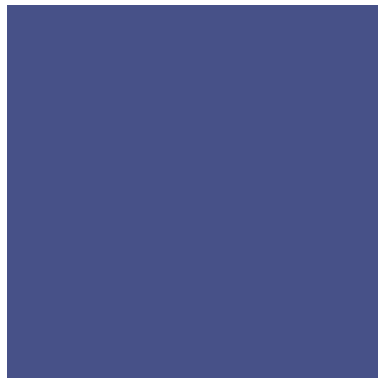


Neuroradiology 2017



2nd International Conference on

NEUROSCIENCE, NEUROIMAGING & INTERVENTIONAL RADIOLOGY

October 30 to November 01, 2017 | San Antonio, USA

Accepted Abstracts

2nd International Conference on

NEUROSCIENCE, NEUROIMAGING & INTERVENTIONAL RADIOLOGY

October 30 to November 01, 2017 | San Antonio, USA

Segmentation of optic disc in fundus images

Abderrahmane Elbalaoui

Sultan Moulay Slimane University, Morocco

Successful optic disc (OD) segmentation is an important task for automated detection white lesions related to diabetic retinopathy. Therefore, exudates detection is our major purpose, but we must extract the OD prior to the process because it appears with similar color, intensity and contrast to other characteristics of the retinal image. The retinal image consists of blood vessels that emerge from the OD. The presence of these blood vessels may act as a disturbance for the detection of OD. This paper presents a novel method for segmentation of the OD in retinal images. The methodology includes localization of OD center, followed by elimination of vascular structure using inpainting method. Finally, an active contour model was applied to boundary OD segmentation. The results are compared with a ground truth image from the ophthalmologist. The source retinal image for performing this work is obtained from the publicly available DRIVE and MESSIDOR database. This method offers a successful segmentation of OD which may help in diagnosis of various retinal abnormalities.

elbalaoui@gmail.com

2nd International Conference on

NEUROSCIENCE, NEUROIMAGING & INTERVENTIONAL RADIOLOGY

October 30 to November 01, 2017 | San Antonio, USA

Febrile seizures, thermoregulation and febrile responses, complex processes are important aspects of the unsolved puzzle

Alexandra Kunz

Harvard University, USA

Introduction: Febrile seizures (FS) are always a relevant topic; thermoregulation and febrile responses, complex processes are important aspects of the unsolved puzzle.

Methods: Here, FS are explored from comparative evolutionary pressure data-sets for insights/contributing factors to age dependent vulnerability and for potential MRI data acquisition for evidence-based medicine.

Results: Thermoregulatory responses' evolutionary quest is for maximal performance at optimal temperature, experimentally shown for insects'/viruses' population growth and for not performance. Relying on external heat sources, ectotherms' narrow range of performance thermal sensitivities is explained by natural selection, not thermodynamics; endotherms', birds'/mammals', thermally constrained set-points evolved promoting heat loss, not enhancing performance. Mammalian brains' selective brain cooling (SBC) is a special evolutionary case within the thermal core because hyperthermia, causing febrile seizures, limits performance; SBC separates brain temperature (T) regulation independently from the body to keep $T_{\text{brain}} < T_{\text{trunk}}$, $p < 0.01$. Species-specific SBC mechanisms during hyperthermia promote reversing normal blood flow, from brain skin to skin brain, to cool/maintain constant cerebral metabolism. A 4-part venous pathway connects extracranial diploic/emissary veins with intracranial meningeal veins/sinuses; the richly vascularized/complex human diploe has an age dependent developmental pattern, fully established, age 5, large variations at each age. Primate emissary veins respond immediately to hyperthermia; their parietal/mastoid/condyloid/post-glenoid foramina prominence shifts in an evolutionary pattern: Tarsius 0%, 0%, 0%, 100%; Lemurs 0%, 74.4%, 0%, 99%; orangutan 3%, 81.6%, 1%, 2%; chimpanzee 8.7%, 14%, 16.5%, 0%; human 60.5%, 68%, 77%, 0.6%. Furthermore, intrinsic brain geometry plays an important evolutionary role in thermoregulatory patterns/heat distribution. Notably, perinatal discontinuity of ontological size/shape changes in chimps/humans at 4-6 months, $p < 0.0044$, produces topographical changes in vascular system; an expanded human frontoparietal volume, now globular, with highest concentration of diploic/emissary veins, richly anastomosed/reticulated, affects heat dissipation. Brain surface:volume ratio values for chimps'/humans' heat loading, 1.59 vs. 0.91, respectively, confirms globular shape decreases thermic values in heat transfer.

