Video Presentation
November 26, 2018

Spine 2018 & Addiction 2018





Joint Event
3rd International Conference on
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November 26-27, 2018 | Dubai, UAE

Design and development of spinal fusion instrumentation (Protocols and Concepts)

Vijay K Goel
University of Toledo, USA

Some 30 years+ ago advent of pedicle screw-based fusion-augmenting devices suitable for open surgical approaches gained popularity. The devices did enhance the fusion across the spinal segments but success rate in terms of pain was not satisfactory. Surgeons and engineers-initiated use of dynamic systems, including total disc replacements under the hypotheses that these devices will restore spinal alignment and reduce the adjacent segment degeneration. However, clinical data did not support these hypotheses, at least in the USA. As a result, fusion augmentation devices suitable for minimal surgical procedure are gaining momentum. This talk will address the design and development of several such devices, highlighting the need for collaboration among surgeons and engineers for innovation.

Speaker Biography

Vijay K Goel received his doctorate in engineering from the University of New South Wales, Australia in 1978. At present, he is the distinguished University professor, Endowed Chair & McMaster-Gardner professor of Orthopaedic Bioengineering, Co-Director, Engineering Center for Orthopaedic Research Excellence (E-CORE), Departments of Bioengineering and Orthopaedic Surgery, University of Toledo. Dr. Goel is known worldwide for his pioneering research in the field of spinal disorders with multiple publications and peer-recognitions, including four life-time achievement awards from four professional societies. He is also a very experienced entrepreneur. He carries out various FDA required testing for most multinational and start-up companies and is a consultant to various spine companies. He is involved with the design and development of several spinal devices (cages, interspinous spacers, facet screws, for example). As Co-Director of E-CORE, he sets the directions for research and works with other staff to bring companies to the Center. He has served as Chair of the Department of Bioengineering at the University of Iowa, and at the University of Toledo.

e: vijay.goel@utoledo.edu

Notes:

Poster Presentation
November 27, 2018

Spine 2018 & Addiction 2018





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Addiction Research and Therapy
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Effect of pulsed radiofrequency on the lumbar dorsal root ganglion for the management of remnant lumbar radicular pain in patients who had prior Lumbar Surgery

Chan Hong Park
Daegu Wooridul Spine Hospital, South Korea

Failed Back Surgery Syndrome (FBSS) is almost exclusively used to describe a patient who had have poor clinical outcomes following of lumbar Spine Surgery. Radicular pain is related to lesions that either directly compromise the Dorsal Root Ganglion (DRG) or indirectly compromise the spinal nerve and its roots by causing ischemia or inflammation of the axons. Our study was to assess the amount of pain relief after a singling Pulsed Radio Frequency (PRF) in patients with Remnant Radiculopathy Prior Lumbar Surgery. A total of 31 patients underwent PRF on DRG for the treatment of Lumbar Radicular Pain in patients with Prior Lumbar Surgery. Pain intensity was assessed using a Numeric Rating Scale score (NRS). The NRS scores were measured before treatment, and 1, 3, 6, and 12 months after treatment. Successful treatment was defined as experiencing more than a 50% reduction in the NRS score at 12 months, as compared with the pre-treatment NRS. After PRF, the mean NRS decreased after treatment. The pre-treatment NRS was 8.1 ± 0.7. The mean NRS were 5.9 ± 1.5, 5.8 ± 1.7, 5.7 ± 1.6, and 5.6 ± 1.7 at 1,3,6, and 12 months, respectively. Scores on the NRS was significantly different over time (P=0.000). The percent frequency of a 50% reduction of in the NRS was 16.1%, 22.7%, 25.8%, and 28.9%, at 1 months, 3 months, 6 months, and 12 months, respectively. There was no correlation between the post-operative duration and pain relief. PRF appears to be considered for treatment for patients who had remnant lumbar radicular pain.

Speaker Biography

Chan Hong Park is a pain physician, has completed his PhD at the age of 38 years from Kyungbuk University, South Korea. He is the director of Duke University, South Korea. He has over 50 publications and has been serving as an editorial board member of reputed Journals.

e: park00002@gmail.com

Notes:

An unusual outcome of occipital cervical dislocation: Case Report

Malini Narayanan
National Neurosurgery Solutions, USA

The University of Maryland Prince George Hospital is the second busiest trauma center in the state of Maryland. Here, an unusual outcome of occipital cervical dislocation is presented with 1 year follow up. Pt is a 31y/o RH female s/p MVC accident and arrived with a GCS=3T. After resuscitation, improved GCS 2/T/3=6T with profound quadriparesis. MRI of c-spine showed Cranio-cervical dissociation with rupture of the transverse, the anterior and the posterior longitudinal and the interspinous ligaments. Large prevertebral hematoma at the Cranio-cervical junction and epidural hematoma in the cervical spinal canal both along the anterior and posterior aspects of the thecal sac with no significant anteroposterior cord compression.cord contusions involving the spinal cord at the Craniocervical junction. CT cspine the entire C1 vertebral body demonstrates superior displacement with respect to C2 by over 10 mm compatible with significant disruption of the paraspinal ligaments. Brain imaging revealed a fair amount of diffuse subarachnoid hemorrhage. Pt was taken urgently to OR for an occiput-c3 posterior fusion. After a very long recovery, Pt made a surprising recovery with GCS=15 and neurologically intact.

