



## Keynote Forum



5<sup>th</sup> World Congress on

## SPINE AND SPINAL DISORDERS

October 16-17, 2019 | Rome, Italy



### Wagih El Masri<sup>1,2</sup>

<sup>1</sup>Keele University, UK, <sup>2</sup>RJAH Hospital, UK

#### Spinal Cord Injury: The nature of the beast

Traumatic Spinal Cord Injuries (TSCI) are life-changing events from medical, physical, psychological, social, financial, vocational, environmental & matrimonial effects. The combination of consequent generalised physiological impairment, multi-system malfunction, multiple disabilities, wide range of potential complications, sensory impairment together with the non-medical effects impose challenges to patients, carers and clinicians. With expert simultaneous management of the SCI together with all its effects the impact can be minimised. A significant majority of patients with incomplete paralysis recover motor power to ambulate. Patients who do not recover ambulation can, with ongoing expert monitoring, care and support lead healthy, fulfilling, productive lives and contribute to their community and the society in general. Successful management of patients with Spinal Cord Injuries requires an understanding of the pathophysiological changes that occur in the various systems of the body of the patient and infrastructure of a well-trained, well-coordinated and experienced multidisciplinary team in an environment that not only facilitates complex management but also preserves the dignity of the individual patient. The challenges that the patient, clinician and family members encounter will be discussed.

#### Biography

Wagih El Masri is currently Hon. Clinical Professor of Spinal Injuries (SI), Keele University has trained between 1971 & 1983 in the Oxford Group of Hospitals, Guys & Stoke Mandeville Hospitals and the USA. Obtained the first accreditation in Spinal Injuries and General Surgery in 1982. Appointed as a Consultant Surgeon in Spinal Injuries at the Midland Centre for Spinal Injuries in 1983. He treated and provided ongoing total care at all stages following injury to about 10,000 patients with SI. He published over 140 manuscripts. He is the author of the concepts of "Physiological Instability of the Spinal Cord", "Time related Biomechanical Instability", "Hypothesis of Micro-instability of the Injured Spine" and the largest series of Bladder Cancer in SCI patients. He is Past President of International Spinal Cord Society and Past Chairman of British Association of Spinal Cord Injury Specialists. He won many National and International awards. He is Founder Member and Trustee of SPIRIT a charity for education and training of Doctors & Health Care Professionals in the Principles and Practice of Management of Spinal Cord Injured Basis. He is Founder Member and Trustee of TransHouse now (Ethos) a charity that offers Transitional Housing from the hospital to the community and a Trustee of the Institute of Orthopaedic of the RJAH Hospital.

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#### **Prognostic indicators & factors influencing Neurological Recovery following Traumatic Spinal Cord Injuries**

Early prediction of ambulation is important to the patient especially during the early stages following injury. Neurological recovery is not uncommon following Spinal Cord damage and is predictable. Neurological recovery does not entirely depend on the method of management of the Spinal Injury. The positive and negative prognostic indicators of neurological recovery, its extent and the factors that enhance it, prevent it or cause neurological deterioration in patients with complete and incomplete cord damage will be discussed. I will demonstrate that the management of the multi-system physiological impairment and malfunction is as important as the management of the injured Spine is an optimum recovery is to be expected.

#### **Biography**

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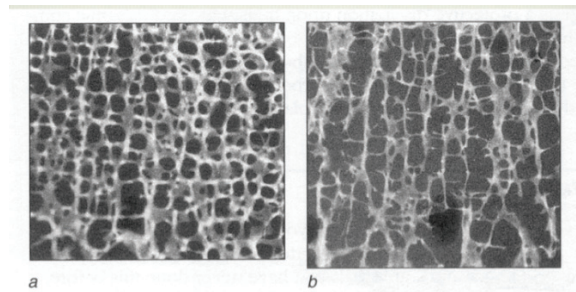
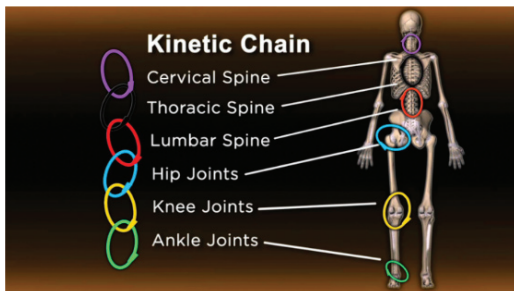


### Akhil Chhatre

Johns Hopkins University, USA

#### The Aging Spine

**Statement of the Problem:** Back pain is the number two reason to see a physician in the ambulatory setting in the United States. Expectedly, this yields tremendous pressures on the public and private sectors as it relates to cost, safety, morbidity/mortality and lifestyle. There is a lack of awareness among the general population as well as providers about the mechanisms involved as it relates to the degenerative cascade of Spondylosis. In addition to cognizance, there are prophylactic strategies to employ to slow, improve and even reverse this pathophysiology. This keynote discussion will stimulate the audience to raise and highlight the issue at hand, explore mechanisms of progression and provoke thoughts on treatment, prevention and reversal.