Conclusion: In light of evolution, human ontological variations from MRI measurements may offer an option to FS' unsolved puzzle for evidence-based medicine.

alexandrakunz@earthlink.net
kunzar@gmail.com

2nd International Conference on

NEUROSCIENCE, NEUROIMAGING & INTERVENTIONAL RADIOLOGY

October 30 to November 01, 2017 | San Antonio, USA

A template for web based international radiology resident education (radsresident.com)

Barry Julius

Saint Barnabas Medical Center, USA

Many radiology websites and resources are dedicated to the education of radiology medical students and radiology attending on supplementary radiology topics. Very few are specifically geared toward the education of radiology residents on alternative topics such as career information, health issues, call, dictations and more. This oral presentation will describe the process of creating an educational website for an international audience dedicated to the radiology resident on these topics. Main teaching points include how to create a radiology website, how to promote it to a professional international audience, what content you need to maintain reader interest and educate the reader and other technical issues that may arise during the process.

bejit1@yahoo.com

2nd International Conference on**NEUROSCIENCE, NEUROIMAGING & INTERVENTIONAL RADIOLOGY**

October 30 to November 01, 2017 | San Antonio, USA

Oxidative stress and neuroinflammation in schizophrenia detected by novel neuroimaging approaches**Fei Du**

McLean Hospital-Harvard School of Medicine, USA

Schizophrenia (SZ) is a common and severe psychiatric disorder characterized by abnormal cognition and perception. Despite its public health impact and a century of biological research, the pathophysiology of SZ remains poorly understood. Recently accumulated evidence suggests that an immuno-oxidative pathway including oxidative stress, NMDAR hypofunction and neuroinflammation may contribute to disruptions in brain circuits in SZ. The redox pair of Nicotinamide adenine dinucleotide (NAD⁺) and its reduced form NADH have long been implicated in biological activities such as cellular energy metabolism, calcium homeostasis, gene expression and immunological functions. Despite the crucial roles of NAD⁺ and NADH in cellular metabolism and physiology, its non-invasive in vivo detection is extremely challenging. Recently we demonstrate the feasibility of 31P MRS-based NAD quantification at 4 T MRI-scanner and apply this novel method in patients with SZ. We found a substantial and significant reduction in the redox ratio (i.e., NAD⁺/NADH) in the chronic and first-episode SZ patients. Intracellular redox ratio is influenced by multiple cellular signaling events and may constitute a metabolic integrator for local metabolic status within cells. Therefore, our work provides new insights into the pathophysiology of SZ, as well as a biomarker for tracking the impact of treatment interventions. In addition, the identification of pharmacological compounds acting on brain redox status as an innovative therapeutic approach for first-episode psychosis treatment and neuroimaging biomarker measurements such as glutathione (antioxidant) and glutamate/glutamine (index of NMDAR hypofunction) will be discussed.

fdu@mclean.harvard.edu

2nd International Conference on**NEUROSCIENCE, NEUROIMAGING & INTERVENTIONAL RADIOLOGY**

October 30 to November 01, 2017 | San Antonio, USA

Neuroradiological diagnosis of primary intracranial malignant ectomesenchymoma in pineal region**Hailong Liu**¹Capital Medical University, China²Fox Chase Cancer Center, USA