Speaker Biography

Malini Narayanan is a Harvard-trained board-certified neurosurgeon who practices in the Washington D.C. Maryland area. She is the recipient of the following awards: 2018 Top Doctor, 2017 America's top Surgeon, 2015 Washingtonian top Doc for Spinal Surgery, 2013 Vitals Patient Recognition, and 2007 America's Top Surgeon. As a practicing neurosurgeon since 2007, her interests are cervical & lumbar spine disease, trauma, and brain tumours of adults. In the USA, she is one of approximately 450 board-certified female neurosurgeons in the country of approximately 6000 board-certified neurosurgeons. She founded and directs her practice, National Neurosurgery Solutions. Over the last twenty years, she has published numerous papers, posters and presentations at National Neurosurgery Conferences. She is an active member of the Congress of Neurological Surgeons, American Association of Neurological Surgeons and the Society for Minimally Invasive Spine Surgery. Her mission statement is "Patient first through dedication to the practice and advancement of neurosurgery". After receiving her undergraduate degree from University of Massachusetts (Amherst, Mass), she further continued her education through the master's degree program at Massachusetts Institute of Technology (Cambridge, Ma) in Electrical Engineering working on a retinal prosthesis for patients with Retinitis Pigmentosa. Her experience in Bioengineering spurred her interest in medicine, completing her medical degree at the University of Chicago's Pritzker School of Medicine (Chicago, Ill.) in 1998. Her relentless pursuit of excellence and love for neurosurgery led her to train in neurosurgery at the Harvard Medical School affiliated Brigham & Women's and Boston Children's Hospitals. There, she earned numerous accolades including the Congress of Neurological Surgeons Resident Research Award, 2003, where only two women have ever been awarded the accolade in the history of the award in the last 50 years. Returning to the University of Chicago, Dr. Narayanan augmented her surgical skills through a fellowship in paediatric neurosurgery at Comer's Children's Hospital (Chicago, Ill.), where she also completed her neurosurgical residency as chief resident.

e: drmalininarayanan@nnss.co

Notes:

E-Poster

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Morphological features and clinical significance of the Epidural membrane and Epiradicular sheath in Cervical Spondylotic Myelopathy

Akira Miyauchi[1], Shin-ichi Saka[1], Hiroshi Terayama[1], Yoshifumi Fuse[1], Nobukazu Okimoto[1] and **Mayumi Kaneko[2]**
[1]Saka-midorii Hospital, Japan
[2]Hiroshima City Asa Hospital, Japan

Introduction/Aim: The morphology and clinical significance of the Epidural Membrane (EM) and Epiradicular Sheath (ERS) have been discussed in the context of the entire spine; however, there has been less research on these entities in the cervical spine versus the lumbar spine. This prospective study aimed to elucidate the morphological features and clinical significance of the EM and ERS in a Degenerative Cervical Spine Disorder.

Materials and Methods: This study included 151 patients with Cervical Spondylotic Myelopathy (CSM) who underwent expansive open-door Laminoplasty or Laminectomy using a microscope with a follow-up period of at least 2 years. The most damaged spinal segment (D-segment) was determined in each patient using the preoperative neurologic and image findings along with the remaining symptoms at follow-up. The morphological features of the EM and ERS were recorded in each patient during surgery. Specimens of EM and ERS were obtained for histological analysis from 17 patients selected at random.

Results: The average age at surgery was 63.2 years; there were 105 men and 46 women. The D-segments were located in the spine as follows: 21 cases at C3-4, 56 at C4-5, 67 at C5-6, and 7 at C6-7. The EM and ERS were adipo-fibro-vascular tissues, and their morphology ranged from delicate fibrous strands to substantial membranous structures over the dural tube. There was adhesion to both the ligamentum flavum and the dura to varying degrees. Some samples showed structures that caused **Neural Compression:** obstruction of dural tube expansion (21 cases, 13.9%), compression or impairment of the mobility of a nerve root (4 cases, 2.6%), or a combination (1 case, 0.7%). Except for one case, these structures were all located at the D-segment and/or its adjacent levels. Interestingly, the analysis of the EM and ERS showed that some harbored many small arteries, calcified debris, metaplastic bone fragments, or pseudo-angiomatous structures.

