popularizing lectures.

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Emerging role of brain fractalkine signaling in the behavioral and biochemical disturbances in the course of depression

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Polish Academy of Sciences, Poland

Current data reveals that early adverse life experiences may affect the developmental processes of the brain and can be involved in the pathogenesis of many psychiatric disorders including depression. It has been highlighted that stress during pregnancy activates the immune response in the offspring's central nervous system. Results also show important role fractalkine (CX3CL1) in the neuron-microglia interactions and consequently in production of pro- and anti-inflammatory factors in the brain. Therefore, the aim of our study was to examine the impact of prenatal stress as well as the role of fractalkine (CX3CL1) on the behavioral and biochemical changes in adult rats. Adult 3-months old rats offspring (control and prenatally stressed), after behavioral verification, received icv injections with exogenous fractalkine. After the treatment, we evaluated time-dependent effects of fractalkine administration on the behavioral parameters. Moreover, we measured the changes in the production of pro-inflammatory cytokines in the two structures: Hippocampus and frontal cortex. The obtained data show that 7 days after treatment with fractalkine the behavioral disturbances evoked by prenatal stress procedure were normalized. Moreover, prenatal stress activates production of pro-inflammatory cytokines in the hippocampus and frontal cortex. Interestingly, treatment with fractalkine inhibited the expression of these factors mainly in the frontal cortex. Summing up, our study shows that the changes in fractalkine may play an important role in the pathogenesis of depression. Importantly, the action of the chemokine is connected with its effect on production of inflammatory factors in the brain.

Biography

Budziszewska Bogusława has completed her PhD in 1981 at the Institute of Pharmacology, Polish Academy of Sciences in Cracow, Poland. Since 2004, she is Head of Immunoendocrinology Laboratory in the Institute of Pharmacology; since 2011, a Professor of Medical Sciences and from 2011 Head of Department of Biochemical Toxicology, Jagiellonian University, Medical College, Cracow, Poland. She has published more than 100 papers in reputed journals.

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Measure the knowledge, attitude and practice of people in head injury

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Any injury that results in trauma to the skull or brain can be classified as a head injury. The terms traumatic brain injury and head injury are often used interchangeably in the medical literature. This broad classification includes neuronal injuries, hemorrhages, vascular injuries, cranial nerve injuries, and subdural hygromas, among many others. These classifications can be further categorized as open (penetrating) or closed head injuries. This depends on if the skull was broken or not. Our Objective in this study was to compare the level of knowledge and awareness od a sector of Saudi population to other nations and cultures. We also aim to provide a reference or standpoint for future comparisons. Another issue that we aim to study is the defect in the knowledge of different age groups and genders to help in finding the right approach in to fixing the knowledge flaw. The study will be carried out using a 30 questions questionnaire that will be distributed to people focusing on 2 age groups (18-30 and 31-60).

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Measure the knowledge, attitude and practice of people in head injury

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Measure the knowledge, attitude and practice of people in head injury

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Measure the knowledge, attitude and practice of people in head injury

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Any injury that results in trauma to the skull or brain can be classified as a head injury. The terms traumatic brain injury and head injury are often used interchangeably in the medical literature. This broad classification includes neuronal injuries, hemorrhages, vascular injuries, cranial nerve injuries, and subdural hygromas, among many others. These classifications can be further categorized as open (penetrating) or closed head injuries. This depends on if the skull was broken or not. Our Objective in this study was to compare the level of knowledge and awareness od a sector of Saudi population to other nations and cultures. We also aim to provide a reference or standpoint for future comparisons. Another issue that we aim to study is the defect in the knowledge of different age groups and genders to help in finding the right approach in to fixing the knowledge flaw. The study will be carried out using a 30 questions questionnaire that will be distributed to people focusing on 2 age groups (18-30 and 31-60).

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Measure the knowledge, attitude and practice of people in head injury

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Clinical correlates of RBD in early Parkinson disease

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Objective: Knowledge of the cognitive performance associated with REM sleep behavior disorder (RBD) in newly diagnosed Parkinson disease (PD) patients is limited. We thus wanted to explore 1) the frequency of RBD in patients with PD at a relatively early stage and 2) cognitive performance associated with RBD in PD. We hypothesized that RBD would be associated with cognitive impairment in PD.

Methods: 29 non-demented patients recently diagnosed with PD (disease duration<5 years, Hoehn and Yahr stage <2.5 and no dementia) were recruited. The diagnosis of PD was supported by dopamine transporter SPECT. RBD was diagnosed based on standardized clinical interview and confirmed by polysomnography. Overall cognition was assessed by screening tests including the Mini-Mental State Examination (MMSE), and neuropsychological tests of memory, language, executive, attentional and visuospatial functions tests were performed.

Results: 13 patients (45%) had probable RBD. There were no significant differences between PD with and without RBD in any of the neuropsychological tests, but a numerically lower performance was observed in the PD RBD group on memory tests

Conclusions: RBD is common even in early PD without dementia, but was not found to be associated significantly with cognition.

Biography

Abdolreza Esnaashari became a Specialist in Nuclear Medicine in Norway at Akershus University Hospital, Ullevaal University Hospital and Rikshospitalet. He has co-authored several research papers in neurology.

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Emerging role of brain fractalkine signaling in the behavioral and biochemical disturbances in the course of depression

Basta Kaim Agnieszka, Budziszewska Bogusława, Slusarczyk Joanna and Chamera Katarzyna
Polish Academy of Sciences, Poland

Current data reveal that early adverse life experiences may affect the developmental processes of the brain and can be involved in the pathogenesis of many psychiatric disorders including depression. It has been highlighted that stress during pregnancy activates the immune response in the offspring's central nervous system. Results also show important role fractalkine (CX3CL1) in the neuron-microglia interactions and consequently in production of pro- and anti-inflammatory factors in the brain. Therefore, the aim of our study was to examine the impact of prenatal stress as well as the role of fractalkine (CX3CL1) on the behavioral and biochemical changes in adult rats. Adult 3-months old rats offspring (control and prenatally stressed), after behavioral verification, received icv injections with exogenous fractalkine. After the treatment, we evaluated time-dependent effects of fractalkine administration on the behavioral parameters. Moreover, we measured the changes in the production of pro-inflammatory cytokines in the two structures: Hippocampus and frontal cortex. The obtained data shows that 7 days after treatment with fractalkine, the behavioral disturbances evoked by prenatal stress procedure were normalized. Moreover, prenatal stress activates production of pro-inflammatory cytokines in the hippocampus and frontal cortex. Interestingly, treatment with fractalkine inhibited the expression of these factors mainly in the frontal cortex. Summing up, our study shows that the changes in fractalkine may play an important role in the pathogenesis of depression. Importantly, the action of the chemokine is connected with its effect on production of inflammatory factors in the brain.

Biography

Basta Kaim Agnieszka has completed her PhD in 1998 in the Institute of Pharmacology Polish Academy of Sciences in Cracow, Poland. Since 2007, she is the Head of PhD program at the Institute of Pharmacology, PAS. Since 2014, she is a Professor of neuropsychopharmacology and an Expert of neuroimmunology. She has published more than 100 papers in reputed journals and has been serving as an Editorial Board Member of repute.

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Spinal cord infarction after cervical transforaminal epidural steroid injection: Case report and literature review

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Transforaminal epidural steroid injection (TFESI) is a widely-used nonsurgical procedure in the treatment of patients with radicular pain syndrome. The procedure is efficacious in relieving the pain, but a number of minor and major complications have been reported in the medical literature. Increasing frequency of major complications, such as spinal cord infarction and cerebral infarction, has been more recently reported. We report a case of 49-year-old man with a history of chronic cervical radiculopathy, who experienced a devastating complication after TFESI. After 2 minutes of regular TFESI, the patient abruptly experienced muscle weakness in both upper extremities. Within 5 minutes after the start of the procedure, the patient became quadriplegic. Despite active rehabilitation, the patient remained bed-ridden 4 years after the catastrophic event. To our knowledge, this is the first reported case of spinal cord infarction occurring after TFESI in Korea. Considering the risk of dreadful complications, which appears in an unpredictable manner, the benefits of performing TFESI in radiculopathy patients need to be reappraised.