Primarily intracranial malignant ectomesenchymoma (MEM) is a rare proliferative disorder that occasionally involves the central nervous system. So far only 8 cases with confirmed clinicopathological features arising from brain have been reported. The preoperative neuro-radiological diagnosis for MEM is still challenging. We presented a 16-year-old patient case of primary MEM located in pineal region. The patient was treated by total surgical resection followed by radiation and experienced no recurrence during the 6-month follow-up. The CT scans revealed a round and smooth-edged hypodensity lesion with sporadic calcification around the circumference in right posterior third ventricle infringing on the right metathalamus. And the MRI scans showed hyperintensity on T1WI, T2WI and FLAIR images and hyperintensity on DWI and hypointensity on ADC. The heterogeneously enhanced lesion invaded the right metathalamus and upper mesencephalon and also obstructed the aqueduct of Sylvius. The clinicopathological features of this case raised two points for the first record, as the first regarded the special age and pineal location as well as the second regarded the specific pathological components with malignant large round cells. The histological displays, immunophenotypical characteristics and cytogenesis arrays are the reliable evidence for neuroradiological diagnosis.

liuhailonger@163.com

2nd International Conference on

NEUROSCIENCE, NEUROIMAGING & INTERVENTIONAL RADIOLOGY

October 30 to November 01, 2017 | San Antonio, USA

Neurocysticercosis: A case report of a neglected cause of seizure in a child

Hannah Grace B Segocio

Davao Medical School Foundation Hospital, Philippines

Neurocysticercosis is a significant but neglected cause of preventable seizure worldwide. This study aimed to report the case of a 9 year-old, Filipino, female who developed new-onset, right-sided seizures and hemiparalysis. Cranial CT scan revealed a non-calcified cystic mass with rim enhancement and surrounding edema at the left frontal lobe. This was confirmed by brain MRI with an additional finding of a scolex, which is pathognomonic for neurocysticercosis. The patient received Albendazole for 7 days with Dexamethasone and was discharged with an anticonvulsant, Levetiracetam, maintained for 5 months. Repeat MRI was normal after 2 months. The patient has been seizure-free for almost two years now. Neurocysticercosis is caused by the encysted larva of *Taenia solium* in the central nervous system. Despite being recognized as the most common cause of acquired epilepsy in literatures, there have only been few well-documented cases of neurocysticercosis in children. Clinical manifestations vary and depend on the cyst's location, number, stage and the host immune response. Criteria for diagnosis include a combination of clinical, radiologic, serologic, histologic and epidemiologic parameters. Neuroimaging suggestive of a single, small, cystic lesion with ring enhancement should raise suspicion of neurocysticercosis. This case highlights the need to consider neurocysticercosis in endemic areas wherein a child presented with new-onset, non-febrile seizure with focal characteristic. Management includes symptomatic therapy with the use of anticonvulsants and definitive therapy with the use of cysticidal drugs, in combination with corticosteroids or surgery, if indicated. Prevention should place emphasis on the improvement of hygiene and sanitation.

hannah.theophilia@gmail.com

2nd International Conference on

NEUROSCIENCE, NEUROIMAGING & INTERVENTIONAL RADIOLOGY

October 30 to November 01, 2017 | San Antonio, USA

A brief review of the advances in endovascular therapy and the recent recommendations of AHA/ASA for stroke treatments

Joaquin Jose Marengo De La Torre
State University of Rio de Janeiro, Brazil

Stroke is the second cause of death in the USA and responsible for several sequelae that reduce the quality of life of those who survive. Several treatment strategies have arisen, bringing new perspectives to patients and physicians. These advances were possible due to the recognition by the world medical societies of the stroke as a potentially reversible event. Rapid treatment with fibrinolysis has been the standard of care in these patients, reaffirmed in the current guidelines from the American Heart Association (AHA) and the American Stroke Association (ASA) for use within 4.5 hours of stroke initiation. However, fibrinolysis is associated with poor vascular recanalization in cases of large vessel occlusion. Therefore, endovascular treatments have been developed to improve it. Previous trials of endovascular treatment with initial devices failed to demonstrate a transcendent benefit beyond fibrinolysis alone. Five trials that investigated the efficacy of moderns endovascular therapies, MR-CLEAN, ESCAPE, SWIFT-PRIME, EXTEND-IA and REVASCAT, have been published, clarifying the vision of stroke management, providing strong evidences to support it. Based in the clearly beneficial results of these trials, the AHA/ASA has updated its guidelines on endovascular treatment for stroke in 2015, giving the strongest recommendation possible for selected patients to receive endovascular treatment. Recommending that stent retrievers be used if possible, due to significantly improved functional outcomes results. Thanks to advances in technology and recent studies, the endovascular therapy is now an irrefutable important resource in the treatment of acute ischemic stroke in the setting of large and proximal vessel occlusion.