#### Biography

Akhil Chhatre is an Assistant Professor of Physical Medicine and Rehabilitation and Neurological Surgery at the Johns Hopkins University School of Medicine. He is the Director of Spine Rehabilitation at Johns Hopkins. He sees and treats adults with a wide range of Spinal Diseases and Disorders, including Neck and Low Back Pain, Lumbar and Cervical Degenerative Disease, Scoliosis, Spinal Stenosis, Facet Joint Disease, Whiplash Syndrome, Sacroiliac and Appendicular Skeletal Joint Disease and Peripheral Neuropathy. He has a special interest in helping patients regain function and reduce pain using non-surgical techniques and performing pain-reducing medicinal procedures, including steroid injections, nerve blocks and radiofrequency denervation. He received his medical degree from the University of Missouri School of Medicine and completed his residency in Physical Medicine and Rehabilitation at the University of Kansas Medical Center School of Allied Health. He performed his fellowship in Interventional Spine and Sports Medicine at the University of Pennsylvania. Previously, he worked as an Interventional Spine and Sports fellow at the Hospitals of the University of Pennsylvania after completing a residency in Physical Medicine & Rehabilitation at the University of Kansas Medical Center. He is also a member of the American Academy of Physical Medicine & Rehabilitation, the International Spine Intervention Society and the North American Spine Society.

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### Sabzali Javadov

University of Puerto Rico School of Medicine, USA

### Mitochondrial respiratory supercomplexes in the Heart: Physiological and pathophysiological roles

**Background:** Mitochondria as a powerhouse play a central role in both physiology and pathophysiology of the heart. They are involved in the pathogenesis of human diseases and aging, particularly coronary heart diseases such as Myocardial Infarction and Ischemia-Reperfusion (IR). Coronary Heart Diseases are the leading cause of morbidity and mortality worldwide, accounting for over 370,000 deaths per year in the USA. Despite intensive studies, molecular mechanisms of mitochondria-mediated cell death and heart dysfunction induced by cardiac IR remains unknown. Here, we elucidated the role of mitochondrial Respiratory Super-Complexes (RSC), the supramolecular complexes containing individual Electron Transport Chain (ETC) complexes I, III and V, under physiological conditions and in response to cardiac IR injury.

**Methods:** Studies were carried out in wild-type adult male mice/rats and Tafazzin knockdown mice. We utilized *in vivo* (intact heart) and *in vitro* (cultured cardiomyocytes) models using a wide range of genetic, biochemical and physiological approaches.

**Results:** We demonstrate that: i) Sustained reperfusion after *ex-vivo* global ischemia induces disintegration of RSCs prevented by inhibition of the Mitochondrial Permeability Transition Pore (MPTP) opening and ROS production, ii) MPTP-dependent mitochondrial swelling stimulates cleavage of the Optic Atrophy 1 (OPA1) protein, which plays an important role in mitochondrial fusion as well as in the maintenance of cristae structure, iii) OPA1 silencing provokes RSC disassembly associated with reduction in the activity of individual ETC complexes, iv) Downregulation of the ETC complex I subunit NDUFA11 but not SDHC subunit of complex II diminishes the structural integrity of RSC; v) Downregulation of Cardiolipin synthesis in Tafazzin knockdown mice reduces RSC levels and ETC complexes activity and vi) RSC disassembly induced by chemical treatment does not correlate with cardiac function.

**Conclusion:** ETC complex I and Cardiolipin are involved in RSC formation and MPTP-induced mitochondrial swelling stimulates RSC disassembly in cardiac IR injury.

