magnus Group

24-26
AUGUST, 2023

LONDON
UK

JOINT EVENT ON

ORTHOPEDICS AND PHYSICAL MEDICINE

Venue:
Copthorne Hotel Slough-Windsor
Cippenham Ln, Slough SL1 2YE,
United Kingdom

BOOK OF ABSTRACTS

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ABSTRACTS

JOINT EVENT ON

ORTHOPEDICS AND PHYSICAL MEDICINE

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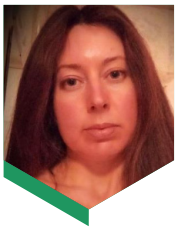

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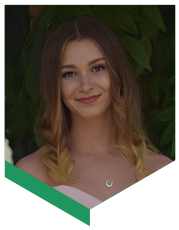

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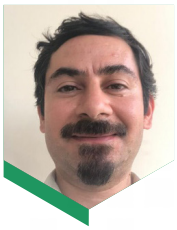


Yetkin Ozturk
Istanbul Technical University, Turkey

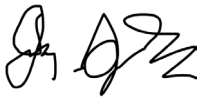
Zachary Eisner
University of Michigan, United States

Welcome Message

I am honoured to be speaking at the 2023 Global Conference on Physical Medicine and Rehabilitation. With speakers from around the world presenting on everything from the cellular, nerve and gross anatomical level in order to educate each other on how we can get our patients back on their feet and doing their desired exercise or sport.

My background is in Sports Medicine Podiatry. Believe it or not, I chose my profession after having trained Standardbred race horses growing up and knew that I could help people with their gait. I am a 32 time marathoner and have experienced injuries, and just last year a doctor of Physical Medicine was able to get me back running again.

I am confident that with the speakers that are presenting, we will be able to disseminate the proper information needed to achieve the goal of help taking pain away so people can function better.



Jay Spector, DPM, FAAPSM

Atlanta Sports Podiatry, United States

Welcome Message

Dear congress delegates and visitors,

It is with great privilege and pleasure to write a welcome message to you all.

Physical medicine and rehabilitation medicine has gone through a significant advancement in assessment methodology, evidence-based treatments and embracing newer technologies across the globe with newer evolving models of care over the last two decades. We now live in an exciting time post covid to embrace and share scientific information, knowledge, and advancement in the care of Rehabilitation medicine.

Global conference on Physical medicine and Rehabilitation 2023 to be held in London UK, organized, and coordinated by Magnus group is unique in that it offers the hybrid model of face-to-face attendance and virtual possibilities standing as an example for novel model in conference organization and delivery. London being one the central hub of the world is perfectly positioned to host, meet, and greet our global scientific community.

GCPR 2023 in a global summit to integrate physicians, allied health clinicians, researchers, health technologist, care givers and above all our communities.

The topics have been chosen carefully to accommodate a diversified representation including updated physiatry interventions for neurological and musculoskeletal disorders, psychiatry rehabilitation, promotion of health, sports medicine, interventional physiatry, pain management and novel technological methodologies.

We as global scientific community rely upon evidence-based approach in clinical care and always look forward to self-improving and learn and GCPR 2023 is one such opportunity.

I wish the congress every success for this meeting and hope for more meetings to come.

See you all at GCPR London UK 2023

Vaidya Bala

Vaidya Balasubramaniam

Illawarra Shoalhaven Local Health District, Australia

Welcome Message

Dear Colleagues,

We are very glad to invite you to participate in Conference. We invite everyone to contribute to the application of physical medicine and rehabilitation worldwide, to share experiences and we to work even better in the future. We have one goal - quality life for everyone, and physical medicine can do that. Big challenges are ahead of us: Increasing growth of the elderly population, post-Covid syndrome, organization of rehabilitation in low economic health systems and use of advanced technology. We are unique and specific in treating patients with non-invasive and non-pharmacological interventions. We can assert ourselves in the health system only with evidence of the health and economic benefits of our service to patients and to society.

Come to share our experiences and advance medical practice.

Elizabeta Popova Ramova

MIT University, Macedonia, The Former Yugoslav Republic of

Welcome Message

Dear participants and guests of the congress!

We have an amazing opportunity to share the results of our scientific and practical studies in the field of trauma surgery and orthopedics at the upcoming congress. Indeed, today our specialty is one of the most actively developing areas of medicine. Diagnostic protocols for skeletal injuries and diseases are being improved. Preoperative planning and computer-assisted surgeries are becoming routine. Minimally invasive interventions are being performed more and more frequently. All this provides us with great opportunities. But in order to take advantage of them, we need new knowledge. Events such as this conference give us the chance to learn a lot and become more competent. As a result, we will not only increase the level of our knowledge in the specialty, but we will also treat our patients more successfully and effectively.

With best regards,

Igor Belenkiy

Saint Petersburg I.I. Dzhanelidze Research Institute of Emergency Medicine, Russian Federation

Welcome Message

Esteemed colleagues, innovators, and pioneers in orthopedics,

As we convene for Ortho 2023, I'm deeply moved by the theme: “BONE: Burgeoning Orthopaedics and Investigating Novel Evolutions.” It encapsulates our collective journey, where the essence of 'bone' in Hebrew, symbolizing strength and might, intertwines with our commitment to progress. The challenges of nonunion fractures and critical-sized bone defects have been a significant part of my professional journey. Every setback, every unhealed fracture, underscores the urgency of our mission.

Innovations like BonoFillTM herald a new dawn, offering hope where traditional methods falter. As we delve into the latest advancements and share transformative insights, let's remain anchored in our shared purpose: to restore strength, bring healing, and rekindle hope in the hearts of our patients.

Prof. Nimrod Rozen

Ha'Emek Medical Center, Israel

Welcome Message

Dear congress visitors, it is an honor and pleasure to write a few welcome notes. The theme of this Meeting is "BONE: Burgeoning Orthopaedics and Investigating Novel Evolutions."

Today's development of Orthopaedics was made possible through the unfaltering efforts of our many great predecessors, and the fact that many specialties of orthopedic surgeries have accumulated world-leading research results in various fields is attracting international attention. I wish that this meeting makes an opportunity for current orthopedic surgeons to reflect on the history of Orthopaedics, learning about the past to connect it to further future advancement.

I look forward to seeing many specialties in London this August.

Takanori Saito

Kansai Medical University, Japan

Keynote Speakers

Alba Paris Alemany
Complutense University of Madrid, Spain

Elizabeta Popova Ramova
MIT University, Macedonia, The Former Yugoslav Republic of

Hee Jeong Im Sampen
University of Illinois, United States

Igor Belenkiy
Saint Petersburg I.I. Dzhanelidze Research Institute of Emergency medicine, Russian Federation

Jay Spector
American Academy of Podiatric Sports Medicine (AAPSM), United States

Kevin E Wilk
Champion Sports Medicine, United States

Matis Georgios
University Cologne Hospital, Germany

Nimrod Rozen
Ha'Emek Medical Center, Israel

Stefano Bini
University of California, United States

Takanori Saito
Kansai Medical University, Japan

Vaidya Balasubramaniam
Illawarra Shoalhaven Local Health District, Australia

Zhenhuan LIU
Guangzhou University of Chinese Medicine, China

Thank You All...

ABOUT
MAGNUS GROUP

Magnus Group (MG) is initiated to meet a need and to pursue collective goals of the scientific community specifically focusing in the field of Sciences, Engineering and technology to endorse exchanging of the ideas & knowledge which facilitate the collaboration between the scientists, academicians and researchers of same field or interdisciplinary research. Magnus Group is proficient in organizing conferences, meetings, seminars and workshops with the ingenious and peerless speakers throughout the world providing you and your organization with broad range of networking opportunities to globalize your research and create your own identity. Our conferences and workshops can be well titled as 'ocean of knowledge' where you can sail your boat and pick the pearls, leading the way for innovative research and strategies empowering the strength by overwhelming the complications associated with in the respective fields.

Participation from 120 different countries and 2000 different Universities have contributed to the success of our conferences. Our first International Conference was organized on Oncology and Radiology (ICOR) in Dubai, UAE. Our conferences usually run for 2-3 days completely covering Keynote & Oral sessions along with workshops and poster presentations. Our organization runs promptly with dedicated and proficient employees' managing different conferences throughout the world, without compromising service and quality.

ABOUT
ORTHOPEDICS 2023 & GCPR 2023

The joint event on Orthopedics 2023 & GCPR 2023 provides a dynamic platform for experts in Orthopedics, Physical Medicine and Rehabilitation from around the world to interact and share their research and translational studies on various advances in these fields. This highly anticipated gathering aims to unite established scientists with emerging researchers from diverse disciplines, fostering the emergence of new ideas at the intersection of these areas to address crucial health and well-being challenges faced by humanity.

With a strong emphasis on innovative approaches, the event offers an unparalleled opportunity for scientists, academicians, doctors, nurses, and physicians from different healthcare domains to gain fresh insights and advance their own research. Furthermore, it presents an excellent chance to forge new professional relationships and collaborations.

The distinguished honorary speakers will deliver the most up-to-date and clinically relevant information, ensuring that attendees leave the event better educated and invigorated with newfound knowledge and inspiration.

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24-26 AUGUST

DAY 01

KEYNOTE FORUM

JOINT EVENT ON

ORTHOPEDICS AND PHYSICAL MEDICINE

Be aware of involuntary emotional expressive disorder- A neurological syndrome, not a mood disorde

Objective: To increase awareness of and index of clinical suspicion for Involuntary Emotional Expressive Disorder (IEED) as a differential diagnosis in patients affected with either involuntary laughter or crying variants (or both), not only in cases of stroke and traumatic brain injury where it largely manifests, but also in conditions affecting structural brain changes such as multiple sclerosis and transient ischemic attacks and other neurological conditions such as Parkinson's disease (cases where diaschisis has been implicated) in order to facilitate appropriate and adequate treatment of IEED.

Background: Accurate diagnosis and appropriate treatment of IEED continue to elude clinicians. Symptoms associated with IEED (namely involuntary, inappropriate episodes of laughing or crying without emotional stimuli) are often confused with mood disorders such as depression and bipolar disease because of the complexity of symptom manifestation and socio-behavioral associations with these manifestations precluding the link to the involuntary expressive motor nature of the condition, rather than mood. It is crucial that patients with IEED are correctly diagnosed and treated to improve their quality of life as they are debilitated by embarrassment and withdraw socially; they present a burden to careers and family members.

Methods: Two cases presented with either variant were diagnosed with IEED through a series of assessment approaches comprising thorough history-taking, including social history in the presence of a family member/career, and use of appropriate assessment tools as required, such as the CNS-Liability scale. A strong index of clinical suspicion played a decisive role in one case.

Results: The patient who manifested the crying variant sustained a left striato-capsular infarction resulting in right hemiparesis, expressive dysphasia, dysarthria and oropharyngeal dysphagia. MRI of the brain showed left capsular syndrome involving deep branches of left middle cerebral artery and left caudate infarct along with right fronto-parietal-occipital infarct. The patient who manifested the laughing variant was diagnosed with grade 4 sub-arachnoid haemorrhage with right arterio-venous malformation rupture. A Selective Serotonin Reuptake Inhibitor (SSRI) was used to treat both variants of IEED with success. Success was seen in the reduction of symptoms (SSRI effective 1 week post commencement for crying, 2 weeks for laughter), and in increased interaction with friends and family and return to social activities. The patient with laughing variant had scored 19/40 on the CNS-liability scale before SSRI, and 7/40 approx. 5 weeks after he started on SSRI. An appreciable reduction in laughter episodes was seen 2 weeks after medication commencement.

Balasubramaniam V[1*], Baytieh L[2]

[1]Port Kembla and Wollongong Hospitals Rehabilitation Units, Illawarra Shoalhaven Local Health District, NSW, Australia

[2]Research Unit, Wollongong Hospital, Illawarra Shoalhaven Local Health District, NSW, Australia

Biography

Dr. Vaidya Balasubramaniam is a Senior Staff Specialist Consultant in Rehabilitation and Brain Injury Medicine at the Rehabilitation Units in Port Kembla and Wollongong Hospitals, Illawarra Shoalhaven Local Health District (ISLHD). His qualifications include MBBS, FAFRM (RACP), Fellow of the European Stroke Council, Certified Independent Medical Examiner, Graduate Certificate in Health Professional Education and Leadership, Associate Fellowship with Royal Australian College of Medical Administrators. He is currently the Clinical Lead in Neurological Rehabilitation in ISLHD, Honorary Senior Lecturer at the University of Wollongong and Education Coordinator for advanced training in Rehabilitation Medicine, Co-chair Pharmacy Committee and Senior Examiner FAFRM (RACP).

Conclusions: There is a pressing need for increased understanding and awareness leading to logical assessment strategies to distinguish between mood and the clinical, organic disorder of affect that is IEED. A sound index of clinical suspicion must be added to the repertoire of differential diagnoses of similar presentations when conditions affecting the brain are involved, as the theory of diaschisis may play a part in unusual cases.

Audience Take Away Notes

- The audience will be able to use what they learn from increased knowledge and awareness of Involuntary Emotional Expressive Disorder (IEED), assessment methods, and approaches to increase index of clinical suspicion for IEED
- Clinicians will be able to distinguish between the involuntary expressive motor/neurological nature that is IEED and actual mood
- The state of IEED, its path to diagnosis and appropriate treatment needs to be taught in teaching institutions and in clinical practice to improve patient's quality of life
- Disseminating this information will reduce patient/career, health burden and advance understanding and practice for better patient care
- Early recognition and accurate treatment with sharing of the knowledge and its application will achieve optimal management and outcomes of IEED

Treatment of medial tibial stress syndrome (Shin splints): What is the evidence-based medical treatment?

To understand the treatment, you first must identify the cause of MTSS in that individual. Iontophoresis, phonophoresis, ice massage, ultrasound therapy, and Extracorporeal Shockwave Therapy (ESWT) could be effective in treating MTSS when compared with control. Low-energy laser treatment, stretching and strengthening exercises, sports compression stockings, lower leg braces and pulsed electromagnetic fields have not been proven to be effective in treating MTSS.

Audience Take Away Notes

- They will learn how to use balance testing to identify weaknesses in the gluteus medius that can contribute to MTSS
- Changes in running form can help prevent MTSS
- Orthotics or arch supports can help prevent MTSS
- These changes and treatments can speed up the healing time for patients with MTSS and get them back to sport quicker

Jay E. Spector, DPM, FAAPSM

CAQ in Sports Medicine, American Academy of Podiatric Sports Medicine (AAPSM), United States

Biography

Dr. Jay Spector studied Economics at McGill University, Montreal, Canada and graduated in 1986. He went to the New York College of Podiatric Medicine and graduated in 1992. He completed a surgical residency at the Georgia Podiatric Surgical Residency in Atlanta, GA. He is immediate past president of the American Academy of Podiatric Sports Medicine and is the Scientific Director of their yearly stand-alone meeting in Sports Medicine. He has published several papers and is a frequent lecturer both in the United States and Europe. He is in private practice at Atlanta Sports Podiatry in Johns Creek, GA, USA.