Biography

Hyung Min Kwon is currently working at the Department of the Neurology at SMG-SNU Boramae Medical Center at South Korea. Dr. Kwon has published several original research papers in the reputed journals and participated in the several meetings.

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Melanie Tepper, J Neurol Neurophysiol 2016, 7:5(Suppl)
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Consequences of neuron-specific NF κB modulation on the outcome of traumatic brain injury

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The outcome of traumatic brain injury (TBI) greatly depends on the extent of secondary pathologies. This posttraumatic phase is characterized by diverse cellular events including neuroinflammation, apoptosis and necrosis as well as counteracting regeneration and remodeling processes. IKK/NF κB signaling is a key player in the regulation of inflammation, immune responses, cell survival and neuronal differentiation and is known to get activated in different cell types of the CNS upon TBI. However, the cell-type-specific functions of NF κB remain unclear. We therefore conducted a systematic approach to analyze whether IKK/NF κB signaling has either beneficial or detrimental effects on the outcome of TBI depending on the cell type. For this purpose, we used an experimental model of closed head injury in combination with either loss-of-function or gain-of-function mice allowing conditional inhibition or activation of NF κB in principal forebrain neurons. Outcome parameters consisted of in vivo neurological scoring as well as post mortem investigation of inflammatory, apoptotic and synaptic markers. We provide evidence that repression of IKK/NF κB signaling in neurons increases the acute posttraumatic mortality rate and worsens the neurological outcome of survivors at various time points post TBI. Interestingly, IKK2 DNCamk2a mice are more prone for hematoma formation and show increased neuroinflammation, reactive astrogliosis and alterations in gene expression. These findings suggest that neuronal NF κB inhibition plays a detrimental role for the outcome of TBI. Currently we investigate whether enhancing neuronal NF κB activation can reduce these harmful effects of secondary TBI pathogenesis. This study is supported by the German Research Foundation (SFB 1149/A03).

Biography

Melanie Tepper has completed her Bachelor studies in Molecular Biotechnology at the University of Heidelberg, Germany. Afterwards she had the chance to study one year at the San Francisco State University, CA, USA as a Fulbright student in Cell and Molecular Biology and finished her Master Studies in Molecular Medicine at Ulm University, Germany. She is currently in her 3rd year as a PhD student from the International Graduate School Ulm in the group of Prof. Dr. Thomas Wirth and Dr. Bernd Baumann.

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Spinal cord metastasis presenting as the first manifestation of rectal adenocarcinoma: A case report

Shiela M Ramos
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Introduction: Spine is the third most common site for metastatic cancer. In fact, only one to three percent of tumors found in the spinal cord are metastatic. Spinal cord metastasis is very rare as initial manifestation of Cancer. Few patients with no known comorbids presents initially as neurologic manifestation and deficits. Rarely, patients demonstrate features of paraparesis. Radiotherapy is the gold-standard of therapy for spinal cord metastasis. The overall prognosis is poor and the mortality rate is very high. We present what is, to the best of our knowledge, the first case of spinal cord metastasis of rectal adenocarcinoma presenting with paraparesis at Ospital ng Makati, Philippines.

Case Description: A 64 year old male presented with an isolated spinal cord metastasis which presents as first manifestation of malignancy without central nervous system involvement. Patient underwent laboratory and diagnostic work-up. After radiological work up, MRI revealed an enhancing epidural soft tissue at level of T3 causing severe cord compression, with narrowing of the spinal canal. Proctosigmoidoscopy with biopsy revealed rectal adenocarcinoma. Patient is still alive after 3 months of diagnosis.

Conclusion: The patient had spinal cord metastasis secondary to rectal adenocarcinoma. The disease first manifest as neurologic symptom as paraparesis, which is very uncommon condition in an asymptomatic patient. This unique case has particular interest in medicine, especially for the specialties of medical, surgical and radiation oncology. Whole-body investigation might help for diagnosis of primary focus and approach to treatment.

Biography

Shiela M Ramos is currently working in the Department of the Internal Medicine at Ospital ng Makati, Philippines. Ramos has published several original research papers in the reputed journals and has also participated in the several scientific meetings.

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Stephanie Nadine Reichel et al., J Neurol Neurophysiol 2016, 7:5(Suppl)
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The Role of Glia-specific NF-κB Activation in Traumatic Brain Injury

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The transcription factor NF-κB is a central regulator of various cellular processes, including cell survival and inflammation. Inflammation in the CNS is mediated by both astroglia and microglia, which become activated and crosstalk upon CNS damage, such as traumatic brain injury (TBI). There is increasing evidence that IKK/NF-κB activation in astrocytes and microglia is part of the secondary pathophysiology in TBI. However, neither the cell-type-specific activation kinetics after TBI nor the exact associated cellular functions induced by NF-κB in this context is properly understood so far. We used the closed head injury model in transgenic NF-κB reporter gene mice, which allow monitoring of NF-κB activation by GFP expression. Interestingly, we found increasing NF-κB activation in both astrocytes and microglia on the ipsilateral site after TBI, however with different kinetics. Notably, also on the contralateral site microglia showed NF-κB activation, suggesting that the TBI triggered inflammatory response can indeed spread from local site of damage to the uninjured hemisphere. Using conditional mouse models allowing conditional astrocyte-specific activation or inhibition of NF-κB, we found first evidence that NF-κB activation in astrocytes prior to TBI promotes development of neurological deficits post TBI. In contrast, animals with astrocyte-specific NF-κB inhibition show less neurological impairments suggesting beneficial effects of NF-κB suppression in astrocytes. Currently, we focus on the molecular mechanisms underlying this differential TBI outcome using immunohistochemical, biochemical and gene expression analyses as well as investigation of the blood-brain-barrier integrity and edema formation. This research is supported by a grant of the *Deutsche Forschungsgemeinschaft (DFG SFB 1194).*

Biography

Stephanie Nadine Reichel studied Molecular Medicine at the Eberhard-Karls University in Tübingen. Since January 2014 she is doing her PhD at the Institute of Physiological Chemistry of the University of Ulm. Besides, she is a student representative in the International Graduate School in Molecular Medicine Ulm (IGradU) and a member of the biotechnological student initiative (bts e.V.) Ulm.

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Jae Young Park, J Neurol Neurophysiol 2016, 7:5(Suppl)
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An overlooked cause of neck pain: Calcific tendinitis of the longus colli

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Acute calcific tendinitis of the longus colli muscle is a rare clinical entity that causes severe neck pain. This entity is not well recognized due to its non-specific presentation such as acute neck pain, neck stiffness, odynophagia or dysphagia. Acute calcific tendinitis of the longus colli muscle is an inflammatory condition caused by deposition of calcium hydroxyapatite in the superior oblique tendon fibers of the longus colli muscle. It can be misdiagnosed as other life-threatening conditions including retropharyngeal abscess, resulting in unnecessary medical or surgical interventions. We retrospectively reviewed eight patients who were diagnosed with acute calcific tendinitis of the longus colli between April 2008 and March 2015. There were eight patients (five men, three women) and mean age was 44.5 year-old (from 41 to 49). The associated symptoms included neck pain, stiffness, odynophagia and headache. The duration of symptoms varied from two days to one week. All patients showed calcific deposition inferior to the anterior arch of the atlas, and prevertebral effusion extending from C1 to C4. All patients were treated with NSAIDs and immobilization with a cervical brace and they showed complete resolution of symptoms within one week. We report eight cases of acute calcific tendinitis of the longus colli, and describe the symptoms and radiological findings in detail. Awareness of this rare, benign and self-limiting disease entity with characteristic radiologic findings is essential for early diagnosis and to avoid unnecessary medical and surgical interventions.