drjoaquinmd@hotmail.com

2nd International Conference on**NEUROSCIENCE, NEUROIMAGING & INTERVENTIONAL RADIOLOGY**

October 30 to November 01, 2017 | San Antonio, USA

Medulloblastoma presenting as progressive sensorineural hearing lossLuhe Yang¹ and Sam J Daniel²¹McGill University, Canada²McGill University Health Centre, Canada

We report a case of a newborn with left unilateral sensorineural hearing loss (SNHL) that progressed to profound SNHL by 16 months. The child then presented acutely at age 3 with right sudden profound SNHL, rendering her bilaterally deaf. MRI revealed a mass lesion within the fourth ventricle, determined to be Group-3 medulloblastoma. SNHL has been reported in 14 other cases of medulloblastoma. Out of all patients with reported post-treatment outcomes, 8/13 (61%) had permanent neurological sequelae, including one death and 5/13 (38%) was able to return to previous neurological baseline. This is the youngest and the first case presenting with asymmetric SNHL that progressed into bilateral profound SNHL. Medulloblastoma is an uncommon but important etiology to exclude in cases of progressive unilateral or sudden SNHL. MRI is the imaging of choice in these children to ensure excellent visualization of inner ear and nerve structures and particularly the posterior fossa in order to not miss critical diagnoses that are time sensitive.

luhe.yang@mail.mcgill.ca

2nd International Conference on**NEUROSCIENCE, NEUROIMAGING & INTERVENTIONAL RADIOLOGY**

October 30 to November 01, 2017 | San Antonio, USA

Advances in the imaging of Alzheimer's disease**Nadia M Biassou**¹National Institutes of Health, USA²George Washington University School of Medicine, USA

Alzheimer's disease is a fatal neurodegenerative disease with growing incidence in the world. The US CDC estimates that nearly 15 million Americans will be diagnosed with the disease by the year 2050. Similar statistics are cited for EU, China and Latin America. It has become a worldwide priority for primary care physicians to accurately evaluate the clinical presentations of their patients and to identify early neuroimaging biomarkers associated with the disease for increased diagnostic certainty and improved clinical management. Identifying the earliest neuroimaging biomarkers is becoming an essential and increasingly important role for the neuroradiologist.

biassoun@cc.nih.gov
nadia@jantio.com

2nd International Conference on

NEUROSCIENCE, NEUROIMAGING & INTERVENTIONAL RADIOLOGY

October 30 to November 01, 2017 | San Antonio, USA

Neuroimaging in young stroke: A hospital based study

Pratik Chakraborty and R K Gogoi

Assam Medical College and Hospital, India

Aims & Objectives: The aim of the study was to diagnose and categorize stroke in young patients with CT or MRI and find out the risk factor prevalence and etiology for young stroke with the help of clinico-biochemical parameters and imaging study.

Materials & Methods: A hospital based observational study was conducted over a period of 1 year which included 50 patients who underwent CT scan on a dual slice scanner and/or MRI examination on a 1.5T MR scanner. Cases were diagnosed and classified on the basis of radiological findings and clinico-biochemical parameters. Data was analyzed using SPSS Version 16.