Conclusion: The EM and ERS are important structures that can undergo clinically relevant degenerative changes in response to aging and various mechanical stresses. Some of these changes can cause an inadequate neural decompression despite an adequate bony decompression, leading to unsatisfactory surgical outcomes in CSM.

Speaker Biography

Akira Miyauchi is an Orthopaedic Surgeon, specializing in Spine Disorders. He earned his MD and PhD at Hiroshima University in 1993 and 2012, respectively. He has over 3500 surgical cases of spine diseases using a microscope, about 200 – 250 cases every year. He has much interest in less invasive surgery and the anatomy in the epidural space and around the nerve root. He has performed neural decompression alone for almost all surgical cases; for example, decompression without spinal fusion even though patients have Degenerative Lumbar Spondylolisthesis or the so-called unstable spine.

e: lahlw@success.name

Notes:

Mini Open Spinous Process splitting Laminectomy for Cervical Spondylotic Myelopathy

Hatem Hamdy[1] and **Ahmad Fouad Abdelbaki Allam**[2]
[1] One Day Surgery Hospital, Egypt
[2] Minia University, Egypt

Background Data: Muscle dissection associated with posterior approaches to the Cervical Spine usually results in local pain, muscle wasting and temporarily restricted neck movement. Use of muscle sparing Spinous Process Splitting Approach for Cervical Laminectomy allows decompression of the spinal cord and neural foramen if needed, it does not require instrumentation and fusion and it preserve Cervical Spine stability.

Purpose: To assess the effectiveness of Spinous Process Splitting Approach for Cervical Laminectomy in Cervical Spondylotic Myelopathy.

Study Design: Prospective study.

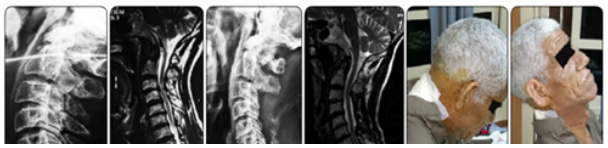
Patient Sample: Fifteen patients with Cervical Spondylotic Myelopathy; the study included 11 males and 4 females; the mean age at surgery was 66.4±6.6 (range 44-71) years.

Outcome Measures: Operative time and blood loss were recorded. Clinical outcome was assessed by the JOA score and VAS. MRI was done 6 months postoperative to assess decompression. Spinal stability and curvature index were assessed on plain cervical radiographs.

Patients and Methods: Fifteen patients underwent muscle Sparing Spinous Process Splitting Cervical Laminectomy.

Results: No case of wound dehiscence was recorded. There was significant improvement of JOA scores and Brachialgia VAS scores at 6 months, the mean JOA recovery rate was 56.2%. No patient had postoperative Kyphosis or instability and 66.6% of patients had improved modified Ishihara Cervical Curvature Index. No neurological deterioration was recorded in the follow-up. No patient had newly developed axial pain. MRI revealed adequate decompression of the spinal cord.

Conclusion: The Spinous Process Splitting Laminectomy allows good spinal cord decompression and preserves Cervical Spine stability. The mini open approach and preservation of interspinous ligaments could play a role in wound dehiscence prevention.



Figures 1: Intraoperative photograph: (A) the arrow shows the spinous process with attached muscles before arrow shows already split spinous process. (B) muscles looks coapted before closure at the end of the surgery. (C) the length of incision was about 6cm to decompress 3 levels.

Figures 2: (A) Preoperative lateral radiograph of 68-year-old man shows lordotic cervical curvature (CCI=34). (B) Preoperative T2-weighted sagittal MRI cervical spine with multilevel canal stenosis from both posterior and anterior. (C) 6 months postoperative lateral radiograph shows 4 levels laminectomy with preserved spinous processes (arrow) and same preoperative CCI. (D) 6 months postoperative T2-weighted sagittal MRI shows successful decompression of the spinal cord. (E) and (F) clinical photos for the patient at the first postoperative day with good active flexion and extension movement.

Speaker Biography

Hatem Hamdy has completed his MBBCH from Kasr Elieny Medical School in 1995. He has acquired his Master degree of Orthopedics in 2007. He completed European Spine Diploma at France in 2016. He has done Fellowship at Nanoori Hospital at Korea in 2016. At present he is Orthopedic and Spine Consultant and Head of Spine unit at One Day Surgery Hospital, Egypt.

e: dr.hatemhamdy00@yahoo.com

Dopplerographic assessment of blood flow parameters of vertebral arteries in patients with instability of atlanto-axial junction

Abdullaev Ruslan Rizvan
Kharkiv Medical Academy, Ukraine

Introduction: Instability atlanto-axial junction is one of the common causes of Cervicogenic headache in young adults. In the formation of headaches, the leading role is played by irritation of the vegetative plexus of the vertebral arteries.