Biography

Jae Young Park completed his Graduation from Chonnam National Medical School and Residency in Department of Neurosurgery of Chonnam National University Hospital. He is Clinical Fellow in Department of Neurosurgery, Chonnam National University.

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Fawaz Fahad Alotaibi, J Neurol Neurophysiol 2016, 7:5(Suppl)
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Assessment of knowledge and attitude of women in Majmaah city, Saudi Arabia about multiple sclerosis, 2016

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Background: Multiple sclerosis (MS) is a chronic, inflammatory and immune-mediated demyelinating disease that originates from the central nervous system. It is characterized by infiltration of immune cells, abnormal formation of myelin sheath and the formation of multifocal plaques in the brain and spinal cord. Those diagnosed with MS are usually found to be in their most productive years of life. The disease usually starts between 20 and 40 years of age, and affects women more than men. According to the Atlas of MS database, worldwide about 2.5 million people are found to be diagnosed with multiple sclerosis1.

Purpose: The study is designed to evaluate the knowledge & attitude of multiple sclerosis among women in Majmaah City.

Methods: The study design was cross-sectional to study the knowledge and attitude of women in Majmaah, Saudi Arabia about multiple sclerosis & was conducted in Majmaah city at public places. Study population was women aged 18 years and more and whoreside in Majmaah city was included in the study. Sampling technique was consecutive sampling & the data was collected by a pre tested questionnaire.

Results: The findings showed that (48.67%) of the respondents have very weak knowledge about multiple sclerosis, while (38.49%) of respondents' knowledge is weak and (12.39%) of the respondents have an average knowledge of multiple sclerosis; while (0.29%) have a good knowledge about multiple sclerosis. The respondents who have a positive attitude about multiple sclerosis are more than the respondents who have a negative attitude about multiple sclerosis.

Conclusion: The study revealed that the majority of the study participants had limited knowledge and severe weakness in the awareness level toward the multiple sclerosis disease which requires increasing the awareness level.

Biography

Fawaz Fahad Alotaibi is a medical intern who has experience in medical research, has done four cross- sectional study & one case control study so, he is expertise in research field. He is professional in his work and caring of his patients. He is working hard to be a neurologist, doing three researches in this field.

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Retrospective assessment of central nervous system tumors underwent neurological and neurosurgical care at Clinical Hospital Centre Osijek during 2015

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Background: Central nervous system (CNS) tumors represent a major public health problem, and their epidemiological data in Croatia have been rather incomplete except for some regional reports. There are no available frequency-based data on CNS tumors in our locality.

Aim: The aim of this study was to estimate the frequency of CNS tumors in Clinical Hospital Centre Osijek.

Methods: The data were collected during 2015 from Clinic for Neurology, Clinic for Neurosurgery and Department of Pathology and Forensic Medicine. We analyzed data on 139 patients (64 men and 75 women), diagnosed with CNS tumors according to the World Health Organization's diagnostic criteria.

Results: The commonest type of all tumors was primary tumors of the CNS (48.92%) in relation to metastases (33.09%) and tumors of unknown diagnosis (17.99%). When only primary tumors were analyzed, the commonest types were meningioma (44.12%) and glioblastoma (33.82%). The remaining types were much less frequent: cavernoma (10.29%), haemangioma (5.88%), neurinoma (4.42%) and medulloblastoma (1.47%). The most common tumors in women were meningioma (28.00%) and in man glioblastoma (18.75%).

Conclusion: These results suggest a commonly encountered epidemiological profile in the region, with commonest primary tumors, and meningioma and glioblastoma as the most common brain tumors.

Biography

Anamarija Soldo Koruga is a Professor and a research advisor at Faculty of Medicine, Josip Juraj Strossmayer University of Osijek. Her area of scientific interest is biomedicine and health care and obtained specialization in Neurology. She has published so many scientific papers and more than 40 scientific papers indexed in CC/SCI.

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Posterior thoracolumbar corpectomy and reconstruction with two small cages

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The combined posterior-anterior approach has been widely employed for single level corpectomy in destructive thoracolumbar spinal disease. However, anterior corpectomy and fixation is technically demanding and has several disadvantages. Therefore, we tried the posterior approach only for decompression and circumferential reconstruction. From July 2013 to Dec. 2015, 10 consecutive patients were treated at our institution using this technique in various spinal disease including burst fracture, osteoporotic compression fracture and deformity. After performing subtotal or total corpectomy with upper and lower discectomy were performed, 360-degree reconstruction with two small titanium mesh cages insertion and correction of kyphosis by posterior transpedicular screw fixation were performed. Clinical and radiological data were retrospectively analyzed. All 10 patients (2 male and 8 female, mean age: 68.2 years) suffered from severe kyphotic deformity with or without neurological deficits. Mean surgical time was 374 minutes. Mean blood loss was 1220 mL. All patients experienced pain relief after the procedure. There was no intraoperative complication and newly developed neurological deficit after surgery. A successful restoration for kyphotic change was achieved in all patients and maintained during follow-up period. This operation is a reliable, effective, safe and less invasive treatment option and can be a good alternative modality for various spinal diseases. Long-term follow-up study with large number will be required to clarify the effectiveness of this technique in the future.

Biography

Ki Young Choi graduated from Chonnam National University Medical School in 2006 and has completed Internship from 2007 to 2008. After that, Dr. Choi completed Resident Training in Department of Neurosurgery from 2008 to 2011. He completed Korean Military Service as Public Health Doctor from 2012 to 2015. Then, He worked in Department of Neurosurgery, Chonnam National University Hospital from 2015. Now, He is Assistant Professor at Department of Neurosurgery in Chonnam National University Hospital. He is Member of Korean Medical Association, Korean Neurosurgical Society and Korean Spinal Neurosurgery Society.

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BACE1 expression in post-natal rat brain regions: Where goes wrong?

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Science through decades has reported that BACE1 activity towards APP promotes toxic Aβ-generation during conditions like Alzheimer's disease (AD). In spite of several other proteins that are involved in AD pathology it is not clear why BACE1 alone serves as target? Age and sex are considered to be the major risk factors for AD, while their influence on BACE1 expression yet poorly investigated. In other hand, brain has parcellation of neuronal-circuits containing 180-regions and therefore the origin of pathogenesis become mysterious; again, why hippocampus alone delineated for cognitive decline and AD is unclear. Therefore, present study aims to understand the levels of BACE1 expression in Post-natal-developmental (PND) stages of rat at various brain regions. Based on human-age Vs rat-age calculation, 10-groups of Wistar rats in their PND-stages viz., P1, P8, P24, P30, 3M, 3M-UMF, 6-M, 9M-MF, 12-M and 24-M were used to determine the sensitive period of pathogenesis in the present study. Vulnerability at 9-different brain regions (viz., olfactory-bulb, frontal-cortex, parietal-cortex, temporal-cortex, occipital-cortex, hippocampus, cerebellum, hypothalamus-thalamus and pons--medulla-oblongata) were analyzed for BACE1. Immunoblotting results show an unprecedented higher expression of BACE1 even during the first post-natal week that contradicts literature, which states that BACE1 increases in expression during aging. Interestingly, BACE1 is found to be significantly similar in all the PND-stages and in all the regions of brain. If BACE1 is observed to be expressed throughout the period of life, then how does the young get spared from SAD pathogenesis is astonishing. Further, to contradict, the levels of BACE1 is expressed with higher significant in young rather than aged. Although the level of BACE1 was down regulated during aging, the pyramidal cell rich hippocampus had a greater expression than the neocortical regions. To corroborate, it is inconclusive to claim BACE1 as a potent-target against AD-like pathology. Further, APP during aging has to be elucidated given that much more substrates available for BACE1 cleavage, and speculations on region specific action of BACE1 has to be intensively investigated to consider BACE1 as potent-target against SAD pathogenesis.