Results: Hypertension was the commonest risk factor. 23 cases of ischemic stroke, 18 cases of intraparenchymal hemorrhage, 4 cases of venous stroke, 3 cases of subarachnoid hemorrhage and 2 cases of mixed stroke having both hemorrhagic and ischemic elements were encountered. Cardioembolism resulted in most of the cases of ischemic stroke. Underlying vascular malformation resulted in most of the cases of intraparenchymal hemorrhage. An underlying aneurysm was noted in all cases of subarachnoid hemorrhage. A possible etiology was found in only 1 case of venous stroke (CSOM with chronic mastoiditis with ipsilateral transverse/sigmoid sinus thrombosis). Among the 2 cases of mixed stroke, 1 was a hypertensive and the other had infective endocarditis with intracerebral mycotic aneurysm.

Conclusion: Ischemic stroke in young is commonly due to cardiogenic cause or premature atherosclerosis. Structural anomalies cause most of the IPH. Venous stroke is frequently encountered in young patients. Aneurysmal SAH should be thought of in any young patient presenting with stroke without any obvious risk factors. Mixed stroke can be encountered in this age group.

Pratik.chakraborty89@gmail.com

2nd International Conference on

NEUROSCIENCE, NEUROIMAGING & INTERVENTIONAL RADIOLOGY

October 30 to November 01, 2017 | San Antonio, USA

An investigation of relaxin-3 stapled peptides as novel agents for the treatment of feeding and neuropsychiatric disorders

Subhi Marwari

National University of Singapore, Singapore

Relaxin-3, the most recently identified member of the relaxin-insulin family of peptides, is mainly expressed as a neuropeptide in the brain where its cognate receptor is relaxin/insulin-like family peptide receptor 3 (RXFP3). The brain stem nucleus incertus (NI) is the capital source of relaxin-3 which projects widely to midbrain and forebrain structures implicating the roles of relaxin-3/RXFP3 nexus in metabolism, arousal, stress and memory suggesting novel targets for the treatment of neuropsychiatric disorders. However, basic preclinical research has been limited by the lack of tools to target RXFP3 as experimental ligands for understanding the basic biological functions of NI and relaxin-3. Currently, the best agonists and antagonists for RXFP3 are, respectively, human relaxin-3 and R3(BΔ23-27)R/I5, a chimera between a truncated relaxin-3 B-chain and A-chain of another member of the insulin/relaxin family. These large peptides do not transverse the blood-brain barrier (BBB) and so have to be infused directly into the brain which are unlikely to be amenable to development as drugs due to issues with stability in vivo and brain penetration. Stapling of peptides, in which peptides are chemically stabilized by covalently crosslinking the side-chains of two amino acids leading into well-defined bioactive α -helical conformation, has been proposed as a breakthrough solution to address important yet currently undruggable targets. In the present study, we have stapled the relaxin-3 B-chain at 14s18, 18s22 (i+4) positions and alternate stapling positions which has allowed the generation of smaller RXFP3 ligands with increased α -helicity and resistance to proteolysis and in the present study, for the first time we have also reported that the stapling of human relaxin-3 B-chain enhances the biological activity. A designed series of stapled relaxin-3 B-chain peptides has been tested in the in vitro and in vivo assays of RXFP3 receptor binding/activation and behavioral effects. Compounds with promising profiles will be further tested for in vivo efficacy testing in rats for monitoring of feeding and anxiety behaviors leading towards potential new avenues for neuropsychiatric drugs.

a0135981@u.nus.edu

2nd International Conference on

NEUROSCIENCE, NEUROIMAGING & INTERVENTIONAL RADIOLOGY

October 30 to November 01, 2017 | San Antonio, USA

Mechanical thrombectomy for pediatric acute ischemic stroke review of the literature and treatment algorithm

Sudhakar R Satti

Christiana Care Health System, USA

Objective: In light of the recent strongly positive randomized controlled adult mechanical thrombectomy trials, we sought to review the available literature and perform a meta-analysis on intra-arterial pediatric stroke intervention with a focus on modern mechanical devices.

Methods: A PubMed search was performed for pediatric patients undergoing intra-arterial treatment of acute ischemic stroke using modern devices between 2008 and 2015. A total of 29 patients were included in this retrospective meta-analysis.