Objective: Dopplerographic evaluation of blood flow parameters in vertebral arteries in patients with instability of the atlanto-axial junction.

Materials and methods: A retrospective analysis of the results of Doppler ultrasound in the 2nd and 3rd segments of the Vertebral Artery (VA) was performed in 36 patients aged 21-35 years, who had X-ray diagnosed instability of the atlanto-axial junction; among the examined were 15 men and 21 women. The maximum Systolic Velocity (Vs), the end Diastolic Velocity (Vd), the Resistance Index (RI) in second and third segments of VA in the neutral spine and flexion position of the neck. The control group consisted of 27 people aged 19-34 years without chronic headache, absence of arthrosis and instability of the atlanto-axial junction according to the results of X-ray and MRI. Dopplerography was conducted on a Philips HD 11XE device using a linear and microconvection transducers in the frequency range 5-10MHz and 4-9 MHz; MRI - General Electric, Signa HDI, 1.5T.

Results: In the control group in the second segment of the VA, Vs was 51.4±5.2cm/s, RI - 0.59±0.03; at the level of 3rd segment-48.9±5.1cm/s, RI - 0.58±0.03; at the rotation of the head - Vs 43.9±4.6 cm/s, RI - 0.62±0.03, respectively. In patients with atlanto-axial instability at the level of C5-C6, Vs amounted to 49.2±4.8cm/s, RI-0.61±0.03; at the level of 3-d segment of VA-Vs was 47.2±4.5cm/s, RI - 0.60±0.03. When the head was turned to the side in patients with instability of the atlanto-axial junction, at the level of 3-d segment of VA-Vs was 34.1±4.2cm/s, RI - 0.69±0.02 (P<0.05).

Conclusion: Instability of atlanto-axial junction is one of the common causes of cervicogenic headache in young people. The main pathogenetic mechanism of the onset of pain is changes in blood flow in the third segment of the vertebral arteries, especially during rotational movements.

Speaker Biography

Abdullaev Ruslan Rizvan Ogly, graduated from Kharkiv National Medical University on June 24, 2016. He studied at the internship at the Kharkov Medical Academy of Postgraduate Education from 1.08.2016 to 04/27/2018. Entered in graduate school 1.09.2018. Printed works: 42

e: rizvanabdullaiev@gmail.com

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Accepted Abstracts

Spine 2018 & Addiction 2018





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3rd International Conference on
Spine and Spine Disorders
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International Conference on
Addiction Research and Therapy
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Introducing precision addiction management of Reward Deficiency Syndrome, the construct that underpins all addictive behaviors

Kenneth Blum
University of Florida, USA

Worldwide, daily there are several millions of people increasingly unable to combat their frustrating and even fatal romance with getting high; for some 'high' may be just experiencing "normal" feelings of well-being. The National Institutes on Alcohol Abuse and Alcoholism and on Drug Abuse (among others) conduct and fund outstanding research using Sophisticated Neuroimaging and Molecular Genetic Applied Technology to improve understanding of the intricate functions of brain reward circuitry and resting sate functional connectivity, that is purportedly playing a key role in the addiction symptomatology. There is controversy as to the ultimate definition of addiction involving ASAM, ISAM, on one hand and other psychological and World Health Organizations on the other hand. From a Neuroscience perspective, while it is widely accepted that dopamine is a major neurotransmitter implicated in behavioral and chemical addictions, there remains controversy about how to modulate dopamine clinically in order to treat and prevent various types of addictive disorders. While for the most part Medication Assisted Treatments (MATS) promote dopamine blockade or unintentional dopamine down–regulation in the long term, adherence and relapse prevention has been poor. This is especially true even for even for Buprenorphine–naloxone combinations. It appears, though, that a prudent approach may be a biphasic short-term blockade followed by long-term dopaminergic upregulation, with the goal of enhancing the functional connectivity within the brains reward circuitry, possibly targeting the reward deficiency and the stress-like anti- reward symptomatology arising in the context of addiction. Such phenotypes can be characterized using the Genetic Addiction Risk Score (GARS)™ Dopamine homeostasis may thus be achieved via customization of neuronutrient supplementation (Putative pro-dopamine regulation) based on the GARS test result developed by our group, dubbed "Precision Addiction Management" (PAM)™ along with a behavioral intervention.

e: drd2gene@gmail.com

Alcoholism and Alcohol Psychosis trends in Russia

Yury Evgeny Razvodovsky
International Academy of Sobriety, Russia

Alcoholism (alcohol dependence) is one of the most common Psychiatric Disorders in many European countries. Russia has one of the highest incidences of alcoholism and alcohol psychosis in Europe, which may be explained by high overall population drinking and prevalence of irregular heavy drinking of vodka. Some estimates suggest that a total number of alcoholics (alcohol-dependent individuals) in the late-Soviet Russia were ranging between 23 and 28 million. Currently, there are approximately 3 million alcoholics in Russia, and the number of heavy drinkers is three to four times that number. This study examines the phenomenon of high alcohol dependence and alcohol psychoses rate in Russia.