Biography

Sathya M is currently working in the Department of Biochemistry at Bharathidasan University in Trichy, India. She has published several original research papers in the reputed journals and participated in the several scientific meetings.

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Urea cycle disorder misdiagnosed as multiple sclerosis: A case report

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Urea cycle disorders (UCD) are a collection of inborn errors of metabolism caused by dysfunction of any of the six enzymes or two transport proteins involved in urea biosynthesis. Urea cycle is the final pathway for nitrogen metabolism and dysfunction of this important pathway cause UCD, which are more common during the neonatal period. The suspicion for this metabolic disorder arises when patients present with elevated blood ammonia level and neurological manifestation without underlying hepatocellular dysfunction. In this article, we report a patient who presented with neurological dysfunction and coma in the immediate postpartum period. She was misdiagnosed for many years as a case of demyelinating disorder. The diagnosis was confirmed based on the presence of urine orotic acid and elevated certain serum amino acid levels. Hemodialysis was performed to the patient to correct the hyperammonemic-related dysfunction which was unresponsive to conventional measures. She improved gradually with repeated hemodialysis and made a full recovery. Her clinical and radiological status has not changed for five years since diagnosis was made. The importance of reporting this case is to illustrate that wrong diagnosis of patients as being affected with multiple sclerosis for many years due to MRI abnormalities rather than classical relapsing remitting nature of the disease may lead to grave consequences. In addition, the patient was treated with intravenous steroids several times which is contraindicated in patients with UCD as it may precipitate acute hyperammonemic attacks. We believe that the presence of symmetrical hyperintense insular cortical changes is pathognomonic for UCD. This radiological sign is extremely rare and seldom reported in the literature.

Biography

Hussein Algahtani is the Associate Dean of clinical affairs and the Head of the simulation Center in the College of Medicine at King Saud bin Abdulaziz University for Health Sciences in Jeddah, Saudi Arabia. He is also an Assistant Professor in Neurology and the neurosciences block coordinator. In addition, he is the Neurology section Head and the Head of Neurophysiology laboratory at King Abdulaziz medical city in Jeddah, Saudi Arabia. He is a well-known researcher with more than 50 publications in the literature.

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Understanding of brain death depends on an advancement of technology

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Brain death (BD) is the clinical condition of complete loss of brain function and the state of being in an irreversible coma diagnosed by apnea test, testing for brainstem reflexes and other examinations depending on country. There is a consensus among the neuroscientists that the total brain malfunction is considered as the death of the whole body. However, people diagnosed as BD nevertheless retain full homeostasis despite no case of full recovery from that condition documented. What it tells us is that the tests like EEG is not sufficient for BD diagnosis which was eliminated from the BD diagnosis in Commonwealth countries. Even the apnea test is not included as confirmatory for BD diagnosis in some countries and in others it differs in timing. In 1947 when the first defibrillation of heart was implemented the death was "Reversible". The recent studies on patients in coma show that using optogenetic rehabilitation made it possible for patients in coma to achieve harmonic psychosomatic balance. Recently, Bioquark Inc. and Revita Life Sciences received IRB approval for the first-in-human brain death study where they will implement the use of stem cells and try to "Cure" BD patients. If the study succeeds, we will need other criteria to determine BD as a disease or as the death of the whole body. In this poster presentation, the analysis of BD criteria and diagnosis since 1967 will be discussed, and how it changed and will change over time with the advancement of technology.

Biography

Galymzhan Kuatbay has completed his Bachelor at the Nazarbayev University, majoring in Biological Sciences. Currently, he is a 2nd year Medical Student at the Nazarbayev University School of Medicine and his research interest is in the area of brain dysfunctions and the use of optogenetics.

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Cognitive disturbance among patients with multiple sclerosis: Systematic review

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Multiple sclerosis (MS) is a progressive disease, described by the presence of lesions in brain and spinal cord memory definition concerns to the acquisition operations (as a synonym of learning), formation, conservation and evocation of information. Although there are various systems to classify memory, within this article, we will emphasize those most frequently investigated in MS patients. The purpose of this systematic review is to present the results of prospective and retrospective studies on cognitive alterations in MS patients. Also to highlight the relationship between MS and cognitive impairment and its risk factors. We conducted systematic search for published studies through electronic bibliographic databases: Cochrane Central Register of Controlled Trials, MEDLINE, EMBASE, CINAHL, Allied and Complementary Medicine Database, and PsycInfo. We concluded that there is consensus on cognitive impairment of multiple sclerosis patients, especially on memory, speed processing, executive function, attention and concentration domains.

Biography

Jawaher Musnad Saffan Alanazi is currently working as a Medical Intern in King Abdulaziz Medical City in Riyadh, Saudi Arabia. She has published several original research papers in reputed journals and has participated into several scientific meetings.

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Morphometric study of foramen magnum, an anatomical study

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Objective: The aim of the present study was to determine the antero-posterior and transverse diameters of foramen magnum in Nepalese population.

Methods: The present study included 35 dried cadaver skulls from the Department of Anatomy of the Manipal Teaching Hospital at Pokhara, Nepal. The variables collected were anteroposterior diameter, transverse diameter and foramen magnum index. Descriptive statistics and testing of hypothesis were used for the analysis. Data was analyzed using EPI INFO and SPSS 16 software.

Results: The mean measurements of anteroposterior diameter were 3.28cm, transverse diameter was 2.86cms and the foramen magnum index was 1.15. There was a relationship between anteroposterior and transverse diameters (r=0.645, p=0.0001).

Conclusion: We believe that the present study has provided the important morphometric data about the foramen magnum. These data have the neurosurgical implications as the lateral approaches have often been utilized to operate on lesions anterior to the medulla oblongata or lesions of the vertebral artery.

Biography

Teresa Joy is currently pursuing her PhD at the Manipal University. She has published more than 10 papers in indexed reputed journals.

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More than a decade of misdiagnosis of alternating hemiplegia of childhood with catastrophic outcome: A case report

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Alternating hemiplegia of childhood (AHC) is a distinct clinical disorder characterized by recurrent episodes of hemiplegia, abnormal ocular movement, and progressive developmental delay. It is an extremely rare genetic disorder related to ATP1A3 gene mutations with an estimated prevalence of 1/1,000,000 children. It is believed that this number could be an underestimate due to variability in clinical presentation, lack of knowledge about the disease, and lack of advancement in the diagnostic laboratory and radiologic test that will confirm the diagnosis. A thorough literature search yielded only one case study reported from Saudi Arabia. In this paper, we present a case of AHC in which the diagnosis was missed for many years until severe hypoxic brain insult occurred from prolonged status epilepticus. We are not only presenting an interesting clinical entity and radiological images, but we are also shedding the light on a rare genetic disease with catastrophic sequelae. Since the original description of AHC, many endeavors have been made to understand the pathophysiology of the disease which resulted in linking the disease with mutations in the gene ATP1A3. Despite this substantial progress in the understanding of the disease, no curative treatment has been discovered, and the disease continues to be challenging to treat. All the current treatments are focused on reducing the frequency, duration, and severity of AHC episodes. The challenges in diagnosis and treatment lead to a poor outcome as seen in our case. Early recognition and accurate diagnosis of the disease with the suitable treatment may lead to improved outcome. Referral to a center with expertise in genetic disorders and access to genetic labs is of paramount importance in the diagnosis of this disease. The complexity and severity of this disorder make more research crucial to find the curative therapy and further understand the disease.

Biography

Hussein Algahtani is the Associate Dean of clinical affairs and the Head of the simulation center in the College of Medicine at King Saud bin Abdulaziz University for Health Sciences in Jeddah, Saudi Arabia. He is also an Assistant Professor in Neurology and the neurosciences block coordinator. In addition, he is the Neurology section Head and the Head of Neurophysiology laboratory at King Abdulaziz medical city in Jeddah, Saudi Arabia. He is a well-known researcher with more than 50 publications in the literature.