#### Biography

Sabzali Javadov has specific training and broad expertise in cardiac Biochemistry and Physiology with a focus on the role of mitochondria in Cardiac Dysfunction induced by Ischemia-Reperfusion, post-infarction heart failure and aging. His studies have been conducted on various animal and cell model systems using a wide range of genetic, biochemical and physiological approaches. Currently, his laboratory elucidates the relationship between mitochondrial reactive oxygen species, permeability transition and electron transport chain supercomplexes in the heart. These studies are useful for the development of new mitochondria-targeting pharmacological compounds to prevent Coronary Heart Diseases. He has published over 100 papers in reputed journals and books and has been serving as an editorial board member for several biomedical journals.

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### *Jiao-Chiao Yang*

*Lohas Spine Hospital, Taiwan*

#### **The early and widespread use evolution of Endoscopic Spine Surgery in Taiwan**

Medical intervention must first be as trauma-free as possible, otherwise, the treatment effect can be worse than the natural course of the disease. Medical or surgical intervention's primary goal is an improvement in patient functional outcome. Measuring functional improvement is accomplished using multiple standardized instruments. Open Midline Lumbar Discectomy is a familiar procedure to most spine surgeons and results in good outcomes. However, open surgery often requires muscle retraction, bone resection of the lamina and facet joints and dural sac and nerve retraction.

Transforaminal Endoscopic Lumbar Discectomy is a minimally invasive spinal surgery procedure that was introduced by Kambin and Gellman in 1983. Advances in endoscopic visualization and instrumentation, as well as increased patient demand for more minimally invasive procedures, have led to the increased popularity of the technique.

Minimally Invasive Transforaminal Endoscopic Procedures can achieve spinal decompression through either direct or indirect techniques. Minimally Invasive Spinal Surgery is gradually expanding. These techniques must be fully understood to fully understand the spine anatomy, have the correct clinical guidance and have a correct understanding of the underlying complications.

Minimally Invasive Spine (MIS) procedures avoid extensive soft tissue dissection and disruption of the stabilizing paraspinous musculature, which can substantially decrease postoperative morbidity and improve health care economics. There has been an increasing demand for less invasive surgical options by both patients and referring physicians as evidence for the utility and benefit of MIS techniques continues to propagate.

#### **Biography**

Jiao-Chiao Yang is a Spinal Surgeon who has fully engaged in the field of Minimally Invasive Spinal Surgery and established his own Lohas Hospital, aiming to treat every patient with the best environment. Besides, he has a big heart to help all talented future generation which is why he founded Taiwan Society of Spine Endoscopy Surgery as a platform to introduce the greatest technique from all over the world to Taiwan. He is also an experienced surgeon, who is willing to share his vision and thought to every associate interested in the same medical field, which is why it means a lot to him to participate in the grand event.

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### *Chi-Huan Li*<sup>1,2</sup>

<sup>1</sup>IRCAD, Taiwan, <sup>2</sup>Chang Bing Show Chwan Memorial Hospital, Taiwan

### Transforaminal Endoscopic Spine System for treatment of Lumbar Adjacent Segment Disease

**Statement of the problem:** Adjacent Syndrome Disease (ASD) is the recurrence of symptoms associated with the degeneration at the free segment above or below the fusion segments. In spine surgery, it is always a dilemma for spine surgeons owing to the difficulty of surgical approach and risk concerns from patients. However, the methods of fusion are used wildly in Spine Instability and Degenerative Disc Diseases and senile patients have more opportunities to face the problems of ASD. Transitional Open Revision Surgery is a time-consuming procedure with high risks of dura tear and nerve root injury that hesitate the surgeons to perform this kind of surgery. The purpose of this study is to describe the experience of Transforaminal Endoscopic Spine System (TESSYS) to treat the ASD with minimal risk.

**Methodology & Theoretical Orientation:** Eight patients who were received Lumbar Spine Fusion had symptomatic ASD at L3-4, L4-5, L5-S1 levels, which was confirmed by MRI. Those patients were received TESSYS management

**Findings:** All the patients were relieved from the Lumbar Adjacent Segment Disease without any complications.

**Conclusion & Significance:** TESSYS is a safe and effective procedure to manage ASD consequently it prevents expectable dura and root injury.

#### Biography

Chi-Huan Li has been enrolled in the field of Trauma, Arthroplasty and major in Spine Surgery in Orthopedic Department of Chang Bing Show Chawn Memorial hospital since 2008. He is also interested in the new surgical technique and knowledge, especially in the field of Spine Disease and Minimally Invasive Surgery. He has participated actively in regional and international orthopaedic and spine meetings like as AAOS, PASMIS, COA and JOA. He is also the member of some of the orthopaedic societies and associations, speaker and instructor of IRCAD Taiwan.

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