Aims: To estimate the aggregate level effect of alcohol consumption on the alcoholism/alcohol psychoses incidence rates in the Russian Federation.

Method: Trends in alcoholism/alcohol psychoses incidence rates and alcohol consumption per capita from 1970 to 2015 were analyzed employing an ARIMA (Autoregressive Integrated Moving Average) analysis.

Results: Alcohol consumption per capita is a statistically significant factor associated with alcohol psychoses incidence rate, implying that a 1-l increase in per capita alcohol consumption is associated with an increase in the alcoholic psychoses incidence rate by 17.1%.

Conclusion: According to the results of present study there was a positive and statistically significant effect of per capita alcohol consumption on alcohol psychoses incidence rate in Russia. These findings suggest that the alcohol psychoses incidence rate is a good proxy for population drinking. The outcomes of this study also indicate, that the ratio in alcohol psychoses incidence rate to alcohol dependence incidence rate is considered to be an indicator of the efficiency of narcological service regarding early diagnosing and treatment for the alcohol dependence. The higher this ratio, the bigger is the number of alcohol-dependent individuals getting into doctor's eyeshot at advanced stages of the disease. The outcomes also provide indirect support for the hypothesis that the dramatic fluctuations in the alcohol psychoses incidence rate in Russia during the last decades were related to the availability/affordability of alcohol.

e: yury_razvodovsky@mail.ru

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Bigorexia sexuality and anxiety: A new invisible Addiction?

Lilybeth Fontanesi
University of Padova, Italy

Muscle Dysmorphia or Reverse Anorexia is categorized as an Obsessive-Compulsive Disorder, related to body image and appearance perspective, but clinical experiences suggest that it could be strongly associated to a behavioral addiction. People who suffering from this disorder, especially men, need to follow a strict diet, a daily exercise routine in the gym, sacrificing family and social relationships, work commitments and general health, to look bigger and muscular. Along with the advent of fit models on social media, this disease has spread in the wealthy western Countries, but hardly diagnosed in time. Patients are turning to specialists when significant and specific symptoms come up, such as sexual or anxiety problems. Following these experiences, we wanted to describe the phenomena in Italy, analyzing the influence of media and peer pressure on the developing of bigorexia and its relationship with sexual behavior and anxiety. One thousand and eight hundred gym male goers (aged 18-40), have been administered with a set of questionnaires: a general questionnaire of training and dieting behaviors, MDDI to evaluate bigorexia, SATAQ-4 for peers and media pressure; SPIN to evaluate anxiety; MSCCQ for sexual self- concept, and CPQ evaluating Cyberpornography addiction. We found that the group who already has o is at high risk of developing bigorexia training more ours, following a specific diet to gain muscles, use drugs and supplements. Moreover, they have been found to have social anxiety and to be more susceptible to peer and media pressure to lose weight and look muscular. Finally, they have been found having (or been at high risk of developing) cyberpornography addiction, and significantly score lower on 14 subscales of the Multidimensional Sexual Self-Concept Questionnaire (MSSCCQ). We discuss clinical and research implications, with a focus on the influences of Social Media in the developing of Muscle Dysmorphia.

e: lilybeth.fontanesi@unipd.it

Women who inject drugs: Investigate the barriers accessing the harm reduction services and evaluation of services from the perspective of the women who inject drugs

Ketevan Sikharulidze
Ilia State University, Georgia

Aim: Stigmatization, vulnerability and high risk for spreading of blood bore infections, this are the least outcomes for people injecting drugs. In 2014, the study in Georgia for estimation of size of Injecting Drug Users (IDU) showed that the number of IDUs made up 49,700 individuals - (49,208 – 50,192) for the general population. We don't know the exact number of WWID. No female-oriented drug treatment programs are available in Georgia. As a result, females constitute only about 1-4% of patients in drug treatment facilities. The study aims to investigate the barriers accessing the harm reduction services for WWID evaluation of services from the perspective of WWID and identify their needs and gaps to help them access the existing services.

Method: We conducted individual qualitative interviews and focus groups discussions with Georgian WWID in order to characterize need, treatment or service satisfaction. 2 focus groups and 14 in-depth interviews in 6 different cities of Georgia. All interviews and focus group discussions were voice-recorded, transcribed and analyzed with the qualitative software Nvivo 11.