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Effect of repeated methylphenidate administration on serotonin-1A expression and behavior in rat models

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Methylphenidate (MPD) is the most regularly prescribed psychostimulant for patients with attention-deficit hyperactivity disorder (ADHD). It has also been used by general population, especially college students, without ADHD to improve academic and work related performances which later produce addiction. Although dopamine is the main neurotransmitter involved in the pathophysiology of drug abuse, serotonin (5-hydroxytryptamine; 5-HT) can modulate addictive effects of drugs of abuse. The present study was designed to check MPD-induced behavioral sensitization and cognition along with the 5HT-1A receptor expression in the nucleus accumbens and prefrontal cortex of repeated MPD treated rats. Twenty four (24) male albino Wistar rats (180-220 gm) were used to determine dose related effects of MPD (0.5, 2.5 and 5 mg/kg) on cognition in water maze test. Acquisition of memory was assessed after two hours of the three successive training sessions. After 20 hours of drug administration, retention of memory was assessed. In another experiment, 12 male albino Wistar rats were randomly assigned to two equal groups. Water and methylphenidate (2.5 mg/kg) were administered orally to the respective groups. Animals were exposed to 12 (one daily) place conditioning sessions of 30 min each. Motor behavior during this session was also recorded. Reinforcing effects of methylphenidate were monitored during the test session on day 13. On day 14, drug/water was administered and learning acquisition was done after training sessions. Retention of memory was assessed after 24 hours of the drug administration. Decapitation was done on the next day and brains were micro-dissected to collect the nucleus accumbens and prefrontal cortex. 2.5 mg/kg MPD found to enhance cognitive effects in Morris water-maze test. Conditioned place preference test on day 13 revealed that repeated administration of MPD (2.5 mg/Kg) produced reinforcement as well as the behavioral sensitization. While repeated administration of MPD moderately enhanced acquisition of memory while significantly increased memory retention. We also report that 5HT-1A receptor expression was also down regulated in methylphenidate treated rats both in the nucleus accumbens and prefrontal cortex. These findings may help to improve pharmaco-therapeutics in treating ADHD.

Biography

Tabinda Salman has good background knowledge of neuroscience and hand-on experience of working with all type of behavioral models, neurochemical analyses, molecular tools to check gene expression and other related experimental protocols. She is currently working as a PhD Fellow at National Center for Proteomics, University of Karachi, Pakistan. She has done her MPhil in Molecular Medicine (Neuropharmacology). The study which is designed to monitor receptor regulation together with associated changes in serotonin and dopamine metabolism is expected to help identify novel therapeutic targets for improving cognition and to treat addiction in future studies.

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Posterior reversible encephalopathy syndrome: Local experience from Saudi Arabia

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Objectives: Posterior reversible encephalopathy syndrome (PRES) is a clinicoradiological syndrome characterized by headache, altered mental status, seizures, or loss of vision. In this study, we report the largest series of PRES coming from Saudi Arabia and explore the etiology, clinical presentation, and outcome. We also report new imaging findings associated with this condition.

Methods: We performed a retrospective study of all cases of PRES admitted to King Abdulaziz Medical City, Jeddah, Saudi Arabia, between the years 2005 and 2015. A neurologist reviewed all charts and analyzed the clinical presentations, etiological factors, and outcomes, and a neuroradiologist reviewed the imaging studies. Only patients with clinical and imaging features consistent with PRES were included in the study.

Results: We collected 31 patients who had clinical and radiological features consistent with PRES. Females were more affected than males (18 females and 13 males), and patients' age ranged from 6 to 95 years, with a mean of 38.3 years. Patients were treated by removing the precipitating causes and treating the underlying conditions. Resolution of neurologic signs occurred within 2 to 3 weeks in all patients.

Conclusion: In our opinion, PRES itself is usually a benign condition with complete recovery if the condition is recognized early and managed appropriately. Although clinical signs are nonspecific, the constellation of symptoms including headache, visual problems, seizures, and altered level of consciousness should suggest the possibility of PRES, especially in high-risk group. Abnormalities on magnetic resonance imaging are often characteristic and may be the first clue to the diagnosis.

Biography

Hussein Algahtani is the Associate Dean of Clinical Affairs and the Head of the simulation Center in the College of Medicine at King Saud bin Abdulaziz University for Health Sciences in Jeddah, Saudi Arabia. He is also an Assistant Professor in Neurology and the neurosciences block coordinator. In addition, he is the Neurology section Head and the Head of Neurophysiology laboratory at King Abdulaziz medical city in Jeddah, Saudi Arabia. He is a well-known researcher with more than 50 publications in the literature.

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Elevated hippocampal tau levels at the early stage in experimental subarachnoid hemorrhage

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Objective: Subarachnoid hemorrhage is a devastating disease with up to 95% of survivors reporting cognitive impairment and poor quality of life. Microtubule integrity and thus its role on the neuronal polarity are important in conserving cytoskeletal structure and function. Tau is well known protein interacting with mostly axonal microtubules. They support the stabilization of microtubules, inhibition of depolymerization and microtubule rigidity. In our study, we investigated hippocampal tau protein tissue levels in the rats housed in isolated, standard and enriched environment after experimental subarachnoid hemorrhage.

Material & Method: Hippocampal microtubule-associated protein tau (MAPT) levels were determined by enzyme-linked immunosorbent assay (ELISA) kit (Elabscience) according to the manufacturer's instructions. Results were obtained at 7th day and 14th day after subaracnoid hemorrhage.

Results: At first week after subarachnoid hemorrhage, tau levels were increased in the rats housed in isolated and standard environment, reduced in the rats housed in enriched environment. Two weeks after subarachnoid hemorrhage, tau levels reduced in all groups.

Conclusion: At the early stage of subarachnoid hemorrhage in the experimental rats, axonal tau proteins to stabilize neuronal microtubule integrity with standard and isolated environment housing may be more favorable.

Biography

T Erhan Cosan is currently working as a Professor in the Department of Neurosurgery at Eskisehir Osmangazi University (Eskisehir, Turkey). He has published several original research papers in reputed journals and also participated in several scientific meetings.

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Abdulrahman Bazaid et al., J Neurol Neurophysiol 2016, 7:5(Suppl)
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Biotin-responsive basal ganglia disease: Catastrophic consequences of delay in diagnosis

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Background: Biotin-Responsive Basal Ganglia Disease (BBGD) is an autosomal recessive neurometabolic disorder caused by mutations in the SLC19A3 gene. The disease is characterized by subacute encephalopathy with confusion, dysphagia, dysarthria and seizures.

Methods: We diagnosed a family affected by BBGD and studied them including prognosis of cases when diagnosed and treated early in the disease process. We also review the literature comprehensively and summarize all published data about this disorder.

Results: Since its first description, a total of 89 cases (46 females and 43 males) have been published in the literature. We studied six patients in this article in which three died before a diagnosis was established, one was diagnosed lately and is currently severely affected, and two were diagnosed early and are currently stable on treatment. The clinical phenotype of each family member was studied in details and a genetic testing using whole exome sequencing and Sanger sequencing of the family members was done to confirm the diagnosis. The whole exome sequencing revealed a homozygous mutation in the exon 5 of the SLC19A3 gene c.1264A>G (p.Thr422Ala) which is diagnostic of biotin-responsive basal ganglia disease.

Conclusion: BBGD is a treatable condition if recognized early and managed appropriately. Children presenting with unexplained encephalopathy and MRI abnormalities including bilateral signal alteration of caudate nucleus and putamen should raise the suspicion for BBGD and be started immediately on biotin and thiamine regimen since the prognosis of the disease is affected by the timing of treatment initiation.

Biography

Abdulrahman Bazaid is a medical intern at King Abdulaziz Medical City in Jeddah, Saudi Arabia. He obtained his MBBS degree from Battarjee Medical College in Jeddah, Saudi Arabia. He attended several seminars, courses and workshops in research methodology. He is determined to pursue his career as a physician, academician and researcher.