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24-26 AUGUST

DAY 01

SPEAKERS

JOINT EVENT ON

ORTHOPEDICS AND PHYSICAL MEDICINE

Vishwajeet Singh*, Lowilius Wiyono, Axler Jean Paul, Batya Stimler

Barts Health, United Kingdom

Outpatient total elbow arthroplasty– Outcomes and complications: A systematic review and meta-analysis

Background: Total Elbow Arthroplasty (TEA) is a surgical procedure used in the management of arthritis and fractures. Outpatient Total Elbow Arthroplasty (OTEA) could be a valid option to reduce workforce burden and cost, provided it can be proven to be equally safe and effective as inpatient TEA. This meta-analysis was conducted to evaluate the efficacy and safety of OTEA.

Methods: Literature search was performed in PubMed, Embase, Scopus and Google Scholar using DistillerSR, with predetermined keywords based on the Patient-Intervention-Control-Outcome (PICO) criteria. Studies characterising OTEA and/or inpatient TEA were included. Total readmissions, revision rates, cost difference and functional outcome scores were assessed for outpatient versus inpatient TEA. (ROBINS-I) tool was used for bias assessment for observational studies. OpenMeta-Analyst software for analysis.

Results: Four research studies fulfilled inclusion criteria. Incidence of complications was higher in inpatients compared to outpatients (n=121; mean=10.08±9.97 vs n=51; mean=4.25±4.26) with significant difference (t= -1.86; p= 0.037). Total readmissions reported was 84/1166 cases, comprised of 27/421 outpatients and 57/745 inpatients, thus the OTEA procedure is considered a weak protective factor, though not significant, for readmission of the patients (OR=0.496 [0.08-2.69], p=0.39). The cost of OTEA was lower than inpatient TEA.

Conclusion: Results of outpatient versus inpatient TEA are interesting, complications are noted higher in Inpatient group wheareas, readmissions, functional scores are similar, and the involved cost is less. Level I/II studies in future will help in further standardising the approach of outpatient TEA.

Level of Evidence: Level II.

Keywords: Outpatient, Total elbow arthroplasty (TEA), Daycase total elbow replacement.

Dr. Dipak Karavadara*, Thomas Ward, Faizal Rayan, Prabhakaran Venugopa, Muhammad Riaz, Robert Smith

Department of Trauma and Orthopaedics, Kettering General Hospital, Rothwell Road, Kettering, NN16 8UZ, United Kingdom

Fascia iliaca block administration – A new key performance indicator for neck of femur fracture care. QIP cycle 5

Introduction: Fascia iliaca block (FIB) in patients with fragility neck of femur (NOF) fractures provides more effective pain control than conventional systemic analgesia. In fact, FIB administration is now a key performance indicator for NOF fracture care introduced by the National Hip Fracture Database (NHFD). All NOF fracture patients without absolute contra-indications should receive a FIB. In 2021, the average FIB administration rate across England and Wales was 64%.

Method: Our aim was to measure our FIB administration rate as part of an ongoing quality improvement (QI) project with four previous cycles. We conducted a retrospective chart review of patients diagnosed with fragility NOF fractures at Kettering General Hospital from January to April 2023. We examined for factors associated with FIB administration, using multi-variate logistic regression to identify barriers to improvement.

Results: 96 patients were included – four were not suitable for a FIB due to absolute contra-indications to administration. Median age was 83 years (range = 76-89 years), and male-to-female ratio 1:2.2. 79 patients (83.3%) received a FIB. Multi-variate analysis showed that cognitively impaired patients were 9 times less likely to receive a FIB (p=0.002) and patients assessed in the absence of our trauma nurse practitioners were 10 times less likely (p=0.002).

Conclusion: FIB is a vital part of NOF fracture care and has been shown to improve patient outcomes by reducing the incidence and severity of peri-operative delirium. At our trust, the FIB administration rate increased from 13.1% to 54.5% over the course of four QI cycles. In our fifth cycle we report a dramatic further improvement to 82.3%, exceeding the national average. Similar QI projects may be led by trauma and orthopaedic departments elsewhere to improve initial NOF fracture care as per the NHFD.

Biography

Dr. Karavadara is a Core Surgical Trainee at Kettering General Hospital. He graduated from King's College London in 2019 and hopes to start training in trauma and orthopaedics next year.

Dr. Subramanya Adiga

Consultant & Clinical head, Rehabilitation Medicine department, ARHOP Division, Middlemore hospital, Auckland, New Zealand

Retroperitoneal compartment syndromes with lower limb nerve palsy

With increasing use of anti-platelet & anticoagulant medications, retroperitoneal bleeding into Psoas & Iliacus musculo-fascial compartments is expected to rise. There is paucity of literature in this field, limited to case reports & a few case series; these often focus on one or 2 select issues of interest only. Many important issues are not understood – for instance, the whole lumbar plexus is located inside Psoas major muscle and any bleed into these tight musculo-fascial compartment syndrome results in compartment syndrome, with high likelihood of nerve palsy and need urgent decompression with open fasciotomy wherever possible. Serious risks to the nerve plexus of insertion & removal of percutaneous drains is not recognised. Imprecise terminology like "ilio-psoas", "lumbo-sacral" and "radiculo-neuro-plexopathy" clouds the scene further, making documentation & communication difficult. When this happens in a stroke patient with pre-existing neurological deficit, recognition, diagnosis & management becomes even more difficult. The present work involves literature review with focus on identification, prevention & management of the neurological deficits – medical, surgical & rehab aspects. Results from this review show that there are only 2 reports identifying this condition as a nerve saving emergency (compartment syndrome). There is only one report on this happening against the backdrop of a stroke– a case of cerebral venous thrombosis; no other reports associated with more common varities of ischaemic & haemorrhagic strokes. There is very little coverage of the rehabilitation aspects; only one report of salvage surgery. Our experience with stroke and non-stroke cases will be presented and our view on acute & rehab management is shared.

Audience Take Away Notes

- It is expected that this work will lead to increased awareness among the clinicians about this emergency situation and lead to early recognition & appropriate management
- It is hoped that the importance of use of precise terminology like "Psoas compartment syndrome secondary to coagulopathy, resulting in complete lumbar plexus palsy" will be understood & followed in clinical communication & research
- Importance of managing these emergencies appropriately, even in stroke cases with pre-existing deficits is emphasized. This is because conversion from UMN (Upper Motor Neuron) palsy to LNM (Lower Motor Neuron) palsy will often result in further functional worsening – loss of automatic stance helping in transfers for instance
- A few additional tips are given on rehabilitation, timing of NCS (Nerve Conduction Studies) and salvage surgery. These are expected to help the rehab clinicians dealing with this rare injury with limited evidence base

Biography

Dr. Adiga studied Medicine at Karnataka University, graduated with MBBS in 1987. He further trained in Orthopaedics in India, obtained FRCS Ed diploma from Edinburgh and trained for CCT in Rehab medicine in UK. He obtained further qualifications of FAFRM & FASLM after arriving to New Zealand. He practices neuro-rehabilitation in Auckland and is expert in spasticity & pain interventions. His special interests include lifestyle medicine, stroke & spinal injuries rehab, application of orthopedic & PN pathology principles in day-to-day rehab processes.

Dr. Raheel Shakoor Siddiqui[1,2*], Dr. Sanjay Narayana Murthy[3], Manikandar Srinivas Cheruvu[4], Kash Akhtar[5,2]

[1]Department of Trauma & Orthopaedic Surgery, Queen Elizabeth University Hospital, University Hospitals Birmingham NHS Trust, Birmingham, West Midlands, United Kingdom

[2]Queen Mary University of London, Barts & The London School of Medicine & Dentistry, London, United Kingdom

[3,4]Department of Trauma and Orthopaedic Surgery, Royal Stoke University Hospital NHS Trust, Stoke, West Midlands, United Kingdom

[5]Department of Trauma and Orthopaedic Surgery, The Royal London Hospital, Barts Health NHS Trust, London, United Kingdom

Trauma system in England: An overview and future directions

Major trauma is a dynamic public health epidemic that is continuously evolving. Major trauma care services rely on multi-disciplinary team input involving highly trained pre and in-hospital critical care teams. Pre-hospital critical care teams (PHCCTs), major trauma centres (MTCs), trauma units and rehabilitation facilities all form an efficient and organised trauma system. England comprises of 27 MTCs funded by the National Health Service (NHS). Major trauma care entails, enhanced resuscitation protocols coupled with the expertise of dedicated trauma teams and rapid radiological imaging to improve trauma outcomes. Literature reports a change in the demographic of major trauma as elderly patients (silver trauma) with injuries sustained from a fall of 2 metres or less, commonly present to services. Evidence of an increasing population age with multiple comorbidities necessitates treatment within the first hour of injury (golden hour) to improve trauma survival outcomes. Staffing and funding pressures within the NHS have subsequently led to a shortfall of available physician led PHCCTs. Thus, there is a strong emphasis for targeted research and funding to appropriately deploy resources to deprived areas. This review article will discuss the current English trauma system whilst critically appraising present challenges, identifying insufficiencies and recommending aims for an improved future trauma system in England.

Audience Take Away Notes

- Critical appraisal of the current and historical English trauma system
- Evidenced based components and benefits of a trauma system
- Changing demographic of trauma as a disease
- Insufficiencies in the current trauma English system
- Identified areas of improvement

Biography

Dr. Raheel Siddiqui studied medicine and graduated with an MB BCh BAO, LRCSI and LRCPI from the Royal College of Surgeons in Ireland, Bahrain. He has completed foundation programme training in the West Midlands and subsequently spent a year as a clinical fellow in trauma and orthopaedic surgery within the region. He has completed a MSc in Orthopaedic Trauma Science at Queen Mary University of London, Barts & The London School of Medicine and Dentistry. He is currently an orthopaedic themed core surgical trainee in Birmingham, United Kingdom and is aiming towards national selection for trauma and orthopaedic surgery.

Sari Al Hajaj[1*], Faizal Rayan[2], Babitha Markose[3]

[1,2]Trauma & Orthopaedic Department, Kettering General Hospital, Kettering, Northamptonshire, United Kingdom

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"Hip hip hooray": Adequate bone protection for patients with hip fractures

Background: Managing acute hip fractures involves preventing their recurrence, which is crucial. This is because fragility fractures can elevate the likelihood of subsequent fractures, with as many as 11% of patients experiencing a second fracture within the first year. It has been extensively researched and proven that the use of bisphosphonates can reduce the recurrence rate by a significant 36%. The aim is to ensure that patients with hip fractures receive appropriate investigations and management for bone health in a timely fashion.

Methods: This retrospective project involved all patients admitted to a district General Hospital with traumatic femur and peri-prosthetic fractures between 01/11/2022 and 01/03/2023. All patient demographics, investigations and management data were collected electronically using eTrauma, System C (care flow) and clinical notes.

Results: From a total of 105 patients, only 26% of patients had a Bone profile, 6% had B12 and folate and 5% had vitamin D levels checked on admission. Thus, if clinically indicated, only 67% of patients received high dose vitamin D, with the median for starting intervention being 6th of admission. 26% of patients received Bone protection.

Conclusions: It's concerning that 75% of patients with hip fractures aren't receiving the required investigations and treatment for bone protection, which is critical in preventing more fractures. We need to take prompt action to create and release an internal protocol to guarantee that these patients receive the necessary care. Additionally, we need to prescribe adequate analgesia upon admission.

Audience Take Away Notes

- Adequate analgesia for hip fractures improves their outcomes.
- It is crucial to treat a fracture and improve bone health to prevent future fractures.
- Timely investigations can save time and reduce unnecessary repetition in investigations.

Biography

Sari AL Hajaj, hailing from Iraq and having lived and studied in Jordan. He graduated from the University of Jordan in 2019 with MD degree. After completing his internship and PLAB exam, he joined the NHS. Recently, he clinched the Most Outstanding TG ST1-3 award at the 2022-23 KGH Trainee & Trainer Professional Clinical Excellence Awards. He is passionate about trauma, orthopaedic and research field. At the moment, he is involved in two national clinical trials and one local trial. Additionally, he is currently working towards obtaining a postgraduate certification in Medical Education from the University of Warwick.

Dr. Arvinder Singh Bhatia

Senior Consultant Orthopaedic & Arthroscopic Surgeon at Dr Bhatia's Bone & Joint Care Clinic, # 2739, Sector 37 C, Chandigarh, Punjab, India

PRP therapy in OA knee- my experience (A series of 123 cases – 143 knees)

Introduction: Osteoarthritis (OA) is a major source of disability, pain, and economic burden worldwide. Genetic, biochemical, and mechanical factors are responsible for the complex multifactorial epidemiology of the disease. Abnormal joint biomechanics, age, gender, joint injury, and high Body Mass Index (BMI), along with a strong genetic basis, are associated with OA development. Presently, OA is the eighth-most common disease in male's world over and the fourth most common disease in females. Previously, OA was believed to be caused by the mechanical degradation of cartilage. But now the understanding is, this a complex of, mechanical, chemo- inflammatory, the pathophysiology is complex inter play leading to the production of matrix Metalloproteinases (MMPs), Nitric Oxide (NO), and Prostaglandins (PGs), leading to matrix degradation. The catabolic effects of interleukins secreted by chondrocytes, mononuclear cells, osteoblasts, and synovial cells interfere with the activity of growth factors and reduce the synthesis of aggrecan, which is the key constituent of the matrix providing resilience to cartilage. Interleukin-1β (IL-1β), the pro inflammatory cytokine, is a major protagonist in inducing arthritic changes, as evident by its increased levels in the synovial fluid of affected joints. Intra-articular injection of Platelet-Rich Plasma (PRP) has been broadly considered for cartilage repair, as it could enhance matrix synthesis thanks to the properties of its growth factors (mostly Platelet-Derived Growth Factor (PDGF) and Transforming Growth Factor-beta (TGF-beta).To evaluate the efficacy of PRP intra-articular injections in OA knee patients. A series of 123 patients with different grade of OA. Assessing the recovery on VAS and WOMAC scale.