Results: Results showed that WWID are one of the most vulnerable and most stigmatized groups in Georgia. Factors that infringe on WWID' rights and reduce their access to health care include punitive policies, discrimination by police, health care providers and by their peer male drug users. The intense social stigma attached to drug use by women, an absence of sexual and reproductive health services and general poor access to effective drug treatment. Conclusions: Study shows the necessity for women-oriented harm reduction services. Specific treatment and consultation centers are required for high risk pregnant women. Spreading positive massages throughout society to reduce stigma is vital Improve referral system for harm reduction facilities. Improve geographical and financial arability. It is crucial to implement comprehensive harm reduction interventions in women's prisons.

e: ketasikharulidze@gmail.com

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Addiction and health among fugitives from war and refugees and their offspring

Muaweah Ahmad Alsaleh
University of Caen Normandy, France

The Arab world has witnessed and still witness a series of armed conflicts with severe consequences on physical, mental/emotional, social and sexual health levels (PMESSH) still unfolding as well as public and community health. Before war, Addiction and Psychiatric Disorders affect generally the people health and their offspring. But during and after war, war traumata tend to occur together with Addictive Disorders and Psychiatric Disorders as Panic Disorder, Bipolar Disorder, Anxiety Disorder, Post Traumatic Stress Disorder, Drug Addiction, and Substance Addiction in war conditions as Syria, Iraq, Yemen, and Libya wars. In war conditions, the stressful environment become very dangerous for the PMESSH and is difficult to treat.

In environments with crises and wars, addiction is one of the ways to escape for temporary psychological wellbeing due to the deterioration of the public conditions. The psychological stress caused by war is one of the main justifications used by the fugitives from war and refugees to escape the war and in order to get a little happiness, because they live in a state of despair, futility and tampering, a harsh stage experienced by Europe during World War II and the world during the First World War.

War traumata, negative environmental and psychological factors leave indelible scars on the health, germ cells and epigenetically somatic tissues, signs that can be inherited and transmitted from generation to generation. Effects of addiction, Trauma and negative memories can be passed on from parents to children through sperm and ovum. The germ cells preserve and transmit on both genetic and epigenetic information. According to scientists, the enriched and positive environments have an impact on the traumatized lineages and their offspring. In sexual intercourse, life-enriched, positive experiences and environments, and well-being (feeling of happiness and serenity) reshape the epigenetic signature of spermatozoa and ovulations in human trauma.

Based on the evidence-based studies, the researchers provided the recommendations, victims and refugees need not only financial and logistical support, but also, they are in desperate need for serious psychological help and support to overcome their effects of addiction, trauma and the horror they have been through and still persist in their memories. Victims and refugees must be provided psychological therapy in addition to physical therapy by the international community. The study's findings indicated the efficacy of the psychotherapy and health education on remedy the effects of addiction, trauma, and psychiatric disorders among fugitives from war and refugees and improve their health and their offspring health.

e: moaouiya87@yahoo.com

A review of healthcare reform in USA & the Affordable care Act (CA)

Mustafa Z Younis
Jackson State University, USA

On March 23, 2010 President Barak Obama signed the health insurance reforms adopted in the Patient Protection and Affordable Care Act (PPACA), and the subsequent reconciliation bill, which are to be phased-in over the next 10 years. Most provisions will not take effect until Jan 1, 2014. However, some new provisions must be implemented when plans renew after Sept. 23, 2010.

The new healthcare reform was passed with strong partisan support and faced significant opposition due to ideological and political differences and the expected outcomes of its implementation.

In this presentation the author will provide some background about the American healthcare system, and some proposals and ideas to reform the system. Then we will discuss the main theme of Obama's healthcare reform and some expected positive and negative outcomes of such reform. The Supreme Court rulings on June 28, 2012 on the future of Obama's Health Care Reform will be discussed.

e: younis99@gmail.com

Comparative study of percutaneous pedicle screw fixation after direct decompression with anterior column reconstruction for Thoraco-lumbar burst fracture

Seul-Kee Lee, Ju-Hui Kim and **Jung-Kil Lee**
Chonnam National University Hospital & Medical School, South Korea

Background: Thoracolumbar Burst Fractures (TLBFs) are among the most common spinal traumas, and its appropriate management remains undetermined. This study aimed to compare the clinical and radiological results between anterior corpectomy and fusion technique versus posterior decompression with percutaneous pedicle screw fixation technique in the treatment of TLBFs.

Methods: A total of 46 patients (from 2002 to 2015) with TLBFs were included in this study. The inclusion criteria were single-level Magerl type A3 burst fracture of the thoracolumbar spine (T12–L2). These patients were divided into two groups: Group A (22 patients) was treated by Anterior Corpectomy with fusion, while Group B (24 patients) was treated by posterior decompression with Percutaneous Pedicle Screw Fixation (PPSF). For the radiologic parameters, Kyphosis angle was measured preoperatively, early postoperatively, and at the last follow-up using Cobb angle. The average correction in degrees and loss of correction were calculated accordingly. All neurological deficits were identified on the initial evaluation and graded using the ASIA grading system. Operation time and intraoperative blood loss were also measured.