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Didem T Cosan et al., J Neurol Neurophysiol 2016, 7:5(Suppl)
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Hippocampal MAP2 levels reduce in the experimental sub-arachnoid hemorrhage: A preliminary study

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Objective: Subarachnoid hemorrhage is associated with severe morbidity and mortality. Disease may lead to impaired consciousness and cognitive functions. Neuronal processing is supported by intracellular microtubule integrity and functions. MAP2 interacting with microtubules leads to stabilization of microtubules, inhibition of depolymerization and increase in microtubule rigidity.

Material & Method: We investigated hippocampal tissue microtubule-associated protein 2 (MAP2) levels in the rat groups housing in isolated, standard or enriched environment, and results were obtained at 7th and 14th days after experimental subarachnoid hemorrhage. The enzyme-linked immunosorbent assay (ELISA) method was used to measure the MAP2 levels in rat's hippocampal tissue samples. This assay was performed using commercially available ELISA kit.

Results: Hippocampal MAP2 levels were reduced in all groups at first and second week after subarachnoid hemorrhage. Nevertheless, reduced MAP2 levels are more elevated in the rats housing in enriched environment compared with other groups.

Conclusion: In the progression of experimental subarachnoid hemorrhage, hippocampal MAP2 levels are being reduced despite changing environmental status. Besides, the enriched environment in the subarachnoid hemorrhage may need further investigations.

Biography

Didem T Cosan is currently working as an Assistant Professor in the Department of Medical Biology at Eskisehir Osmangazi University (Eskisehir, Turkey). He has published several original research papers in reputed journals and also participated in several scientific meetings.

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Intracranial teratoma: Case series and review of literature

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Background: Teratoma is a common form of germ cell tumors composed of multiple tissues foreign to the site in which arise with histological representation of all three germ cell layers (ectoderm, mesoderm, and endoderm). It was derived from the Greek word teraton meaning a "monster". It commonly presents during infancy and childhood and accounts for 2% of intracranial tumors in patients under the age of 15 years. Intracranial teratomas are very rare.

Methodology: This is a retrospective study done in king Abdulaziz Medical city- Jeddah, and it was approved by the Institutional review board (IRB) of King Abdullah international Medial Research Centre (KAIMRC). All 69 cases with the diagnosis of teratoma during the period of January 2005 to June 2016 were reviewed. Clinical, demographic, radiological and treatment details of the patines were retrieved from the medical records (both hard and electronic). A sub-group analysis was also made for all 3 cases diagnosed as intracranial teratoma.

Results: A total number of 69 patients were reviewed, 11 (15.9%) male and 58 (84.1 %) female. The age range is 1 day to 76 years. The sites of pathology of these teratomas were as follows: ovarian: 50 (72.5%), central nervous system (CNS) 3 (4.3%), kidney 1(1.4%), lumbosacral 1(1.4%), neck 2 (2.9 %), retro-peritoneum 3 (4.3%), testis 2 (2.9%) sacrococcygeal 4 (5.8%) and mediastinal 3 (4.3%). The three patines with CNS teratomas had different sites as-well, 1 cerebral hemisphere, 1 posterior fossa and 1 pineal gland. There was 1 (33.3 %) mature and 2 immature (66.6 %) , 1 (33.3%) cystic and 2 (50%) solid.

Conclusion: Intracranial teratomas 4% of all types of teratomas. The prognosis is dependents on location, size and surgical experience, short coming of this study are small number of patients, lack of statistics regarding other forms of brain tumors and being a single study.

Biography

Ahad Abdullah is a medical intern currently training at King Abdulaziz Medical City National Guard in Jeddah, Saudi Arabia. She obtained her MBBS degree in year 2016 from Battarjee Medical College in Jeddah, Saudi Arabia. She attended several seminars, courses and workshops related to research methodology. She is determined to pursue her career as a physician, surgeon and researcher.

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Interpretation of hippocampal MAP2/TAU levels in rats housed in different environments

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Objective: Microtubules' functions are important in neuronal development, plasticity and polarization. Disturbing changes in microtubule organization and dynamics may cause loss of neuronal integrity and functions. Tau and other microtubule-associated proteins (MAPs) promote the assembly and stabilization of neuronal microtubules. MAP2/Tau family proteins are originally characterized by their ability to bind microtubules. MAP2 is found mostly in dendrites and tau is found mainly in axons. Their bindings stabilize microtubules. Here, we discuss hippocampal MAP2/tau tissue levels in rats housed either in enriched, standard and isolated environment.

Material & Method: The rats were kept in different environmental conditions (standard, rich and isolated). After one and two weeks of the procedure, hippocampal microtubule-associated protein tau (MAPT) and microtubule-associated protein 2 (MAP2) levels were determined by enzyme-linked immunosorbent assay (ELISA) method.

Results: MAP2 levels in hippocampal region were periodically elevated during two weeks in the rats housed in enriched environment. Tau protein levels were not apparently changed at first week in all groups, but were reduced at second week in the rats housed in enriched environment.

Conclusion: In experimental studies on the investigation of MAP2/tau family, MAP2 and tau should be evaluated and interpreted separately. Dendritic MAP2 may be elevated continuously in the enriched environment, but not axonal tau.

Biography

Turhan Kandemir is currently working as a Professor in the department of neurosurgery at Eskisehir Osmangazi University (Eskisehir, Turkey). He has published several original research papers in reputed journals and also participated in several scientific meetings.

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Co-occurring mental health and substance use disorders: Variables and stages of implementation and sustainability

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Individuals with co-occurring illnesses are at risk for poor outcomes related to criminal justice, hospitalization, housing and employment. Integrated Dual Disorder Treatment (IDDT) is an example of a complex evidence-based practice implemented with a multi-disciplinary team including physicians, nurses, social workers and peers which is associated with significant improvements in those outcomes. Evidence-based practices are not simple to implement and sustain however, and a research to practice gap translates to barriers to timely implementation and sustainability of best practices. Barriers include time, resources and readiness to implement and sustain best practices. The practice to research gap can also be wide, with discoveries in clinical practice taking many years to be researched well so practices can evolve. A secondary data analysis of the implementation, sustainability, and alteration of IDDT in an entire state in the United States was used to highlight these barriers and the ways to overcome them are analyzed. In this large sample, IDDT took time to implement to a level of high fidelity, and was sustained even with practice alteration of adding peers. Recommendations for staffing, funding, and policy are made in this study. Generalizability to other best practice implementation in central nervous system disorders, and impact multi-disciplinary team readiness and access are discussed.

Biography

Jennifer Harrison, PhD, LMSW, CAADC, is a Social Work Faculty Member in the College of Health and Human Services at Western Michigan University. She has been in clinical and administrative practice for over 20 years, and has teaching expertise in direct practice, field education and social policy. She has designed interprofessional courses and presented internationally on advanced quantitative analysis of mental health implementation. Her clinical work is focused on integrated medical and behavioral health using evidence-based methods. Her research interests include social and economic justice, co-occurring mental health, substance abuse, and medical needs among adults, peer services and food insecurity/sovereignty.

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Notes:

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People with acute stroke who received occupational therapy sessions throughout their hospital stay at Liaquat National Hospital, neurology ward proved more likely to be functional in their self care and motivated at the time of discharge

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Introduction: Among people who have experienced a stroke, 55% to 75% have a paretic arm that causes motor impairments and experience difficulty in incorporating the affected hand into their activities. Mirror therapy (MT) may be a suitable alternative because of its low cost and simplicity. The movement of the intact limb gives the patient the illusion of which inputs are perceived through the affected limb behind the mirror. Substantial evidence has demonstrated the immediate efficacy of MT on motor recovery in people with stroke. In this intervention based study, mirror therapy effects has been found out for paretic arm retraining.