Methodology: 08ml of patient's blood taken in two tubes containing 0.5 ml of Sodium Citrate (38%w/l). Centrifuged at the 4000 rpm for 20 min. Let sample rest for about 5 minutes, about 05 to06 ml of PRP is extracted. Patient shifted to operation theatre. After proper skin sterilisation and knee draping. This PRP is injected into the knee joint. 2nd injection of PRP repeated after one month. The patient's progress is assessed at end of one month after the second injection and again at one year and then after 2years. Recovery assessed with VAS and WOMAC scale. Four aspects of WOMAC sore taken into consideration – 1) Pain at night, 2) Rising from sitting, 3) Walking on flat surface, 4) Ascending and descending stairs, 5) Performing light domestic duties 6) Performing heavy domestic duties.

Results: In the series of 123 patients (143knees) taking into consideration the severity of OA as per K& J classification - Grade 2 (minimal) moderate joint reduction, Grade 3 (moderate) severe joint space reduction with sub choral sclerosis, Grade 4 (severe) large osteophytes, marked narrowing of joint space, severe sclerosis and definite deformity of bone ends. BMI of the patient, age of the patient showed– 1) Pain at night- 95 to 100%, 2) Rising from sitting 86 to 100%, 3) Walking on flat surface 85 to 100%, 4) Ascending and descending stairs 60 to 90%, 5) Performing light domestic duties70 to 96%, 6) Performing heavy domestic duties (60 to 95%) across various Grade of OA (Grade 2 to 4). Patients were also instructed for regular exercises to strengthen their thigh muscles and life style changes to bring their body weight in permissible levels as per their height.

Conclusion: PRP therapy in moderate to severe OA knee showed good to excellent results in improving pain during rest, pain free walk, climbing stairs. Patients who do not want TKR is worth trying. Up to two years follow patients are happy and pain free.

Keywords: Osteoarthritis, Body Mass Index (BMI),Matrix Metalloproteinases (MMPs), Nitric Oxide (NO), and Prostaglandins (PGs), interleukins, chondrocytes, mononuclear cells, osteoblasts, and synovial cells growth, aggrecan, Interleukin-1□ (IL-1□), the proinflammatory cytokine, Intra-articular injection of Platelet-Rich Plasma (PRP),Platelet-Derived Growth Factor (PDGF), Transforming Growth Factor-beta (TGF-beta), PRP intra-articular injections in OA knee patient, grade of OA, WOMAC score, Arthrex PRP harvesting special syringe

Audience Take Away Notes

- PRP therapy is the most under rated treatment for OA patients
- PRP therapy is worth trying in OA patients as per my experience
- Especially who don't want TKR surgery, which are unfit for the surgery due to co- morbid condition e.g. renal failure, cardiac or liver problems
- Simple procedures, low cost and does not require any hospitalisation

Biography

Dr. Arvinder Singh Bhatia, born on 22nd September 1964, holds an impressive list of professional qualifications. He completed his M.B.B.S from Government Medical College, Patiala in 1986. Later, he pursued a Post-Graduation in Orthopaedics (D.ORTHO) under the guidance of Prof. Hardass Singh Sandhu, a renowned orthopaedic surgeon in North India, at Government Medical College, Amritsar. Dr. Bhatia also gained valuable experience working with Dr. Anant Joshi, India's leading sports medicine specialist in Mumbai. He further enhanced his expertise through sports medicine courses at the Department of Sports Medicine, Jawaharlal Nehru Stadium, New Delhi, under the agesis sports authority of India (S.A.I.) and Sports team physician course under the agesis of International Federation of Sports Medicine (I.F.S.M.). He is a life member of various professional bodies, including the National Faculty, Arthroscopy Courses for Indian Association of Orthopaedic Surgeons (IAOS), Indian Orthopaedic Association (I.O.A.), Indian Arthroscopy Society (I.A.S.), Indian Association of Sports Medicine (I.A.S.M.), Indian Federation of Sports Medicine (I.F.S.M.), and Indian Medical Association (I.M.A.).

Miten Sheth
The Knee Clinic, India

Imageless robotics-assisted total knee arthroplasty: A learning curve analysis of surgical time and alignment accuracy

Introduction: The use of robotics-assisted techniques is increasing in total knee arthroplasty (TKA). The adoption of any new step in surgery is associated with a learning curve and potentially associated with extra complications. The aim of this study was to determine the learning curve necessary to minimize the time of surgery and to evaluate the accuracy of component and limb alignment after imageless, robotic handpiece-assisted TKA.

Materials and methods: In a prospective case-control study, the first 100 consecutive robotic-assisted (RA) TKAs performed by a single surgeon were analysed and compared to 100 consecutive conventional TKAs operated in the same period. Operative times, implant and limb alignment (comparing intra-operative plan with post-operative alignment) and robot-related complications were evaluated. Cumulative summation (CUSUM) analyses were used to assess learning curves for operative time and implant alignment in RA TKA.

Results: 4 RA TKA cases had to be completed with conventional instrumentation due to challenges faced in the RA system workflow, including registration errors. The learning curve for operative time when using the imageless robotic system for TKA was completed after 16 cases. Complete normalization of operative times, equalling conventional TKA time was not seen even after 100 cases. The learning curve did not influence the accuracy of component or limb alignment. The coronal HKA, LDFA, MPTA and sagittal femoral component placement showed an average deviation of 0.90 (SD 2.1), 0.40 (SD 1.4), 0.60 (SD 1.1) and 0.50 (SD 2.7) from the intra-operative plan. The post-operative tibial component sagittal placement showed a significant deviation of 1.60 (SD 2.4) from the intra-operative plan. No minor or major robot-related complications were observed.

Conclusion: Imageless robotic handpiece-assisted TKA is associated with a learning curve for operative time that might be longer than reported in current literature. Implementation of the intra-operative plan was accurate for implant placement and limb alignment except for the tibial component's sagittal slope.

Biography

Miten R. Sheth is an Internationally recognized, Indian Orthopaedic Surgeon who specializes in treatment of Knee problems. He is the Managing Director and Chief Surgeon at The Knee Clinic, a chain of super-speciality clinics in Mumbai, India. He is one of the youngest Robotic knee replacement surgeons in the Asia-Pacific region and performs more than 500 joint specific surgeries per year. He has made sustained efforts to increase the awareness and acceptance of joint replacement surgery, robotic technology and day-care treatments in India.

Grace Scopes
University of Buckingham, United Kingdom

The effectiveness of the management of osteoporotic spinal compression fractures

Background: In the UK, there is an increasing age in the population, having a direct correlation with increasing prevalence of osteoporotic fractures. Osteoporotic fragility fractures are a huge burden to the NHS with over 300,000 patients presenting with fragility fractures to hospitals in the UK year with an estimated financial burden of £2.2 billion in 2025 (NICE,2017), with an estimated 1.4 million vertebral compression fractures reported worldwide (Guo, 2015). As well as working towards the prevention of fragility fractures of osteoporosis, we must also consider best management for the patients as there is a 53.9% survival rate at 3 years post fracture (Chester, 2022).

Objectives: Investigate the effectiveness of surgical vs non-surgical management for osteoporotic spinal cord compression fractures.

Introduction: There is a huge burden of fragility fractures onto the NHS in the UK, including osteoporotic spinal compression fractures. It is important that these patients are managed in the most effective way to ensure quality of life after the injury.

The current management of osteoporotic spinal compression fractures include:

1. Operative management including vertebroplasty, kyphoplasty and open surgical reconstruction which may include decompression if indicated. (Garfin, 2001)
2. Conservative management which includes best rest, analgesics/specialist pain centre referral, early mobilisation, bracing and physical therapy. (Prather, 2007)

In the UK, recommended treatment includes non-operative management for anterior spinal column involvement and to consider operative management in those with multiple column involvements. (BMJ, 2023)

Methods: A review of the literature published was conducted following an advanced search on PubMed and Google Scholar in June 2023. Key search terms included ‘osteoporotic spinal compression fractures’, ‘surgical management’, ‘conservative management’. Following title and abstract screening tools, 3 papers were analysed for a full-text overview, to draw conclusions about the management of vertebral compression fractures.

Following this, 3 studies met the inclusion criteria and provided data to allow the inclusion of over 5,000 participants.

Results: According to a systematic review conducted (Guo, 2015), compared with conservative treatment, surgical intervention was more effective in reducing pain and disability on the Roland-Morris disability score. As well as another study (Chester, 2022) drawing conclusions of conservative management leading to uncontrolled back pain and progression of a kyphotic deformity, with a high likelihood of patients having

a progression of the vertebral spinal compression fracture in the future, giving a poor prognosis. (Garfin, 2001), another piece of research demonstrated the benefit of vertebroplasty and kyphoplasty (surgical intervention) where 90% of patients reported pain relief and improved mobility within 24 hours, with 95% having reported clinical improvements in their condition.

Conclusions: In conclusion, the review has suggested operative management gives patients the best outcomes when suffered vertebral compression fracture. However, this management often cannot be implemented due to the patient not being suitable for operative management due to several co- morbidities such as dementia within this age group. According to a study (Perreira, 2017), greater clarification is needed within the guidelines for clinicians to make decisions between conservative and surgical management.

Audience Take Away Notes

- From this presentation, the audience will learn the importance of personalisation of the management plan for the management of osteoporotic spinal compression fractures, including when one of the methods of management is more suitable for a particular patient, implementing a patient-centrered approach
- The audience will understand the effectiveness of the management intervention for patients experiencing this, and therefore develop understanding of what might be preferable for the patient's quality of life
- The audience will understand the impact of their management choice on the patient long-term, including after discharge from the hospital setting
- The audience will also understand the increased requirement for the clarification within the guidelines to make a holistic approach to the decision-making process in whether to offer the patient surgical intervention, and the impact that this can have on the long-term life expectancy and quality of life for the patient

Biography

Grace Scopes is a 3rd year medical student from the University of Buckingham, with a very keen interest in orthopaedic surgery, specifically trauma and orthopaedics. She have previously studied a year of physiotherapy at King's College London, completing a sports massage course. She also completed a diploma in anatomy, physiology and chemistry alongside studying physiotherapy. She also have a keen interest in sports medicine with a background in competing international athletics for GB juniors as well as swimming and horse riding at a national level. She have one publication to date.

Salim Hirani

Chief Clinical Physiologist (Neurophysiology), Neurophysiology Department, Ysbyty Gwynedd Hospital, Bangor, North Wales, United Kingdom. LL57 2PW

Neurophysiological grading tool of ulnar nerve entrapment across wrist and across elbow

Ulnar Nerve Entrapment Across the Elbow (UNEAE) and across wrist (UNEAW) is the second most common entrapment of the hand after carpal tunnel syndrome. There are few gradings available for UNEAE and lesser in UNEAW.

The aim of this research is;

1. To create a clinically appropriate ulnar nerve entrapment grading tool to covers both area of entrapment in one research paper.
2. To see the relation of sensory nerve involvement across wrist with the entrapment across elbow and to evaluate its effectiveness in terms of compatibility with previous research, without any invasive tests like needle EMG examination.
3. To identify the lesion below and across wrist in terms of to support the Clinical Physiologist (CP) to grade they properly and also help the consultant in deciding to treat with conservative or surgical treatment.
4. To compare the recording from the First Dorsal Interosseous (FDI) muscles with the Abductor Digiti Minimi (ADM) muscle to see which muscle is more sensitive and shows early changes in ulnar nerve entrapment.

The proposed revised grading system is based on more nuanced, descriptive categories, ranging from "normal", "early", "mild", "moderate" and "severe". To create full grading system of UNEAW and UNEAE some additional category of clinical grading is therefore proposed.

Audience Take Away Notes

- My presentation is interested for those who are involve in recoding Neurophysiology nerve as well as those surgeon, who are involved in hands surgery
- This will give you information to decide a conservative or surgical treatment they can follow
- My presentation will help to those who are interested to join the Neurophysiological field in future
- My grading will give them precise lesion of entrapment in a simpler way and make their job easy

Biography

Salim Hirani is working in Neurophysiology field for more than 30 years. He did his Neurophysiology course from United Kingdom. He works in different country and can speak 4-5 languages. His two paper was already published i.e. Refine Grading of Carpal Tunnel syndrome in BMC journal in 2019 and Neurophysiological Grading tools of Ulnar Nerve Entrapment Across Elbow in Journal of Neurology, Neurological Science and Disorders in 2023.

Dimitrios Giotikas
Mediterraneo Hospital, United Kingdom

Bilateral distraction osteogenesis with intramedullary nails for structure increase. Our early experience

Distraction osteogenesis is a therapeutic principle which has been known for more than six decades. The introduction of elongating intramedullary nails in the last 20 years- initially in the form of mechanical nails (Albizzia® nail, g-nail®) and subsequently in the form of magnetically expanding nails (Precise®, Nuvasive®)- aimed to make the whole treatment process more comfortable and safer for the patient. Despite the initial enthusiasm, it soon became apparent that there were limitations with the use of these devices. The ratcheting mechanism of the mechanical nails was sometimes too painful to activate and the magnetic nails developed lytic lesions in the bone which eventually led to the withdrawal of the magnetically lengthening implants from the market. Concurrently with, and despite, the above, these internal methods of bone lengthening increased the public interest about its cosmetic applications, i.e., the cosmetic body stature increase in otherwise healthy individuals. Cosmetic orthopaedic surgery is a newly introduced, controversial concept in Orthopaedics and has already triggered ethical considerations. In this lecture we present our experience with the use of intramedullary nails for bilateral lengthening in the femur and tibia for cosmetic stature increase. In the last 5 years, we have treated patients from all over the world. We currently have: 33 patients who were treated with bilateral femoral lengthening with magnetic nails (Precise® and Stryde®) with more than 2 years minimum follow-up. 23 patients who were treated with bilateral femoral lengthening with mechanically expanding nails (G-nails®) with more than 1 year minimum follow-up and 14 patients who were treated with bilateral tibial lengthening with magnetic nails or external fixators with more than 2 years follow-up.

The following parameters were calculated for each patient and were analysed with descriptive statistics:

- Percentage change of haemoglobin pre-operatively and on the first and third postoperative day.
- Number of units of blood products that were transfused.
- Visual analogue scale pain score postoperatively at regular intervals.
- Range of movement of hip and knee pre-operatively and postoperatively at regular intervals.
- Desired lengthening goal.
- Lengthening index (Cm/day).
- Percentage success in reaching the set lengthening goal.
- Disability Rate Index (DRI) pre-operatively and at 1 and 2 year post-operatively.
- Cosmetic Procedure Screening Questionnaire (COPS) for Body Dysmorphic Dysphoria pre-operatively and at 1 and 2 year post-operatively.

Complications: In addition to the withdrawal of magnetic nails from the market due to their early biocompatibility issues, we have collected and analysed specific radiological data from 36 patients with Stryde® nails. We looked for signs of osteolysis, or periosteal reactions or combinations of these.