Results: The patients consisted of 17 males and 5 females in Group A and 13 males and 11 females in Group B. The involved levels were three T12, twelve L1, and seven L2 in Group A and one T12, thirteen L1, and ten L2 in Group B. The average follow-up period was 44.9 months in Group A and 14.7 months in Group B. The corrections of kyphotic change were 6.4 degrees in Group A and 9.2 degrees in Group B. Among the patient with neurologic deficit, 11 of 15 patients in Group A and 20 of 23 patients in Group B demonstrated at least one ASIA grade improvement on the final observation. However, there was no significant difference between two groups ($p = 0.13$). In addition, a shorter mean operating time and less mean perioperative blood loss were observed in Group B than in Group A ($p < 0.01$ and $p < 0.01$, respectively; 167.3 minutes and 305.9 mL in Group A; 365 minutes and 1566.7 mL in Group B).

Conclusions: Spinal Canal Decompression via a small Laminotomy followed by PPSF in the treatment of TLBFs with neurological deficits offers excellent biomechanical stability with clinical and radiological improvement. Furthermore, it can be a safe and effective surgical option with the advantages of less invasiveness for the treatment of TLBFs.

e: winnerlsk@hanmail.net

Notes:

Case report: Quadriplegia after Cervical Discectomy and Fusion Surgery

Siavash S Haghighi, Donald P Blaskiewicz, Bertha Ramirez and **Richard Zhang**
Sharp Memorial Hospital, USA

Spinal cord infarction after anterior or posterior Cervical Cord Decompressive Surgery is uncommon. The existing literature generally points at ischemic events including intraoperative or post-operative hypotension, low blood perfusion, or decreased venous return. We report a single case of postoperative weakness which was followed by an incomplete quadriplegia in a patient after 3 level anterior cervical discectomy and fusion. The intraoperative somatosensory (SSEPs) and motor evoked potentials (TcMEPs) recordings were normal throughout the surgery. Upon termination of the procedure and in the recovery room patient followed commands and was freely able to move all extremities. The weakness in the upper and lower limbs ensued within 20 minutes after which progressively turned into a severe weakness of upper limbs and complete motor paralysis in the lower limbs. The emergency MRI scan was not diagnostic at that point, but the follow-up MRI scan a day after surgery demonstrated a multi-level spinal cord edema and infraction. Spinal cord ischemia should be managed aggressively to improve spinal cord perfusion. The end prognosis depends on the severity of insult to neuronal tissue.

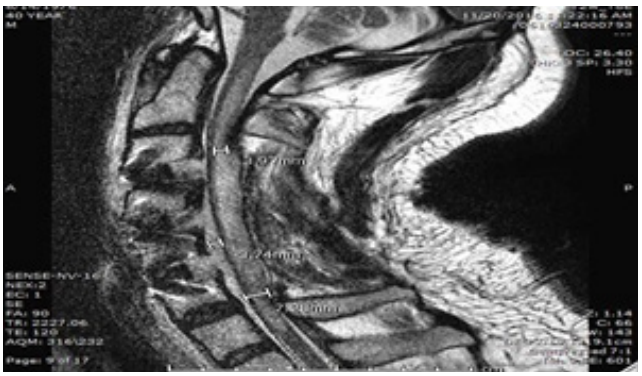

Figure: Cortical Somatosensory (SSEPs) and Transcranial Motor Evoked Potentials (TcMEPs) recordings in this patient at the baseline (pre-incision). The SSEPs were recorded after the median and posterior tibial nerve stimulations on the right (right column) and left (left column) sides. The TcMEPs were recorded from the left (left column) and right (right column) abductor policies (AP), adductor halluces (AH) and deltoid (DL) muscles.

e: siavash.haghighi@sharp.com

Transforaminal Percutaneous Endoscopic Thoracic Discectomy for Herniated disc - A technical note

Gun Choi
Pohang Wooridul Hospital, South Korea

Background: Symptomatic Thoracic Disc Herniations (TDH) are rare in comparison with either Cervical or Lumbar Disc Herniations with the incidence of 0.3 to 1% or 1 in 1,000,000. Surgical management is indicated for patients with neurological deficit and unremitting girdle or leg pain. Various surgical techniques for TDH have been previously described. However, these techniques have higher morbidity and require general anesthesia. Transforaminal Percutaneous Endoscopic Thoracic Discectomy (PETD) has the advantages of minimal soft tissue trauma, use of local anesthesia and enhancement of post-operative outcomes. However, due to anatomical restraints in the thoracic transforaminal region a Foraminoplasty is necessary. Endoscopic neurodrill or a side firing Ho: YAG laser is usually used for this purpose which is cumbersome.