Aim: Aim of this study is to emphasize occupational therapy interventions benefits as part of inpatient facilities for acute stroke patients.

Method & Material: Randomized controlled trial was done. Data source was neurology inpatient ward and stroke unit at Liaquat National Hospital. 25 ischemic and 25 hemorrhagic stroke patients were enrolled after 24 hours of onset. The patients received bedside self-care retraining of five components according to FIM hierarchy, leaflets of stroke awareness, stroke support group and home modification plan to care givers were all the part of interventions. The intensity of interventions for both types of stroke was selfcare retraining five days twice per day each component. Leaflets were provided on bedside, stroke support group and home modification plans were given to attendants each day. Main outcome measurements were initial functional restoration assessment (IFRA) and functional independence measure (FIM).

Results: Both types of stroke resulted with hope to recover and independent to minimize the burden of dependency.

Conclusions: The application of occupational therapy interventions in acute stroke proved to be beneficial for both types of stroke in self care and motivation to be independent in their daily routine cores.

Biography

Neelum Zehra Bukahri completed her Bachelor degree in Occupational Therapy, Diploma in TbsOT and Master in special education. She is working on Functional Independence since 15 years with different disabilities. She has Presented paper at national and international conferences on Neurology and Stroke. She won encouragement award on presenting “Acute care model for stroke” at 23rd National Conference of Pakistan Society of Neurology.

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Changes in myelopathic signs and functional outcome after cervical decompression surgery: A new myelopathy scale

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Cervical Spondylotic Myelopathy (CSM) is the most common cause of spinal cord dysfunction in adults. Changes in myelopathic signs following cervical decompression surgery and the relationship of the changes in myelopathic signs to functional outcome remains unclear. We prospectively followed 36 patients pre-operatively and one year postoperatively and examined changes in myelopathic signs and functional outcome and compared the relationship with each other. Functional outcome was measured with the modified Japanese Orthopaedic Association (mJOA) scale and five myelopathic signs were examined individually and collectively with our newly proposed myelopathic scale. The results and conclusions of these findings will be discussed, as well as an outline of our new myelopathic scale.

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Epilepsy in the Sudanese children and its impact on the growth parameters

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Background: Epilepsy has been suspected to affect the growth parameters in children who treated for longer time with antiepileptic drugs.

Method: Unmatched case control study of 71 cases that were in long term treatment of epilepsy and 32 control cases.

Results: 36 (50.9%) of cases was found to be <3rd centile compared to 3 (10.9%) of the control group. Also 20 (30.9%) of cases their height be <3rd compared to 1(3.6%) for the control. The mean weight of cases 27.3±8.1 kg, compared to 33.3±9.4 kg for the control (P=0.000), as for the height the mean was 132.9±18.8 cm for the cases, compared to 139.7±11.6 cm for the control, (P=0.017). No major difference in BMI the mean was 16.1±11 compared to 16.7± 2.7(P=0.67).

Conclusions: Epileptic children who are in long term medications have affected growth parameters compared to their control. Epilepsy may predispose to malnutrition. A better understanding of these interactions is necessary. Nutritional assessment is still important as part of the comprehensive care of children with epilepsy.

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Cognitive impairment is correlated with and unstable mental health profile

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Cerebral function is mainly reorganized during years between adolescence and midlife. This important period is characterized by creation of synapses, fine-tuning of excitatory and inhibitory neurotransmitter systems, improvement of brain structures, and development of nervous connections. Indeed most of brain diseases result due to variance or damage to any of these events. Variances or imbalances in timing of neuronal maturity process strongly increase the risk for cognitive impairments and certainly leads to the development of neurodegenerative diseases, dementia, anxiety and psychiatric disorders in unknown rate in the groups of young adults (aged between eighteen years old until midlife). Moreover, these changes also influenced the risk for Alzheimer disease, Dementia and other associated diseases. The aim of this study is to explore how detection of cognitive impairments is link with a combined effect of sociodemographic items we choose, on a healthy young adult's population. This epidemiological study was leaded with a questionnaire incorporating the short fifteen items version of cognitive complaints detection's Mc Nair Test which is used for detect cognitive complains. The questionnaire also included ten socio-demographic items and forty seven others questions divided in seven sections: quality of sleep, level of stress, depression, anxiety, general health, physical skills, and dependences. Our results suggested a strong link between increasing in memory deficit and the combination of at least two bad score to each section, with a significant correlation with unstable mental health profile.

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The effect of post-injury erythropoietin administration on mortality and Glasgow Outcome Scales of patients with traumatic brain injury: A meta-analysis

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Aim: Aim of this study is to determine whether post-injury treatment with erythropoietin provides lower mortality rates and improved Glasgow Outcome Scales in patients with traumatic brain injury (TBI).

Methods: Randomized controlled trials (RCTs) were searched through PubMed, Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE and www.googlescholar.com. The reference list of a systematic review was also searched.

Results: Four RCTs comparing erythropoietin and placebo, regardless of dose, dosing regimen, and route of administration were reviewed. Data analysis showed that mortality rates for the erythropoietin group (OR 0.63, CI 0.43, 0.93) was significantly lower compared to the placebo group. However, there was no significant difference in the Glasgow Outcome Scales of TBI patients given erythropoietin compared to placebo.

Conclusion: Post-injury treatment with erythropoietin, regardless of dose, dosing regimen and route of administration yielded lower mortality rates in patients with traumatic brain injury but had no significant effect on Glasgow Outcome Scales. It is recommended that further large scale randomized controlled trials should be performed in order to fully establish the safety and support the efficacy of erythropoietin administration in patients with traumatic brain injury.

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Opioid reward mechanisms: A potential role in metabolic disturbances

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Introduction: Obesity and overeating may be construed as a behavioral addiction. In schizophrenia, obesity is twice as prevalent as in the general public afflicting over 50% of the patients and shortening their lifespan by about 15 years. Although excessive consumption of fast food and pharmacotherapy with second-generation antipsychotic agents (SGAs) has been implicated in the schizophrenia/obesity comorbidity, the pathophysiology of this link remains unclear. The mechanism proposed here is based on the central opioidergic system owing to opioids' role in: enhancing reward features of food; boosting orexigenic and suppressing anorexigenic neuropeptides; reducing peripheral insulin secretion and; desensitizing insulin receptors.

Aim: The aim of this presentation is to discuss a heuristic value of opioid blockade for patients' metabolic status.

Method: Translational evidence to be presented in support of the above contention includes a preclinical and two clinical studies. First, four groups of Wistar Han IGS rats were treated for 28 days with an SGA olanzapine, a combination of olanzapine and an opioid receptor antagonist, naltrexone, naltrexone alone or vehicle, and their food consumption and body weight were measured daily for the first nine days and every other day thereafter. Second, a potential mechanism of naltrexone action was explored in 15 patients with heroin dependence who underwent the standard sweet taste test before- and seven days after the injection of depot naltrexone. Third, we also conducted a double-blind placebo-controlled pilot clinical trial where schizophrenic or schizoaffective patients on a stable dose of olanzapine were randomized in a double-blind fashion to receive naltrexone (n=14) or placebo (n=16).

Results: Rats treated with olanzapine and naltrexone were similar to the vehicle-treated animals with respect to food intake and body weight gain, whereas olanzapine treatment alone induced overeating and obesity ($p<0.001$ group-by-time interaction). Data from heroin dependent human subjects demonstrated a reduction in the hedonic and motivational ratings of sweet solutions ($p<0.05$) after naltrexone suggesting a potential mechanism of action. On the clinical trial, in comparison to the olanzapine and placebo combination, the olanzapine and naltrexone group displayed a significant decrease in the fat mass ($p<0.01$), assessed with the biometric impedance analysis and a trend towards improvement in the insulin resistance quantified via HOMA-IR values ($p=0.09$).