Based on our Experience: All Stryde® nails (now banned from the market) should be monitored clinically and radiologically at regular intervals until implant removal. Implant removal is recommended as early as possible after consolidation of the regenerate. Bilateral femoral lengthening with mechanically expanding nails is an efficient and safe procedure, allowing full weight bearing mobilization from the day of surgery. Close monitoring of the bone healing response, daily home support and increased patient's commitment and compliance are required during the first three weeks of the lengthening period. Implant related symptoms and bone lesions may influence a patient's functional outcome. Patient compliance and management of their expectations is crucial for a successful outcome.

Audience Take Away Notes

- This lecture will provide the audience with knowledge and insights about
- The specific features of mechanical and magnetic nails. Their advantages and limitations in relation to their respective surgical technique, rehabilitation protocol and functional outcome
- The safety profile of each design and obstacles, problems and complications related to their use for distraction histogenesis. Differences from external fixators
- The impact of the biocompatibility issues of Stryde® magnetic nails
- The appropriate patient selection, ethical considerations and personality features of the cosmetic patient in Orthopaedics

Biography

Mr. Dimitrios Giotikas is a leading consultant surgeon in trauma and orthopaedics based in London, UK and Athens, Greece. He specialises in limb lengthening, management of bone infections, nonunions and limb deformities alongside knee surgery, complex orthopaedic trauma and stature increase treatment. In the UK, he privately practises at 10 Harley Street (Consulting Rooms) and Woodlands Surgery from 2012 until 2019. He worked full time for the NHS in some of the most prestigious NHS trusts like Cambridge University Hospitals NHS Foundation Trust, Oxford University Hospitals NHS Foundation Trust and Brighton & Sussex University Hospitals NHS Foundation Trust. Until 2020 he kept an honorary consultant post with Brighton & Sussex University Hospitals NHS Foundation Trust for clinical research. He is highly qualified. He graduated from the Military Medical Academy of the Greek Army and from the Medical School of Aristotelian University of Thessaloniki in Greece, beginning his career as a medical officer in the Hellenic Army. He was deployed in the war zone of Afghanistan and has served as commanding officer of medical units of the Marine special forces of the Greek Army. He then went onto specialise in trauma and orthopaedic surgery, qualifying in 2008, and then began his subspecialisation training in complex trauma and limb reconstruction at Cambridge University Hospitals NHS Foundation Trust. In 2013, he obtained prestigious membership of the Hellenic College of Trauma & Orthopaedic Surgeons, and three years later in 2016 he was awarded a PhD from the Medical School of University of Thessaly, Greece. His research into minimally-invasive techniques in total knee replacement. His PhD paper has received hundreds of citations. He is also a respected name in medical education, and in 2017 he was appointed as an honorary senior clinical lecturer at the Faculty of Medical Science at Anglia Ruskin University in Cambridge. From 2014 until 2018 he was a tutor at Medical School of Cambridge University. He has also been a tutor for international specialty training trauma courses in Yangon, Myanmar. Further to his published PhD research, his work has been published in various peer reviewed journals and he is a member of various professional bodies. These include the British Orthopaedic Association, British Medical Association, British Limb Reconstruction Society, Hellenic College of Orthopaedic Surgeons, the Hellenic Association of Orthopaedic Surgery and Traumatology and AO Trauma International. He is also registered with the General Medical Council since 2011 and has been revalidated most recently in 2021.

Ahmed Enan, MD
Professor of Orthopaedic Surgery, Mansoura Faculty of Medicine, Mansoura, Egypt

Distal metatarsal osteotomy through minimally invasive approach for mild-to-moderate hallux valgus deformity

Background: Hallux valgus is a common condition that affects the forefoot. A large number of procedures are described for managing this condition. The minimally invasive corrective surgery of static disorders of the forefoot is an undisputable progress because of its decreased morbidity with a simplified functional postoperative follow-up. The purpose of our study was to analyze the early results and to present our experience of minimally invasive distal metatarsal osteotomy in correcting mild-to-moderate hallux valgus deformities in adults.

Materials and Methods: A prospective study involved thirty-six feet in 24 patients (12 bilateral), aged between 17 and 52 years (mean age 37.8 years) with mild-to-moderate hallux valgus deformities were managed by the minimally invasive distal metatarsal osteotomies (MIDMO) between January 2020 and December 2021. Pain over the bunion due to footwear was the reason for surgery in all feet. Patients with hallux valgus angle (HVA) more than 17°and less than 40°[first intermetatarsal angle (IMA) ≤ 18°] not responding to a trial of conservative treatment were included. Patients having metatarsophalangeal (MTP) joint osteoarthritis (Grade II and higher), hallux rigidus, rheumatoid arthritis, and those with previous surgery on the hallux were excluded from the study. A percutaneous distal linear osteotomy of the first metatarsal is performed and stabilized by a 2 mm Kirschner wire. Immediate weight bearing was allowed with gauze bandage. The patients were assessed with a clinical and radiographic protocol at a mean of 21 months postoperatively. The hallux metatarsophalangeal- interphalangeal scale proposed by the American Orthopaedic Foot and Ankle Society (AOFAS) was used for the clinical assessment.

Results: The average follow-up period was 21 months (range 12–36 months).The patients were satisfied following 31 (86%) of the 36 procedures. The mean total score on the AOFAS scale was 91.1 ± 6.8 points. At the final follow-up the radiographic assessments of weight-bearing anteroposterior foot radiographs showed a significant change compared with the preoperative values, where the average corrections of hallux valgus angle (HVA) and the first intermetatarsal angle (IMA) achieved was 13.1° and 5.4°, respectively ($p < 0.001$). All osteotomies healed and there were no cases with nonunion, malunion, overcorrection, transfer metatarsalgia or osteonecrosis observed.

Conclusions: Minimally invasive distal metatarsal osteotomy offers an effective, safe and simple way for the correction of a painful mild-to-moderate hallux valgus deformity. Clinical and radiographic findings showed an adequate correction of the deformity. The clinical results appear to be comparable with those obtainable with traditional open techniques.

Key words: Bunion; hallux valgus; metatarsalgia; minimally invasive osteotomy

M.E. Nazeer[1*], Jagannath Kamath[2], Harshit Shetty[2], Harish Maheshan[3], Manesh Kumar Jain[3], S.Goel[1]

[1]Department of Trauma and Orthopaedics, KIMS HEALTH Trivandrum, India
[2]Department of Orthopaedics, Kasturba Medical College, Mangalore, India
[3]Department of orthopaedics, Ganga Hospital, Coimbatore, India

Comparative analysis of functional outcomes following operative or non-operative management in displaced extra-articular distal radius fracture

Background: Fractures of the distal radius are highly prevalent and constitute a significant proportion of injuries encountered in routine clinical practice, accounting for approximately 4% of emergency department cases. However, despite their frequency and the potential consequences of suboptimal management, the optimal treatment approach remains uncertain due to the lack of substantial high-level evidence.

Aim: The primary objective of this study was to compare the functional outcomes between operative and conservative management approaches for extra-articular distal radius fractures.

Materials and Methods: A prospective cohort study was conducted from November 2018 to September 2020, enrolling patients aged 18 to 65 years with displaced extra-articular distal radius fractures. The patients were assigned to either surgical intervention or conservative treatment. After a one-year follow-up period, the functional outcomes were assessed using the Disabilities of the Arm, Shoulder, and Hand (DASH) questionnaire and the Modified Mayo Wrist Score.

Results: Upon evaluation at the 12-month mark, it was observed that patients who underwent operative management exhibited significantly superior functional and clinical outcomes, as evidenced by notably higher Mayo scores compared to patients managed conservatively through casting.

Conclusions: Patients treated with volar plate fixation demonstrated an earlier resumption of daily activities compared to those managed with K-wire fixation or conservative treatment. Hence, the study findings support the conclusion that volar plate fixation yields significantly better clinical and functional outcomes compared to alternative treatment modalities.

Keywords: Distal radius fractures, extra-articular fractures, operative management, conservative management, functional outcomes.

Audience Take Away Notes

- Despite their high incidence and potential consequences of suboptimal management, there is a lack of high-level evidence regarding the best treatment approach for these fractures
- The results showed that patients treated operatively had significantly better functional and clinical outcomes compared to those managed conservatively
- Specifically, patients treated with volar plate fixation had an earlier return to daily activities compared to those managed with K-wire fixation or conservative treatment
- These findings highlight the importance of considering operative management for optimal outcomes in patients with these fractures

Biography

Mr. Nazeer obtained his MBBS degree from Travancore Medical College, India, followed by a Master of Surgery (MS) in Orthopaedics from Kasturba Medical College, India. He further honed his expertise through a prestigious fellowship in Arthroplasty and Sports Medicine at KIMSHealth Trivandrum, India. He successfully completed the Membership of the Royal College of Surgeons (MRCS) from RCS Edinburgh, UK. Currently serving as a Registrar at Cumberland Infirmary Carlisle.

Dr. Raheel Shakoor Siddiqui[1*], Calvin Mathias[1], Manikandar Srinivas Cheruvu[2], Bobin Varghese[1]

[1]Department of Trauma & Orthopaedic Surgery, New Cross Hospital, The Royal Wolverhampton NHS Trust Wolverhampton, West Midlands, United Kingdom
[2]Department of Trauma and Orthopaedic Surgery, Royal Stoke University Hospital NHS Trust, Stoke, West Midlands

Ipsilateral heterotopic ossification in the knee and shoulder post long covid-19 requires prolonged rehabilitation

A 58 year old gentleman presented to accident and emergency at district general hospital with worsening shortness of breath and a non-productive cough over a period of five days. He was initially admitted under the medical team for suspicion of SARS-CoV-2 (COVID-19) pneumonitis. Subsequently, upon deterioration of observations and a positive COVID-19 PCR, he was taken to intensive care for invasive mechanical ventilation. He required frequent proning, inotropic support and was intubated for thirty-three days. After successful extubation, he developed myopathy with limited range of motion to his right knee and right shoulder. Plain film imaging of these limbs demonstrated novel formation of heterotopic ossification without any precipitating trauma or surgery. Current literature demonstrates limited case series portraying heterotopic ossification post COVID-19. There has been negligible evidence of heterotopic ossification in the ipsilateral knee and shoulder post prolonged immobility secondary to a critical illness. Physiotherapy and rehabilitation post intensive care can be prolonged due to formation of heterotopic ossification around joints. Prolonged hospital stays may lead to a higher risk of developing infections of the chest, urine and pressure sores. The raises the question whether a severe systemic inflammatory immune response from SARS-CoV-2 virus results in histopathological processes leading to formation of heterotopic ossification not previously seen, requiring prolonge physiotherapy.

Audience Take Away Notes

- Literature on novel heterotopic ossification post COVID-19
- Imaging findings of novel heterotopic ossification
- Recognition and management of heterotopic ossification
- Prolonged immobility with a severe systemic immune response may lead to novel heterotopic ossification of joints requiring prolonged physiotherapy and rehabilitation

Biography

Dr. Raheel Siddiqui studied medicine and graduated with an MB BCh BAO, LRCSI and LRCPI from the Royal College of Surgeons in Ireland, Bahrain. He has completed foundation programme training in the West Midlands and subsequently spent a year as a clinical fellow in trauma and orthopaedic surgery within the region. He has completed a MSc in Orthopaedic Trauma Science at Queen Mary University of London, Barts & The London School of Medicine and Dentistry. He is currently an orthopaedic themed core surgical trainee in Birmingham, United Kingdom and is aiming towards national selection for trauma and orthopaedic surgery.

Sari Al Hajaj*, Dipak Karavadara, Balasubramaniam Guhan
Trauma & Orthopaedic Department, Kettering General Hospital, Kettering, Northamptonshire, United kingdom

Providing antibiotic prophylaxis to patients with hip fractures in a district general hospital. Finding a solution to a problem

Background: To prevent infections in orthopaedic surgeries, one dose of IV cefuroxime or flucloxacillin with gentamicin is recommended by NICE. Teicoplanin or vancomycin with gentamicin can be used if needed. Administering antibiotics within 24 hours of surgery reduces the risk of postoperative wound infections and improves outcomes. This project aims to ensure proper antibiotic prophylaxis for surgical patients with proximal femur fractures.

Methods: This was a retrospective quality improvement project involving patients admitted with proximal femur fractures at Kettering General Hospital between March and June 2022. We collected data from the internal hospital database (System C, CareFlow) and patient notes.

Results: Out of 101 patients, intraoperatively 90% (n=91) patients received Teicoplanin and Gentamycin, 4.9% (n=5) patients received Cefuroxime and 2.1(n=3) received Teicoplanin alone. Anaesthetic charts were missing for two patients. Post-operatively, 92% (n=72) received Teicoplanin, 3.9% (n=4) received Cefuroxime and 0.9% (n=1) received co-amoxiclav. Only 76% (n=77) received appropriate twenty-four post-operative antibiotic cover. Teicoplanin was not adjusted to patient's weight or creatinine clearance. 1 patient had postoperative surgical wound infection.

Conclusions: Patients with proximal hip fractures are currently receiving varying antibiotic prophylaxis regimes due to a lack of clear guidance. Additionally, prescriptions were being written on paper in theatres and electronically on the wards, causing a potential communication gap regarding the appropriate timing of the next dose. In order to tackle these concerns, our suggestion is to create a poster outlining an antibiotic prophylaxis guide, which we have placed in our theatres. Furthermore, we advise that the operating surgeon should prescribe all required doses on electronic records.

Audience Take Away Notes

- Inadequate communication can have a negative impact on the quality of care provided to patients
- Understanding the Significance of Prophylactic Antibiotics in hip surgeries
- Surgeons must ensure patients receive prescribed antibiotics after surgery

Biography

Sari AL Hajaj, hailing from Iraq and having lived and studied in Jordan. He is graduated from the University of Jordan in 2019 with MD degree. After completing his internship and PLAB exam, he joined the NHS. Recently, he clinched the most outstanding TG ST1-3 award at the 2022-23 KGH Trainee & Trainer Professional Clinical Excellence Awards. He is passionate about trauma and orthopaedic and research field. At the moment, he is involved in two national clinical trials and one local trial. Additionally, he is currently working towards obtaining a postgraduate certification in Medical Education from the University of Warwick.