Results: The average age was 10.3 years old, 74.1% were male, the middle cerebral and basilar arteries accounted for 89.6% of 36 occluded vessels and the average pediatric stroke scale score was 18.1. The average time from symptom onset to intervention was 8.8 hours and 13.8% of patients received IV tPA prior to mechanical thrombectomy. Stent retrievers were used in 58.6% of cases, the Penumbra system in 34.5% and the Merci device in 27.6%. TICI 2b/3 recanalization was achieved in 75.9% of cases. There were no major adverse events related to intervention, although 1 procedure was associated with device malfunction, without definite change in long term outcome. The average mRS was <1 (0.86) at the longest available follow-up period, based on clinical description or provided modified Rankin scale score.

Conclusions: This study suggests mechanical thrombectomy in pediatric patients presenting with high pediatric NIHSS scores and proximal large vessel occlusion is associated with high recanalization rates and excellent clinical outcome, although this is a retrospective review and sample size is too small to make any definitive conclusion.

ssatti@christianacare.org

2nd International Conference on

NEUROSCIENCE, NEUROIMAGING & INTERVENTIONAL RADIOLOGY

October 30 to November 01, 2017 | San Antonio, USA

The biomarker potential in TBI

Teena Shetty

Hospital for Special Surgery, USA

The presentation will address blood and imaging biomarkers in mild traumatic brain injury and studies led by Dr. Shetty at the Hospital for Special Surgery. The GE-NFL Advanced MRI Applications/Abbot Biomarker Candidates for mTBI study is an analysis of investigational MR imaging and blood biomarker identification in subjects who have recently sustained a concussion. The specialized MRI software is correlated with detailed neurological assessments and 11 brain-tissue specific blood biomarkers that are expected to peak and then normalize following a concussion. Presently, 44 subjects are enrolled in the imaging portion with 42 subjects co-enrolled in the blood biomarker portion. 20 subjects have been enrolled in both imaging and blood biomarker at encounter 1 (within 72 hours of injury). 86 subjects were enrolled between March 2014 and June 2015 with 26 healthy controls matched for age, gender, handedness, level of education and socioeconomic status.

ude.ssh@tyttehs

2nd International Conference on**NEUROSCIENCE, NEUROIMAGING & INTERVENTIONAL RADIOLOGY**

October 30 to November 01, 2017 | San Antonio, USA

Dynamic compression of cervical spinal cord in symptomatic patients: A study with the help of kinetic MRI**Truc Tam Vu and Si Vo**

Hospital for Traumatology and Orthopedics, Vietnam

Discrepancies between clinical symptoms and signs of spinal cord compression on static MRI are not uncommon when evaluating cervical spine myelopathy (CSM) patients. However, with the application of kinetic MRI (kMRI), dynamic compression of the cord becomes a new concept to be widely accepted. Symptomatic CSM patients were selected to have static and dynamic MRI of the cervical spine. Space available for cord (SAC) were measured in T2 weighted sagittal plane at each disc level of the lower cervical (from C2-3 to C7-T1), in three different positions: full flexion, neutral and full extension. The difference of the mean SAC in different positions is analyzed by Mann Whitney U test. There were 32 selected patients (20 male and 12 female). The mean age of the group is 42. The most affected levels were C5-6 (100%), C4-5 (75%) and C6-7 (63%). The mean SAC in full flexion, neutral and full extension position were 10.54, 9.38 and 8.28 mm respectively, and they differ to each other with statistical significance ($p < 0.05$). In all cases, the bulging of the disc and the ligamentum flavum was most pronounced in extension position and became attenuated in flexion position. Interestingly, new compression sites revealed in full extension MRI (hidden hypertrophic ligamentum flavum) were noted in 7 cases (21%). Kinetic MRI is useful for evaluating dynamic compression of the spinal cord. Decision making of treatment as well as preventing adjacent segment syndrome should be based on the status of the disc and yellow ligament, not only in static image but also in the permanent dynamic process of the cervical spine.

tamtruc240384@yahoo.com