Conclusions: Naltrexone addition may result in clinically meaningful attenuation of olanzapine-induced metabolic side effects. Potential mechanisms of naltrexone action may involve diminution of rewarding features of food in conjunction with favorable effects on insulin sensitivity. If confirmed, these results may contribute to the identification of an inexpensive and effective treatment that specifically targets the underlying pathophysiologic effects of SGAs and provides a substantial clinical benefit to the risk population.

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Current management of glioma

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Gliomas are common type of primary brain tumors and their treatment has remained challenging. Although, curative therapies are currently not available, gliomas are treated best with a multidisciplinary team approach. Current treatments consist of surgical tumor resection, radiation therapy and chemotherapy. Cytoreductive surgery still remains the cornerstone in the management of gliomas. Preoperative investigations with new diagnostic modalities and sophisticated intraoperative techniques are available today that help maximize the extent of tumor resection leading to improved overall survival while minimizing the risk of postoperative neurological deficits. However, there is still need for additional better treatment options. Recent progress of molecular genetics including targeted therapy trials based on the progress of molecular genetics and biology, and moreover, on-going immunotherapeutic trials are intriguing. The future of treatment of gliomas will incorporate translational research efforts.

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The evolving clinical profile, pattern of management and outcome of patients with acute cardio-embolic stroke seen at University of Philippines- Philippine General Hospital

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Introduction: One of five ischemic strokes is cardio-embolic in nature. Despite the robust data on cardio-embolic stroke (CES) in western literature, there is scarcity of locally published data on Asians. The higher prevalence of rheumatic heart disease (RHD) in developing countries and the growing availability of NOACs may contribute to an evolving patient profile.

Aim: This study aims to define the profile, management patterns and in-hospital outcomes of Filipino patients with CES.

Methods: A two-year retrospective study of patients with CES admitted at UP-PGH from 2013-2014 was done. The diagnosis of CES was made using the TOAST classification. Demographic/clinical data were obtained. Official results of cranial CT scan/MRI, electrocardiogram and echocardiogram were obtained. Data were obtained using a standardized data collection form.

Results: A total of 126 patients were enrolled. Mean age was 59.9 years. Majority (88%) had a CHADS-VASC score of >2. Atrial fibrillation remained the most common rhythm abnormality (67%) and 20% had RHD (mitral stenosis). On echo, 92% had LVH and 58% had left atrial enlargement. Interestingly, only 5% had thrombus and 8% had rheologic stasis. Majority had moderate-large artery territory infarctions with 40% hemorrhagic conversion within four days. Two of three patients were given initial anticoagulation. Only half of those who survived were discharged on oral anticoagulation. Only 10% of patients were given NOACs. Mean HASBLED score was 1.9±0.96. Bleeding complications was 6%. CES were associated with longer hospital stay (16 days) and development of nosocomial pneumonia (46%).

Conclusion: This is the largest local study on patients with acute cardio-embolic stroke. The profile of Filipino CES patients was similar to the previous studies in terms of the patients' age, neuroimaging findings, rate of hemorrhagic conversion, and low anticoagulation rate. Despite the availability of newer anticoagulants and the compelling indication to maintain these patients on long-term anticoagulation for secondary stroke prevention, 45% were discharged on anti-platelets alone. Contrary to western data, Filipino CES patients are younger with majority of them having RHD.

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Persistent diffuse deep T wave inversion: An ECG manifestation of myasthenia gravis in crisis: A case series

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Myasthenia gravis (MG) is an autoimmune disorder directed against acetylcholine receptors. Despite the absence of these receptors in cardiomyocytes, asymptomatic ECG changes, tachyarrhythmias, myocarditis, and sudden death have been documented. We report two cases of MG presenting with deep diffuse persistent T wave inversions as a marker for possible MG related cardiac disease. A 68 year-old female, diagnosed with MG, post thymectomy for malignant thymoma in 2013, was admitted for progressive weakness, pleuritic chest pain and cough. ECG showed regular sinus rhythm, normal axis, low voltage complexes on limb leads, poor R wave progression, prolonged QT interval, diffuse T wave inversion on all leads. Troponin I level was borderline elevated however, monitoring of troponin was negative. Echocardiography revealed concentric left ventricular hypertrophy with good contractility. ECG monitoring showed deepening diffuse symmetric T wave inversion. Due to the low CAD risk, this was interpreted as non-ischemic and was attributed to MG's autoimmunity. Antibiotics, pyridostigmine, prednisone and plasmapheresis were given. She remained stable throughout the course. Repeat ECG a month showed normalization of T wave inversion. A 29 year old female was admitted for MG crisis. ECG revealed sinus tachycardia, with upright T waves. On Day eight, patient developed sepsis induced hypotension and repeat ECG showed 2 mm ST elevation on V2-V3 with 3 mm T wave inversion on lateral leads. Serial ECG showed deepening of T wave inversion on V2-V6 (deepest 7 mm). The cardiac enzymes, echocardiogram and electrolytes were normal. With medical management, the patient was discharged. The dynamic ECG changes were attributed to possible immunologic myocarditis, which can present with deep T wave inversions. This case report highlights that clinicians should be aware that MG can present with this ECG feature, albeit seemingly alarming, usually follows a benign course and resolves with the resolution of MG crisis.

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Posterior thoracolumbar corpectomy and reconstruction with two small cages

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The combined posterior-anterior approach has been widely employed for single level corpectomy in destructive thoracolumbar spinal disease. However, anterior corpectomy and fixation is technically demanding and has several disadvantages. Therefore, we tried the posterior approach only for decompression and circumferential reconstruction. From July 2013 to December 2015, 10 consecutive patients were treated at our institution using this technique in various spinal disease including burst fracture, osteoporotic compression fracture and deformity. After performing subtotal or total corpectomy with upper and lower discectomy were performed, 360-degree reconstruction with two small titanium mesh cages insertion and correction of kyphosis by posterior transpedicular screw fixation were performed. Clinical and radiological data were retrospectively analyzed. All 10 patients (two male and eight female, mean age: 68.2 years) suffered from severe kyphotic deformity with or without neurological deficits. Mean surgical time was 374 minutes. Mean blood loss was 1220 mL. All patients experienced pain relief after the procedure. There was no intraoperative complication and newly developed neurological deficit after surgery. A successful restoration for kyphotic change was achieved in all patients and maintained during follow-up period. This operation is a reliable, effective, safe and less invasive treatment option and can be a good alternative modality for various spinal diseases. Long-term follow-up study with large number will be required to clarify the effectiveness of this technique in the future.

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From discovering calcium paradox to Ca^{2+}/cAMP interaction: Impact in human health and disease

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The hypothesis of the so-called calcium paradox phenomenon in the sympathetic neurotransmission has its origin in experiments done in models of neurotransmission since 1970's. Historically, calcium paradox originated several clinical studies reporting that acute and chronic administration of L-type Ca2+ Channel Blockers (CCBs), drugs largely used for antihypertensive therapy such as verapamil and nifedipine produces reduction in peripheral vascular resistance and arterial pressure, associated with a paradoxical sympathetic hyperactivity. Despite this sympathetic hyperactivity has been initially attributed to adjust reflex of arterial pressure, the cellular and molecular mechanisms involved in this paradoxical effect of the L-type CCBs remained unclear for four decades. Also, experimental studies using isolated tissues richly innervated by sympathetic nerves showed that neurogenic responses were completely inhibited by L-type CCBs in high concentrations, but paradoxically potentiated in low concentrations, characterized as a calcium paradox phenomenon. We discovered in 2013 that this paradoxical increase in sympathetic activity produced by L-type CCBs is due to Ca2+/cAMP interaction. Then, the pharmacological manipulation of this interaction could represent a potential cardiovascular risk for hypertensive patients due to increase of sympathetic hyperactivity. In contrast, this pharmacological manipulation could be a new therapeutic strategy for increasing neurotransmission in psychiatric disorders such as depression and producing neuro protection in the neurodegenerative diseases such as Alzheimer´s and Parkinson´s diseases.

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