Dr. Said Osman Dahir, MBBS

Department of Orthopedics and Trauma, Edna Adan University Hospital and Hargeisa Government Hospital, Hargeisa, Somaliland

To determine outcome of the first sign nail (Intramedullary nail) in Somaliland (North Somalia)

I will talk about the first intramedullary nail in Somali land. In Somaliland we used to treat plating for adult both tibia and femur shaft fractures but since March 2019 up to now. Hargeisa group hospital was the first hospital in Somalia to done intramedullary nailing (sign nails) thanks to sign international for their donation to instruments and sustainability for the nail availibity. I will talk number of cases we have done since March 2019 to September 2022. Their outcome, age, sex and cause of there trauma.

Audience Take Away Notes

- Audience will learn doing inrammedullary nailing without c-arm (flourocopy)
- Audience will learn trauma care in very low income country like Somaliland
- How can make I a change in poor country

Biography

Dr. Said Osman Dahir studied Orthopedic and Trauma surgery at Addis Ababa University, Ethiopia and graduated as specialist (MD) orthopedic in oct 2021. After, He came back to his country Somaliland as the third orthopedic surgeon of the country Somalia of 15 million. He works at one of the referral hospitals for trauma and orthopedic in his country. As other part of developing country, we overwhelmed with trauma cases. He want to sub specialize in orthopedic trauma during his follow ship. His country is very fertile for research if they get grants and support.

Dr. Mitchell Murray*, Prof Bill Walsh, Dr. Tian Wang, Dr. Matthew Pelletier, Dr. Vedran Lovric, Dr. William Parr, Dr. Rema Oliver

Surgical Orthopaedic Research Lab Sydney NSW, Australia

Additive manufacturing and its role in optimising mechanical and antimicrobial properties of orthopaedic implants

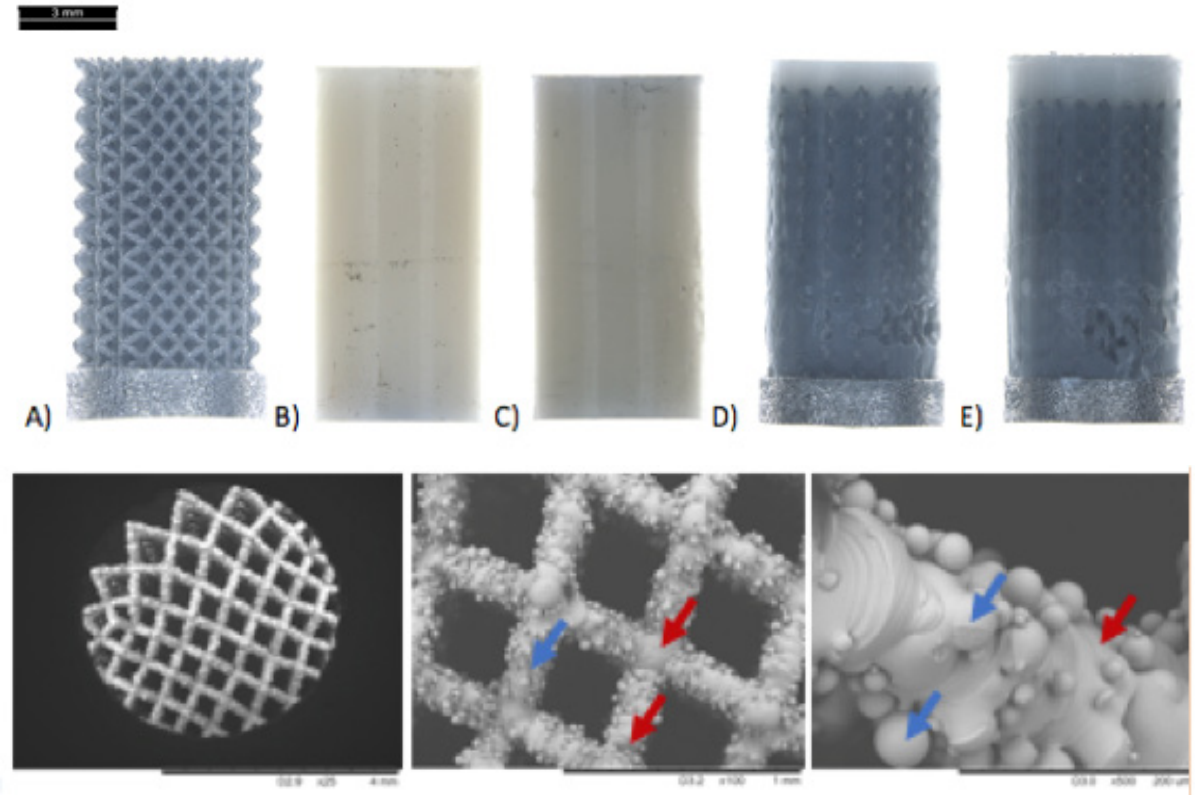
Background: The demand for improvement in orthopaedic implants is growing in line with an ageing population. An ideal prosthetic should have proficient biocompatibility, durable anti-infective efficiency, allow osseointegration and maintain desirable mechanical characteristics.

Aims: This study investigated 3D printed titanium lattice implants and the effect of augmenting these lattices with antibiotic impregnated bone cement. The effect on the mechanical and antimicrobial properties was tested to determine the viability of these novel implants for future clinical utility.

Methods: Twenty lattice dowels were designed and printed with additive manufacturing technology (Group 1). Simplex P (Group 2) and 2.5 % Tobramycin impregnated Simplex P (Group 3) was hand mixed into dowels and the physical characteristics measured. These experimental groups were then tested against samples of bone cement with and without 2.5% Tobramycin added to the titanium lattices (Groups 4 & 5). Scanning electron microscopy (SEM), stereozoom and micro CT qualitative geometrical analysis and descriptive statistics of the samples was completed. Mechanical compressive strength was tested and stiffness, peak strength and energy to failure were explored. Antibiotic elution from samples was tested at 1hr, 24hrs, 72hrs and 1 week time points.

Results: Physical properties via SEM, Stereozoom and Micro CT were evaluated and demonstrated a mean cement uptake into the lattice of 89% (range 60-100%). Regarding maximum force in mechanical testing, Group 1 (914 N) was significantly ($p<0.05$) inferior to Group 3 (2736 N) and Group 2 (2687 N) which were inferior to Group 4 and 5 (3433, 3907N). Stiffness of samples followed a similar pattern with Group 1 (1985 N/mm) significantly inferior to paired Groups 2 (5632 N/mm) and Group 3 (5485 N/mm) and Group 4 (8397 N/mm) and Group 5 (7099 N/mm). In relation to mean of energy to failure, Group 1 (1764 Nmm) was greater than Group 2 (1261 Nmm) and 3 (1299 Nmm) although this did not reach statistical significance. Elution characteristic results demonstrated no detectable tobramycin by the experimental method hence further statistical analysis for intergroup differences was not completed. This finding may represent a detrimental effect of antimicrobial release if incorporated into the novel lattice design.

Conclusion: Overall the utilisation of AM to create a novel lattice structure demonstrated mechanical change when augmented with antibiotic loaded bone cement (ALBC). By optimising the findings of this paper and building on this design, deficits of current implant designs can be addressed. Further investigation into the utilisation of the lattice design as well as its utility as a vehicle for peripheral therapeutic delivery are the next steps required to transition this technology to clinical use.



Examples of Figures from the presentation. Stereo-zoom and scanning electron microscopy.

Audience Take Away Notes

- Clearer understanding of additive manufacturing technology such as 3D printing and the inevitable impact it is already having and will continue to have in the future of orthopaedic design
- How to best integrate the use of this technology, including the challenges, and potential ways to overcome these barriers to widespread use
- This presentation and research is a simple example and reflection of this growing field of research and this presentation will increase knowledge of how each individual can contribute to the improvement of implant design utilizing similar technologies throughout our careers
- 3D printing technology may solve challenges associated with anatomical variation, bone loss from tumour and major trauma and be a vehicle for deliverance of other medications such as antibiotics, TXA and analgesia. This research provides a foundations for the next steps in implant design and investigation

Biography

Dr. Mitchell Murray is an Australian born Orthopaedic registrar and Physiotherapist who has paired his surgical and rehabilitative expertise with a passion for research and innovation. He graduated Physiotherapy in 2010 and spent time developing skills in the UK and Australia before studying medicine to graduate in 2019. He the completed a Masters of Surgery at the University of Sydney in 2022 with a dissertation that inspired the research presentation to be discussed today.

BOOK OF ABSTRACTS

magnus Group

24-26 AUGUST

DAY 01

POSTERS

JOINT EVENT ON

ORTHOPEDICS AND PHYSICAL MEDICINE

Dr. K Palaniappan
Department of Rehabilitation Medicine, Tan Tock Seng Hospital, Singapore

Descriptive case study of an atypical fracture presentation in a postmenopausal lady with groin pain

A descriptive case study of a postmenopausal osteoporotic Asian lady who presented with prodromal groin pain and found to have a rare, atypical femoral fracture while on a background of chronic antiresorptive osteoporosis therapy of bisphosphonates and then denosumab. This demonstrates the following possible risk factors, such as Asian ethnicity, use of certain medications (e.g. denosumab and bisphosphonates) and femoral geometry, predicting a high risk of sustaining an atypical fracture, differential diagnoses to consider, major and minor criteria for diagnosis and discussion on both conservative and surgical management of an atypical fracture. In addition to stopping bisphosphonate therapy, avoidance of high impact exercises and gradual return to full weight bearing after surgical fixation of an atypical femoral fracture, the patient was able to successfully rehabilitate to her premorbid function. The study also urges the need to screen for contralateral limb atypical fracture and suggests preventive management of its occurrence through prophylactic intramedullary nailing of contralateral femur. The study takes into consideration of patients with osteoporosis who are at higher risk of typical fractures (e.g. history of fracture while on osteoporosis therapy, hip T score –2.5 or lower, older age of 70 years old and above), other strong risk factors for fracture such as smoking, alcohol use, corticosteroid use, rheumatoid arthritis and family history, WHO FRAX fracture risk score above the country-specific threshold) who may benefit from continuing antiresorptive osteoporotic therapy despite the small risk of sustaining an atypical fracture. This case highlights the need to balance between fracture reduction and sustaining an atypical fracture from continuing antiresorptive osteoporotic treatment.

Audience Take Away Notes

- The audience will be able to understand the importance of screening for atypical fractures based on the risk factors highlighted in the case study
- This will help to increase the awareness of complications of antiresorptive osteoporotic treatment especially in the rising aging population with prevalent osteoporosis
- This study will also be useful in orthopaedics, geriatric medicine and family medicine faculty
- This study explains a practical solution to management of atypical fractures and make the doctor's job more efficient

Biography

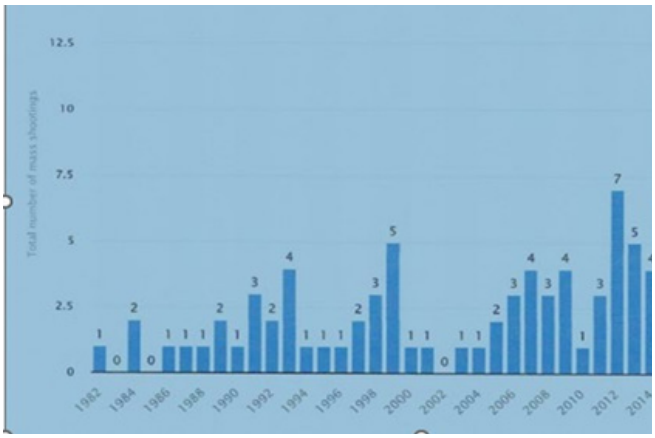
Dr. K Palaniappan studied MBBS at the National University of Singapore and graduated in 2000. He then completed his MRCP (UK) in 2006 and became a rehabilitation medicine specialist in 2011. After one year fellowship in geriatric rehabilitation supervised by Professor Ian Cameron at the Ku-ring-gai Hospital, Sydney, he is running a fracture liaison clinic in Tan Tock Seng Hospital Rehabilitation Centre.

Dr. Cavin Staff[1]*, Dr. Orhue Enoma[2]

[1]Rural Clinical School, Bundaberg, University of Queensland, Australia
[2]SHO Emergency Dept. Bundaberg Hospital, Queensland, Australia

"Gun massacres! Public health issue. No guns! No massacre!"

The massacre in Port Arthur, Tasmania, in 1996, where 35 civilians were killed and 23 others wounded, represents a dramatic and historic turning point relating to Gun Violence in Australia. Since then, 27 years later following drastic measures by John Howard's Government to reduce, control and buyback the number of guns in public circulation, there have been ZERO massacres or mass shootings which have gained public attention. (A mass killing may be defined as 4 or more victims at one shooting excluding the perpetrator). The relevance of this fact to clinical, orthopaedic, social, political and huge costs to communities and country, is the approach adopted by Australia to prevent the cause, rather than try to cure the results of gun violence. Australia regards this problem as a Public Health Issue! By contrast, the same cannot be said for Gun Violence in the United States, where massacres have increased exponentially.



Standout events include Sandy Hook Elementary School, Connecticut, in 2012, where 20 children and 6 teachers were killed, and in Robb Elementary School Uvalde Texas where 19 children and 2 teachers were killed. These are just to mention a few. America has a very strong and robust gun lobby strongly supporting the right of citizens to bear arms.

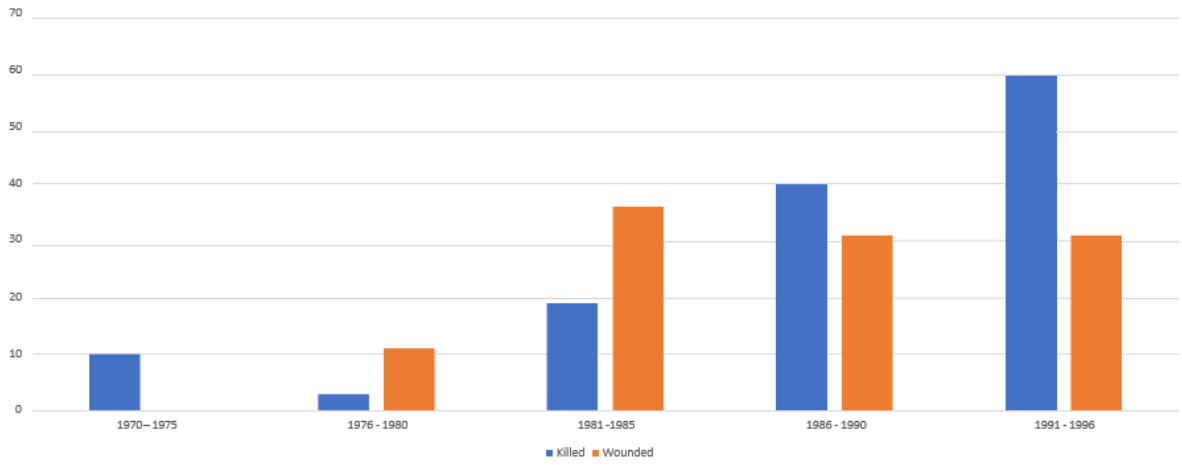
Their approach is regarded as a Criminal Justice Issue as opposed to a Public Health Issue.