Purpose: The purpose of this study is to introduce a new technique of thoracic Foraminoplasty for the ease of PETD procedure in soft and hard TDH with the use of manual bone drills over a guide wire to do

Study design: This is a prospective case series of 10 patients from January 2017 to May 2018. This study is a technical note on use of manual bone drills for Foraminotomy in PETD for management of TDH. Consecutive patients during this period with symptomatic Thoracic Disc Herniation (8 soft and 2 hard discs) were included in this study. Diagnosis was established based on MRI, symptoms and clinical examination. All patients were counselled about the PETD procedure and had given written consent for the same. All patients were operated by a single surgeon.

e: spine.choi@gmail.com

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Joint Event
3rd International Conference on
Spine and Spine Disorders
&
International Conference on
Addiction Research and Therapy
November 26-27, 2018 | Dubai, UAE

Cervical spine and cord angle mismatch in the pathogenesis of myelopathy

Tomasz Tykocki and **Guy Wynne-Jones**
Royal Victoria Infirmary Newcastle upon Tyne Hospital, UK

Background: Cervical Myelopathy is a complex pathology and dynamic compression of the tethered cervical cord, which may be responsible for clinical symptoms.

Methods: Patients with Cervical Canal Stenosis who had magnetic resonance imaging in flexion and extension positions were retrospectively reviewed. All cases were evaluated in Nurick grade. The cervical parameters-Cervical Cord (CC) angle, Cervical Lordosis, and Spine/Cord (S/C) angle ratio-were measured on the magnetic resonance imaging. Mean values of these parameters were compared between non-myelopathic (Nurick grade 0) and myelopathic groups (Nurick grades 1-5). A multinomial ordinal logistic regression was used to predict outcome for Nurick grade using the CC angle, the cervical lordosis angle, and the S/C angle ratio as independent variables.

Results: A total of 65 patients (35 men) with the mean age of 58.6 ± 11.4 years were analyzed. A comparison of means between Nurick grade 0 against each of myelopathic grades 1-5 revealed significant differences only for the S/C angle ratio. A cumulative comparison between non-myelopathic and myelopathic grades for the S/C angle ratio showed significant difference of 0.29 (1.16 ± 0.5 vs. 1.45 ± 0.6, respectively; $P < 0.05$). Cumulative comparison for the CC angle difference in flexion and extension lordosis did not show substantial differences. The S/C angle ratio was the only significant parameter in the prediction of the Nurick grade with an odds ratio of 2.63 (95% confidence interval 2.11-2.79).

Conclusions: A positive correlation between Nurick grade and cervical spine and cord angle mismatch was found.

e: ttykocki@gmail.com

Pain and disability functional in elderly with low back pain: A cross-sectional study in the northern region of Brazil

Ingred Merllin Batista de Souza[1], Rafaella de Souza Pereira Rodrigues[2], Lilian Regiani Merini[2] and **Amélia Pasqual Marques[1]**
[1] University of São Paulo, Brazil,
[2] Federal University of Amazonas, Brazil

Low back pain (LBP) is the primary cause of disability and absenteeism in the workplace, it is a complex multidimensional phenomenon with staggering social costs. These symptoms reduce functional capacity and limit both physical and psychosocial aspects of elderly life. The purpose of the study was to evaluate the pain intensity and functional disability in elderly with low back pain residents of the city of Manaus, Amazonas, Brazil. It was a cross sectional study, approved by the Ethics Committee of the Faculty of Medicine at University of São Paulo, CAAE Protocol.56709716.5.1001.0065. The sample consisted of 548 elderly with low back pain in the last 3 months, aged ≥60 years old, both sexes. The intensity of low back pain was evaluated using the Numerical Pain Scale with score of 0-10 points and functional disability by the Rolland Morris Questionnaire - Brazil version (RMQ- Brazil) with a score of 0-24 points. Results present the The mean age was 68.50 (±6.01) years, women represented 81.56% (n = 447). The pain intensity in women was 6.25 (±2.20) and in the men 5.80 (±1.84) points. The overall mean of the RMQ-Brazil score was 11.26 (±6.06) points indicating moderate functional disability, in women the mean was 12 (±2.34) and in men 9 (±1.45) points. These results demonstrates too that LBP is related to functional disability. Furthermore, associated with maintenance of posture, walking speed, locomotion when climbing stairs with assistance and during the activities of daily life in elderly. The elderly population with low back pain in the city of Manaus presents intense pain and moderate functional disability. This study is the first to be carried out in the city of Manaus, Amazonas, Brazil and is believed to contribute to guiding future preventive actions among the elderly population. This study was financed in part by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - Brazil (CAPES) - Finance Code 001.

e: ingredmerllin@gmail.com

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