Aim or Objective: We aim to quantify the ultimate costs of gun violence relating to direct hospital costs, costs to the Taxpayer, and compare outcomes in USA versus Australia. In the 10 years prior to the introduction of their laws, Australia was on a similar trajectory as the USA towards massacres.

Public Massacres in Australia up until 1996.

Port Arthur, Tasmania.

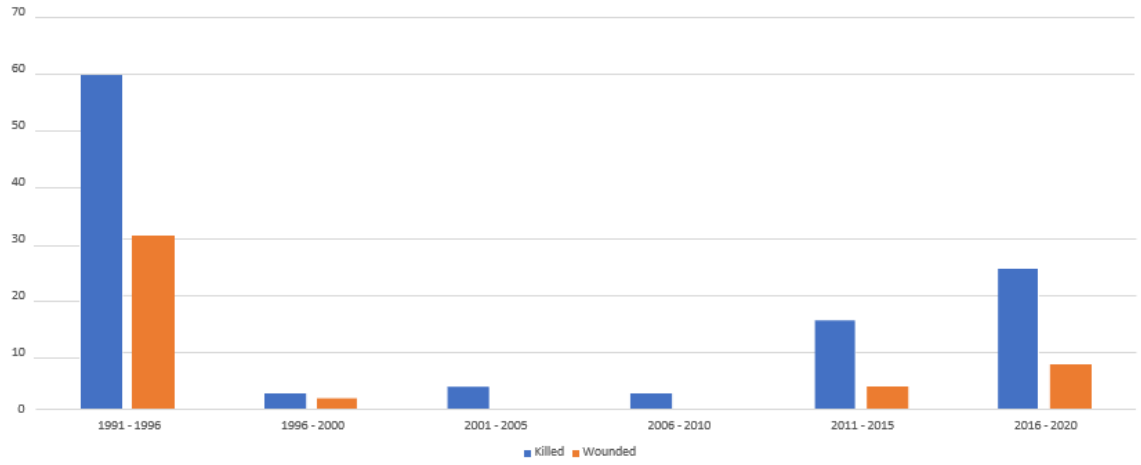
(35 civilians killed and 23 others wounded)



There had been at least 12 massacres, including the Hoddle Street massacre, in Melbourne (9th August 1987, with 7 people killed and19 injured), the Queen Street massacre in Melbourne (8th December 1987, with eight deaths and 5 injured), and Strathfield massacre in NSW (17th August 1991 with eight dead and seven injured), culminating in Port Arthur massacre in 1996.

After 1996, following gun control laws, the Australian policy appears to have been monumentally successful.

Public Massacres in Australia since 1996

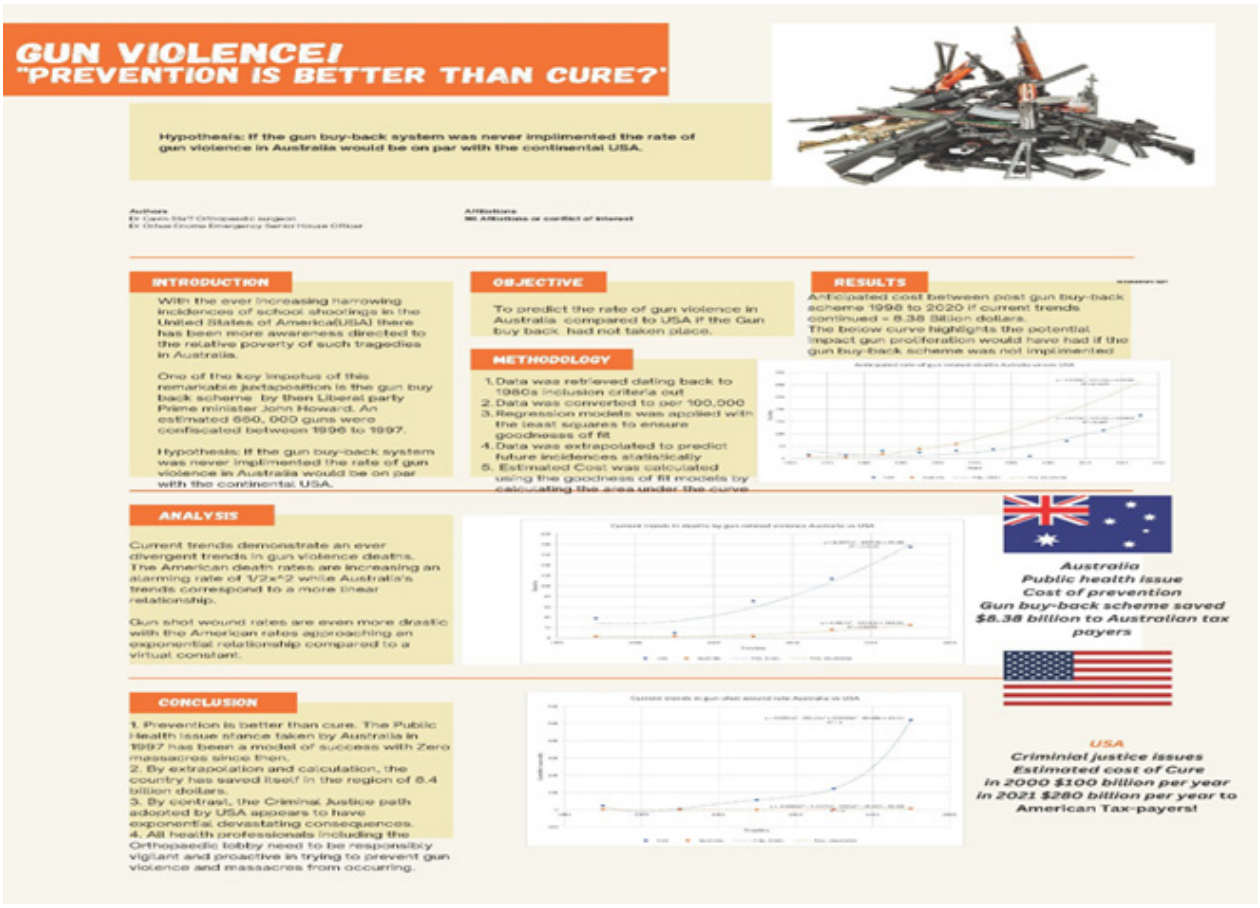


In 2000, Gun violence cost America an estimated $100 billion per year (Cook, Philip. J: Ludwig, Jens 2000. Gun Violence, the real Costs.)

In 2021, Gun violence cost America an estimated $280 billion per year ("The Economic costs of Gun Violence. Everytown Research. Retrieved June 7th, 2021)

Our hypothesis intends to quantify by extrapolation, how many deaths and injuries might have resulted and have been avoided; and how much money it would have cost the Public and Health Systems of Australia had John Howard's policies of gun restriction not taken place.

Our analysis estimated that anticipated costs incurred between post gun buy-back scheme 1998 to 2020 if current trends continued could have totalled 8.38 billion dollars.



Audience Take Away Notes

- Prevention is better than cure. The Public Health Issue stance taken by Australia in 1997 has been a model of success with Zero massacres since then
- By extrapolation and calculation, the country has saved itself in the region of 8.4 billion dollars
- By contrast, the Criminal Justice path adopted by USA appears to have exponential devastating consequences
- All health professionals including the Orthopaedic lobby need to be responsibly vigilant and proactive in trying to prevent massacres from occurring

Biography

Dr. Cavin Staff is a retired Orthopedic surgeon now living in Australia. He graduated in Salisbury Rhodesia in 1970. Then in 1986 he obtained an Edinburgh Fellowship. He was Head of the 120 bed Orthopaedic Unit at Frere Hospital, Eastern Cape South Africa from 1990 until 2006. Since then he has been employed at Bundaberg Base Hospital in Queensland Australia as a Senior Medical Officer, and then as an Academic Lead with University of Queensland, where he continues to lecture Orthopaedics and participates with the UQ Research team.

Tzu-Chieh Lin[1*], Wen-Miin Liang[2]

[1]Department of Emergency Medicine, Taichung Veterans General Hospital, Taichung, Taiwan
College of Fine Arts and Creative Design, Tunghai University, Taichung, Taiwan
[2]Department of Health Services Administration, China Medical University, Taichung, Taiwan

Predictors and cost-effectiveness of 1-year postoperative mortality and readmission of hip fracture in the elderly: A comparison of different treatments

Hip fractures, especially Femoral Neck Fractures (FNF), are common and have high mortality rates within a year, causing significant financial and social costs. We conducted a retrospective cohort study using competing risk analysis on FNF patients aged 60 or above who underwent primary hemiarthroplasty or internal fixation. The internal fixation group had significantly lower 1-year mortality rates (10.46%) than the arthroplasty group (11.08%), with higher mortality hazard ratios in men, increasing age, and Charlson Comorbidity Index (CCI). Surgical complication incidence was 11.13% and 7.57%, with a higher hazard ratio in the internal fixation group and with increasing CCI and in men. Medical complication rates at 90-day were 6.33% and 7.04%. The arthroplasty group spent over 197,677.82 USD in medical costs, leading to a reduction of 1 person-year in survival time and a higher incremental cost-effectiveness ratio.

Audience Take Away Notes

- This article compares the outcomes and cost-effectiveness of different types of surgery for femoral neck fractures in Taiwan. The study found that patients treated with internal fixation had a lower mortality rate and lower incidence of surgical complications, but a higher rate of medical complications. Men, advanced age, and higher Charlson Comorbidity Index were risk factors for mortality and readmission. The incremental cost-effectiveness of arthroplasty was superior only in programs with surgical complications. This information can help healthcare professionals and policymakers make informed decisions about the most effective and cost-efficient treatments for hip fractures in the elderly
- This research on hip fracture treatments in the elderly in Taiwan provides valuable information for health insurance systems and medical practitioners worldwide. The study compares the outcomes and cost-effectiveness of different treatments, providing insights into the best course of action for these types of fractures
- The results of the study can help health insurance systems make informed decisions on coverage and reimbursement policies for hip fracture treatments. It also provides medical practitioners with information on the predictors of mortality, readmission rates, and reoperation rates, allowing them to provide better care for their patients
- Other faculty can use the methodology and findings of this study to expand their research and teaching in the field of hip fracture treatments. It can also serve as a reference for future studies on similar topics
- Overall, this research offers practical solutions to the medical burden of hip fractures in the elderly, with potential benefits that include improved patient outcomes, reduced healthcare costs, and increased efficiency in the healthcare system

Biography

Dr. Tzu-chieh is a medical professional from Taiwan, with specializations in Orthopedic and emergency medicine. He pursued his education at China Medical University, Taiwan, and received a Master's degree in Epidemiology from National Taiwan University in 2011. He recently completed his PhD in 2022, also from China Medical University. In 2021, he was appointed as an Adjunct Professor at Tunghai University, Taiwan.

Se Joon Kim, M.D*, Hee Young Lim, M.D, Kyung Eun Nam, M.D. PhD

Department of Rehabilitation Medicine, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, Seoul, Republic of Korea

Pulmonary rehabilitation in patients with noninfectious pulmonary complication after hematopoietic stem cell transplantation

Introduction: Bronchiolitis obliterans syndrome (BOS) and organizing pneumonia(OP) are two representatives of subacute or late-onset noninfectious pulmonary complications in patients undergoing hematopoietic stem cell transplantation (HSCT). Although high-dose corticosteroids are used as the main treatment, there is no standardized treatment. Previous studies have shown that comprehensive pulmonary rehabilitation (PR) is effective in improving respiratory symptoms and quality of life in chronic lung disease such as chronic obstructive pulmonary disease or interstitial lung disease. We would like to share the experience of performing PR in patients with noninfectious pulmonary complications after HSCT.

Method: We reviewed patients with BOS or OP after HSCT referred to the rehabilitation clinic for PR from respiratory physicians. A total of 9 patients who underwent PR in an outpatient setting for more than 3 months or who received intensive inpatient PR were selected. The PR program comprised a total of 60 minutes including 5 minutes of warm-up exercise, 20 minutes of chest mobilization, breathing retraining, resistive exercise, 30 minutes of aerobic exercise, and 5 minutes of cool-down exercise. The intensity of the aerobic exercise was gradually increased to reach rated perceived exertion (RPE) scale 12~13. During the course of PR, the 6 minutes walking test (6MWT) and the pulmonary function test (PFT) were measured.

Result: The group of 9 patients included 7 BOS patients and 2 OP patients. The medical records and functional results of 9 cases are presented in Table 1. 8 outpatients (case 1~8) received PR once or twice a week and one inpatient (case 9) received PR every day for 2 weeks. 6MWT outcomes showed improvement after PR. (Figure 1) In 2 cases, there was a transient decrease in walking distance due to medical problems (2 hospitalizations of pneumothorax for case 1 and operation of femur fracture for case 6), but thereafter, recovery of exercise tolerance showed with persisting PR. The average 12 meters monthly improvement at 6MWT was measured in patients of outpatient settings without medical problems. In addition, as long-term rehabilitation treatment was carried out, continuous improvements in exercise tolerance were shown. 6MWT showed improvement regardless of the change in PFT in BOS patients. On the other hand, improvements of exercise tolerance were simultaneous with the improvement of PFT in OP patients.

Discussion: We found out that PR has a possibility as an effective non-pharmacologic treatment in patients with BOS and OP. Notably, in some cases, there was an improvement not only in exercise tolerance but also in lung function. Further research to evaluate the effects of PR in patients with noninfectious pulmonary complications after HSCT is demanded.

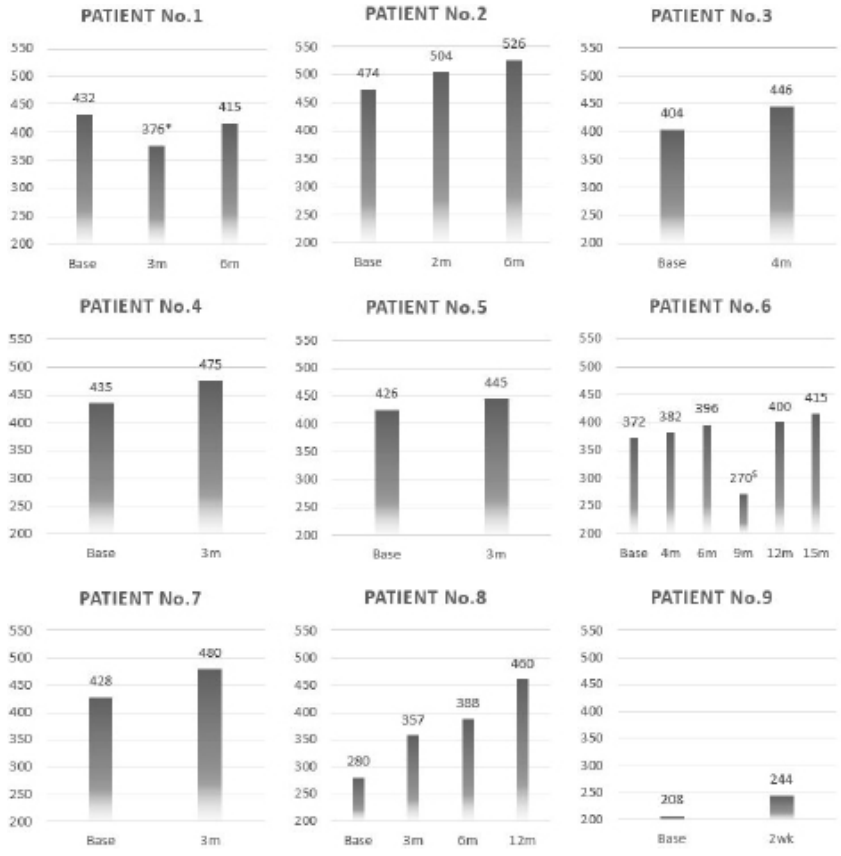
Table 1. Demographic and functional records of 9 cases * 2 hospitalizations due to pneumothorax

Case No.	S/A	Hematologic Diagnosis	Lung disease	Time from HSCT to PR (month)	Time	6MWT (m)	FVC (L)	FEV1 (L)	Ratio (%)	PR Frequency
1	F/37	CML	BOS	132	Baseline	432	1.82	1.55	84.8	twice a week
					3m*	376	1.76	1.53	87.1	
					6m	415	1.57	1.38	87.8	
2	M/51	MDS	BOS	113	Baseline	474	2.24	1.12	49.9	twice a week
					2m	504	2.38	1.08	45.1	
					6m	526	2.2	1.06	48.2	once a week
3	M/63	MDS	BOS	12	Baseline	404	2.63	1.51	57.7	twice a week
					4m	446	2.68	1.51	56.4	
4	M/21	AML	BOS	12	Baseline	435	2.97	1.2	40.5	twice a week
					3m	475	-	-	-	
5	F/23	MDS	BOS	33	Baseline	426	2.53	1.34	52.9	once a week
					3m	445	2.44	1.3	53.2	
6	F/51	ALL	BOS	15	Baseline	372	2.4	0.72	30	twice a week
					4m	382	2.47	0.67	27	
					6m	396	-	-	-	
					9m$	270	-	-	-	
					12m	400	2.44	0.69	28	
					15m	415	-	-	-	
7	M/23	AML	BOOP	11	Baseline	428	1.76	1.54	88.1	twice a week
					3m	480	1.87	1.76	94.3	
8	F/50	ALL	BOOP	29	Baseline	280	0.84	0.76	90.4	twice a week
					3m	357	0.96	0.84	87.9	
					6m	388	1.26	1.04	83	
					12m	460	1.36	1.13	83.3	
9	M/32	AML	BOS	13	Baseline	208	1.77	0.68	38.4	daily (admission)
					2wk	244	-	-	-	

* 2 hospitalizations due to pneumothorax

$ Surgery of femur fracture

Figure 1. 6MWT(m) results of 9 cases through pulmonary rehabilitation.



* 2 hospitalizations due to pneumothorax

$ Surgery of femur fracture

Audience Take Away Notes

- Based on the article, the audience will be able to learn about the effectiveness of pulmonary rehabilitation as a non-pharmacologic treatment option for patients with noninfectious pulmonary complications after hematopoietic stem cell transplantation
- The audience can use the information presented in the article to gain a better understanding of the potential benefits of PR for patients with BOS or OP after HSCT and to guide future research and treatment decisions

Biography

Mr. Kim graduated from Korea University with a degree in life science. He then pursued his medical degree at the College of Medicine at The Catholic University of Korea. Currently, he is affiliated with the Department of Rehabilitation Medicine at Seoul St. Mary's Hospital.

BOOK OF ABSTRACTS

magnus Group

24-26 AUGUST

DAY 02

KEYNOTE FORUM

JOINT EVENT ON

ORTHOPEDICS AND PHYSICAL MEDICINE

Minimally invasive approach to adult spine deformity using minimally invasive stabilization (MIST) technique

Minimally Invasive Spine Surgery (MIS) was not applicable to the adult patients with spinal deformity having a worsened global balance on the sagittal plane. Recently, XLIF has enabled a frontal approach to dissociate intervertebral disc and minimally invasive insertion of cage with a frontal angle of 10 degrees in all cases except for L5/S. In this study, we present our minimally invasive approaches for the treatment of spinal deformity in adult patients admitted to our hospital.

Subjects and Methods: Fifty-eight patients (26 men and 32 women, average age 72.6 years) with spine deformity due to kyphosis or scoliosis who underwent MIS using XLIF were studied.

Results: Total blood loss was the least (662 g). The average bed rest period was 3.2 days. X-ray evaluations before and after operation revealed that 1) SVA was improved from 12.3˚ to 6.4˚ 2) LL was improved from 12.5˚ to 43.8˚. 3) PT was improved from 39.7˚ to 24.5˚. 4) PI-LL became 10.1˚.

Discussion: Minimally invasive approach is very important in corrective spinal fusion surgery for the treatment of spine deformity because most patients are old. Clinical outcomes, however, are not satisfactory even though minimal invasiveness is achieved using PPS if adequate correction cannot be obtained. We divided the patients in 3 groups and applied PPS in different ways to achieve similar clinical outcomes to open surgery. We could attain satisfactory correction in every group.

Conclusion: Satisfactory correction and minimal invasiveness in spinal fusion surgery for the treatment of adult spine deformity is possible using XLIF and PPS if we apply this method to appropriate patients.

Takanori Saito*, Shinichiro Taniguchi, Muneharu Ando, Takashi Adachi, Masayuki Ishihara, Yoichi Tani

Department of Orthopedics, Kansai Medical University, Japan

Biography

Prof. Takanori Saito graduated from Kansai Medical University in 1983 and after working at the university hospital for few years he entered the graduate school, Physiology, and experienced the clinical fellows, department of Neurosurgery, at the University of Iowa. After coming back, he was appointed a director in 2007 and professor in 2009 at the department of the Orthopedic Surgery, Kansai Medical University Takii Hospital. And currently, he has been appointed a professor and chair in 2017 and vice-president in 2020 at Kansai Medical University Hospital.

Revolutionizing bone grafting: A viable tissue engineered bone graft set to replace bone autografting for treating critical-sized bone defects

Every year, millions of bone grafts fail to reconstruct large bone deficiencies or otherwise due to insufficient blood supply, infections, or mechanical instabilities. In addition to allografts and bone substitutes, bone autografts are applied in nearly one-third of all limb bone grafting procedures, often leading to considerable donor-site morbidities and other complications resulting in limited success. Bone tissue engineering has been widely investigated in response to the limitations of bone grafts, albeit limited, in clinical trials, for treating minor bone defects. To address larger and more complex bone defects, Bonus Biogroup has developed BonoFill, an injectable, autologous bone graft that employs a bone-like mineral scaffold to deliver a 3-dimensional culture of regenerative cells that support bone regeneration, vascularization, and graft integration. These cells are derived from mesenchymal stromal and other cells obtained from the patient's adipose tissue. The cells are grown on the scaffold and professionalized to achieve various levels of osteogenic commitment, allowing them to retain a broad range of therapeutic capabilities. A Phase II multicenter study, led by Prof. Nimrod Rozen, is currently underway to evaluate the efficacy and safety of BonoFill for treating critical-sized bone defects in the limbs that cannot self-heal and failed other treatment options. BonoFill is being tested in this trial on defects up to 7.5cm long in both long and short bones, including extra-articular comminuted fractures, extra- and intra-articular defects/gaps, and nonunion fractures that have failed standard surgical treatments. After successful preclinical and earlier clinical studies, the current trial is evaluating BonoFill's ability to achieve a strong bridge across the bone gap and the patient's ability to bear weight, in addition to safety endpoints, during a one-year follow-up period. Patients who had been suffering from years of disabilities and had exhausted all other treatment options have already shown remarkable recovery after receiving BonoFill, providing strong evidence of its safety and efficacy. Case studies will be presented showcasing such patients who had previously undergone up to three failed surgical interventions, including those with critical-sized defects in the tibia exceeding 5cm, nonunion fractures of the radius and ulna, and massive bone loss of more than 40cc due to bone resection for valgus knee correction. After receiving BonoFill treatment, these patients reported complete recovery and a return to normal function. An additional Phase II clinical trial, led by Dr. Ephraim Tzur, is currently underway to test BonoFill for treating maxillofacial bone deficiencies. Enrollment for this study is almost complete. So far, twenty-five bone deficiencies have been treated and analyzed, demonstrating a perfect safety profile and significant bone regeneration allowing subsequent reconstructive procedures six months from the transplant in about 90%

Dror Ben David[1], Atara Novak[1], Tomer Bronshtein[1], Vered Kivity[1], Shai Meretzki[1], Benjamin Bernfeld[2], Ephraim Tzur[3], Nimrod Rozen[4]*

[1]Bonus Biogroup, Haifa, Israel

[2]Carmel Medical Center, Haifa, Israel

[3]Private Practitioner, Kfar Saba, Israel

[4]Ha'Emek Medical Center, Afula, Israel

Biography

Professor Nimrod Rozen is a distinguished Israeli physician specializing in orthopedics, having received his Medical Degree and Ph.D. from the Technion. He furthered his expertise by completing a subspecialty in complex trauma fractures at St. George's Hospital in London and the University of Toronto. Rozen is a widely recognized researcher in orthopedics, with over 90 published papers and a specific interest in non-healing fractures and bone regeneration models. In 2004, Rozen founded the Research Institute for Bone Repair at the Rambam Health Care Campus and established the Institute for Bone Repair at the Rappaport Faculty of Medicine, where he currently serves

of the patients. In summary, BonoFill is a groundbreaking development in bone tissue engineering, offering a promising solution for critical-sized bone defects in limbs and maxillofacial bone deficiencies and presenting a viable alternative to bone autografting. In this presentation, we will explore the science and technology behind BonoFill and its clinical application, as well as share compelling results demonstrating BonoFill's safety and efficacy.

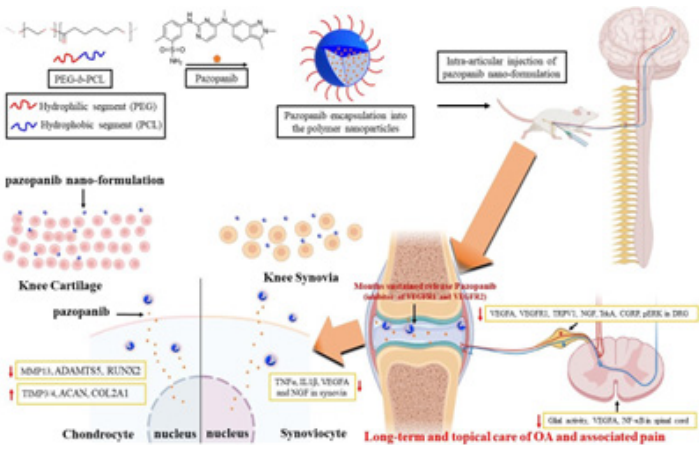
Audience Take Away Notes

- Overall, this presentation will provide the audience with valuable knowledge and insights that can be further used to enhance their bone grafting techniques and offer better treatment options for their patients. The groundbreaking technology behind BonoFill, along with the compelling results of preclinical and clinical trials, will be discussed in detail to demonstrate the safety and efficacy of this innovative approach
- The knowledge gained from this presentation can be applied to improve bone grafting procedures, specifically for critical-sized bone defects and maxillofacial bone deficiencies, incapable of self-healing or untreatable by standard techniques. By identifying patients who may be good candidates for BonoFill, the audience can inform their clinical decision-making and offer a promising solution for treating bone deficiencies previously difficult to address
- The presentation will include specific case studies of patients who have already undergone BonoFill treatment and interim results from clinical studies, providing the audience with real-world examples of how this approach can be successfully used to regenerate large bone defects. Although BonoFill is still an investigational product, the practical knowledge and insights gained from this presentation can enhance the audience's know-how and ultimately improve patient outcomes

as a Clinical Associate Professor. He has also held various leadership positions at multiple medical centers in Israel, including serving as the Head of the Orthopedic and Traumatology Department at Zvulun Medical Center from 2005 to 2015, as well as the Head of the Orthopedic and Rehabilitation Division at Ha'Emek Medical Center since 2006. Currently, Prof. Rozen also serves as the President of the Israeli Association of Orthopedics.

A single intraarticular injection of nanotechnology-based drug formulation as a safe osteoarthritis disease-modifying drug

Osteoarthritis (OA) is a leading cause of chronic pain and disability, affecting >500 million adults globally. Clinically accepted treatment strategies are often ineffective, and opioids have been traditionally recommended as options for OA pain, contributing to a social problem – the opioid crisis. The expression level of vascular endothelial growth factor (VEGF) is highly connected with OA severity1-4. Recently, we identified distinct roles for VEGF receptors: VEGFR1 is primarily responsible for joint pain transmission, and VEGFR2 is for cartilage degeneration5,6. Intraarticular (IA) injection (twice/week) of pazopanib, an FDA-approved selective inhibitor of VEGFR1/VEGFR2, markedly reduced joint pain and inhibited cartilage degeneration. To facilitate IA treatment of pazopanib in clinical settings, we developed a nanotechnology-based drug formulation for prolonged and sustained drug efficacy (referred to as nano-PAZ). We validated the drug efficacy of a single IA injection of nano-PAZ in two different OA models in different species (mice, rats) for reduced pain and pathology at different stages of OA disease progression (inflammatory, early- and, advanced OA). Toxicologic evaluations were done for safety using In Vivo Imaging analyses and drug abuse liability tests to ensure no addiction properties. A single IA injection of nano-PAZ abolished joint pain for >16 weeks in our preclinical animal models, in part, via reduction of (i) nerve growth factor (NGF) and its cognate receptor TrkA in the synovium and dorsal root ganglion (DRG) sensory neurons; (ii) NFkappaB and spinal glial activity. In conclusion, a single IA injection of nano-PAZ rapidly reduces knee joint pain and protects cartilage at any stage of OA disease progression, suggesting its potential as a novel OA disease-modifying drug. Nano-PAZ could be rapidly translatable to clinical settings not only for knee OA but also for a broad spectrum of musculoskeletal pain, including low back pain.



Recent Photograph: (High Resolution)

Figure 1. Schematic diagram of one-time injection of nanotechnology-based drug formulation of pazopanib (nano-PAZ) for OA treatment.

Kaige Ma[1], Tiep Pham[1,2], Ying Liu[2], Hee-Jeong Im[1,3*]

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Biography

Dr. Im Sampen is a Principal Investigator funded by NIH, the Department of Defense (DoD), Veterans Affairs (VA) and Foundations as a multidisciplinary osteoarthritis (OA) pain research group. Her research has been.instrumental in establishing preclinical rodent models to examine mutual cause-and-effect relationships in OA that link tissue degeneration with pain. She has served on multiple NIH and Foundation study sections administered by NIAMS, VA, or international funding agencies. She also served as an *Editor-In-Chief* for Gene Reports or *Executive Editor* (Gene) and an Editorial board member of numerous international journals. She has been a member of the Orthopaedic Research Society (ORS) since 2000 and served the ORS as Nominating Committee (elected), an Executive Member of Women's Leadership Forum and Asian

Audience Take Away Notes

- A Better understanding of knee joint OA pain-specific targets
- Future clinical applications
- Our results and innovation will facilitate further development of drug design that can be more practical to patient care (e.g., improved and/or hassle-free drug administration for the long-lasting drug efficacy drug – > a year-lasting drug effect by a single administration)

Leadership Forum member. She received various awards and honors, such as the *Arthritis National Research Foundation Scholar Award*, *OARSI Investigator Award*, *Kappa Delta Elizabeth Winston Lanier Award* from the ORS, and VA Research Scientist Award.

Volkmann's fragment osteosynthesis in unstable malleoli fractures

Malleoli fracture is the most common injury of lower extremity. Approximately 40% of these injuries are associated with comminuted or non-comminuted Volkmann fragment fracture. Outcomes of treatment of such fractures are worse in comparison with malleoli fracture without damage to Volkmann's tringle. Not so long ago it was considered that the size of Volkmann's fragment no less than 1/3 of articular surface was the indication to its fixation. Nowadays a number of authors use closed reduction and different variants of internal fixation, including front to back applied screws, to treat the trauma described above. However, almost in all cases Volkmann's fragment demands more precise anatomical reduction and internal fixation using lag screws applied from back to front.

Aim of the Presentation: To validate viability of posterolateral and posteromedial surgical approaches in unstable malleoli fractures associated with Volkmann's fragment fracture. Our treatment approach of such patients includes meticulous preoperative planning based on CT images of ankle joint which allow determining fracture pattern and size of Volkmann's fragment. AO classification was used for malleoli fractures. Fractures of the Volkmann's fragment were classified according to Haraguchi classification (2006). In accordance with this classification, we fix Volkmann's fragment as well as malleoli in case of fracture of posterolateral Volkmann's fragment (Haraguchi 1) and transverse fracture with extension of fracture line onto medial malleoli (Haraguchi 2). Axial CT images provided information about the configuration of posterior edge of distal tibia, which was classified according to Bartoníček et al. (2015), who differ 4 types of fractures of posterior edge of tibia.

Type 1: Extraincisural fragment with an intact fibular notch.

Type 2: Posterolateral fragment involving 1/3-1/4 of the fibular notch.

Type 3: Posteromedial two-part fragment involving posterior parts of the fibular notch and medial malleolus.

Type 4: Large posterolateral triangular fragment involving up to 50% of the fibular notch according to axial "subchondral" CT image.

Either posteromedial or posterolateral approach was chosen based on the determined fracture type. ORIF using back to front screws was performed. Results of described treatment method using posterolateral or posteromedial surgical approach are presented and indications are determined. Surgical technique of posterolateral and posteromedial approaches and possible reduction methods were demonstrated. Stage treatment results of more than 40 patients with 1 year follow-up are presented. Functional results were evaluated according to AOFAS scale (83, 2±13, 4 at 1 year) and Neer scale (87, 8±16, 8 at 1 year).

I. Belenkiy[1,2*], B. Maiorov[2,3], G. Sergeev[1,2], Y. Refickii[1]

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[2]Trauma and orthopedics department, Interdistrict Clinical Hospital of Vsevolozhsk, Leningrad Region, Russia

[3]General surgery department, head of trauma and orthopedics course of Saint Petersburg State University, Saint Petersburg, Russia

Biography

Dr. I. Belenkiy graduated the State medical Institute of Kursk, Russia in 1985, internship in trauma surgery in 1986. He has been practicing trauma and orthopedics surgery since then. Many years he was the head of trauma department of Alexandrovsky city hospital of Saint Petersburg. In 2021 he became the head of the trauma and orthopedics department of Saint Petersburg Dzhanelidze Research Institute of Emergency medicine. He received PhD in 1999, doctoral degree in 2013. Professional interests: fracture management and trauma care organization. He teaches a lot being professor of general surgery department of the Saint Petersburg State University.

Conclusion: Suggested tactics of diagnostics and osteosynthesis of Volkmann's fragment in unstable malleoli fractures provide good outcomes and can be employed in clinical practice.

Audience Take Away Notes

- Presentation will expand the knowledge of treatment of unstable malleoli and Volkmann's fragment fractures
- Presentation will improve the understanding of principles of malleoli and Volkmann's fragment fracture management
- Better idea about preoperative protocol of examination and surgery planning in case of such injury will be obtained
- New experience concerning surgery technique and posterolateral and posteromedial approaches to ankle joint will be acquired

Digital transformation of orthopaedic surgery

Review the main technological innovation that will transform orthopaedic surgery over the next decade.

Audience Take Away Notes

- The role of 3D printing
- The role of AI
- The drivers of change

Stefano Bini, MD

Orthopaedic Surgery, University of California, San Francisco, SF, CA, United States America

Biography

Dr. Bini is the Maria Manetti Shrem Endowed Professor at the University of California San Francisco's (UCSF) Department of Orthopaedic Surgery with a special interest in advancing total knee replacement, robotics, outcomes measurements using AI, and hip tendon repairs. His interest in Digital Health led to the founding of the UCSF Digital Orthopaedics Conference San Francisco (DOCSF) and his serving as CTO for the department. He is involved has delivered over 300 lectures, published over 70 research articles, written 2 textbooks, and received numerous awards. He serves as a reviewer or associate editor for several academic journals. Prior to UCSF, Dr Bini worked at Kaiser Permanente where he held several leadership positions. He studied at Stanford University, Columbia medical school, and UCSF for residency.

BOOK OF ABSTRACTS

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SPEAKERS

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ORTHOPEDICS AND PHYSICAL MEDICINE

Dominic Fisher[1,2*], Quinette Louw[2], and John Cockcroft[3]

[1]School for Health Professions, Faculty of Health, University of Plymouth, England

[2]Department of Health and Rehabilitation Sciences, Physiotherapy Division, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, Western Cape, South Africa

[3]Neuromechanics Unit, Central Analytical Facility, Stellenbosch University, Cape Town, Western Cape, South Africa

Quantifying and visualizing spinal posture alignment and movement in real-life settings: Leveraging new technologies

Painful, stiff spinal musculoskeletal conditions are among the leading causes for seeking physiotherapy care. Clinical spinal posture assessment and prescription is standard practice in physiotherapy management of spinal musculoskeletal conditions. Physiotherapists aim to reduce adverse spinal tissue loading associated with poor spinal alignment by encouraging patients to adopt neutral spinal positions during functional tasks, particularly sitting. Critique of posture prescription, that assessment duration is short and thus not representative; is not feasible to maintain for prolonged periods; is static and overlooks the inevitable small, involuntary movement during functional tasks led to the concept of dynamic posture prescription. Dynamic posture assessment and prescription shifts the focus from maintaining prescribed static spinal alignment to encouraging regular changes in posture to offset the adverse tissue-level effects of prolonged static loading. The shortcomings of both methods are the lack of objectivity in assessment and the lack of guidance about the duration and frequency of the prescribed posture. This presentation reports the findings of a proof- of-concept study of a novel, objective posture analysis methodology that provides rich, integrated spinal alignment and temporal behavior information in a highly ecologically valid context. Mathematical estimates of cervical, thoracic, lumbar alignment and movement is calculated from signals received from inertial measurement units placed on the head, the 7th cervical and 12th thoracic spinous processes and the sacrum. A novel pause/movement detection algorithm classifies spinal signals into short (<30s) or long (>30s) stationary categories. A visual dashboard of spinal posture is produced that displays the spinal positioning during short and long stationary periods. The integration of spinal alignment and temporal behavior incorporated in this posture assessment method is a significant enhancement of traditional and instrumented posture assessment methods. This method can be used to monitor changes in spinal posture in real life settings which can provide valuable patient feedback. Furthermore, the visual dashboard can be used to implement ergonomic changes and provide more holistic physiotherapy care.

Audience Take Away Notes

- Method to quantify posture alignment and temporal behavior
- An innovative patient assessment method leveraging mobile motion capture and a novel pause/movement algorithm
- Opportunity to develop guidance about frequency and duration of posture prescription

Biography

Dr. Dominic Fisher is a physiotherapy lecturer at the University of Plymouth, England and extra-ordinary academic at Stellenbosch University, Cape Town, South Africa. His qualifications include a BSc from the University of the Western Cape, a MSc from the University of Bath and PhD from Stellenbosch University. His research interests are in spinal health and sedentary behavior in school children. As an early career academic, he has published 4 research articles and is currently on supervisory teams for 3 MSc and 1 PhD students.

Wei Shan*, Amanda Tan, Teoh Ai Lin, Talha Abdullah
Rehabilitation Service, Khoo Teck Puat Hospital, Singapore

A pilot study to explore the feasibility of a localized virtual reality cognitive rehabilitation programme for stroke survivors in Singapore

Background: Stroke survivors usually present cognitive impairments that usually requires long-term follow-up. This increases the manpower demands of healthcare. After returning to community, there are limited accessible resources to continue their cognitive training too. In addition, the current traditional single-sensory-input cognitive training is usually boring, which makes stroke survivors who are prone to mental fatigue feel even more difficult to be compliant with. This leads to slow recovery and low compliance rate of cognitive rehabilitation. Virtual Reality (VR) is emerging recently as a new technology in rehabilitation which was found effective in physical rehabilitation training for stroke patients.

Objective: The study aims to determine the feasibility of implementing a localized cognitive rehabilitation programme that was developed by the research team with hybrid methods (clinic and tele-rehab) for stroke patients with cognitive impairments.

Methods: This is an experimental study. We aim to recruit 12 acute ischemic stroke survivors whose age are between 21 to 77 with cognitive impairment (Montreal Cognitive Assessment (MoCA) score between 10 to 26) in the study. All patients will receive their VR treatment (3o minutes) and conventional training (15 minutes) each session either in clinic or via tele-rehab with Occupational Therapists(OT) for four weeks with four sessions per week. A few outcome measures for feasibility of VR, cognition and well-being will be performed pre- and post- treatment, which included a self-designed questionnaire including System Usability Scale (SUS), the Intrinsic Motivation Inventory (IMI) and Virtual Reality Neuroscience Questionnaire (VRISE), Repeatable Battery for the Assessment of Neuropsychological Status Update (RBANS), Trail Test A&B and EQ-5D. All assessment results will be calculated in Statistical Package for the Social Sciences (SPSS).

Results: We are undergoing recruitment and we hope to share the results after the completion of the study by October 2023.

Conclusion: We would like to share the conclusion after the completion of the study by October 2023.

Audience Take Away Notes

- To learn a potential feasible new technology application for cognitive rehabilitation with stroke population
- To learn the research design of a feasibility study of a localized virtual reality application for cognitive rehab with stroke population
- To gain the practical experience in the implementation and application of a new technology in healthcare of an aging society
- To gain the knowledge about the possibility of the application of a new technology to tackle the manpower shortage in healthcare system

Biography

Ms. Wei Shan studied Occupational Therapy at the Hong Kong Polytechnic University, Hong Kong SAR and graduated as MSc in 2012. She then joined Khoo Teck Puat Hospital, Singapore. She specialized in neurorehab and Return-To-Work. She was certified as “Certified Disability Management Professional” in Canada. Currently, she is the team lead of Occupational Therapist Neurorehab team in Khoo Teck Puat Hospital.

Balasubramaniam V
Port Kembla and Wollongong Hospitals Rehabilitation Units, Illawarra Shoalhaven Local Health District, NSW, Australia

A novel model of care for an Integrated Movement Assessment Program (I-MAP) targeted for patients with movement disorders

Objective: To provide an integrated hub where assessment and recommendations on medical, physical, functional, psychosocial needs are made efficiently, care co-ordination and support services are accessed promptly with equity in access and triage of all referrals made in a timely manner to address symptoms management, physical conditioning, functional restoration and improve quality of life.

Background: Movement disorders are profoundly complex neurodegenerative conditions, treatment for which has significantly evolved over the last 2-3 decades. Dedicated organization of service delivery, overseeing linkage with all care services in our district was lacking. We identified that, although movement disorders clinics are well designed across Australia, there exist deficiencies in care co-ordination and links between primary health care services, specialist neurology services and rehabilitation care services across our district. The role of integrated care assessment and treatment recommendations with “filter-in, filter-out" to appropriate services were identified.

Methods: We established a novel assessment model of care called the “Integrated Movement Assessment Program” or I-MAP, comprising a rehabilitation physician, physiotherapist with an integrated occupational therapy role, speech therapist, social worker, administrative assistant and program lead to assess intake and triage all the referrals and oversee the running of the program. Our sub-acute services provide rehabilitation and geriatric care services across the Illawarra and Shoalhaven health district with in-reach, in-patient, out-patient, day rehabilitation services, outpatient services and outreach services.

Results: Our preliminary findings, through case assessments show that I-MAP dedicates coordinated referral and follow-up treatment in a seamless and timely fashion through targeted identification of patient needs, as well as career needs and patient/career/service gaps, with prompt address and management of these.

Conclusion: I-MAP is a novel model of care with an integrated approach involving rehabilitation clinicians to assess, co-ordinate and integrate medical services right from primary health care to community services. We are currently collecting patient reported outcome and experience measures and quality indicators data to review and monitor our I-MAP service for the next 12 months and improve our outcome-based service delivery.

Audience Take Away Notes

- A new model of care called the Integrated Movement Assessment Program (I-MAP) dedicates coordinated referral and follow-up treatment in a seamless and timely fashion through targeted identification of patient and career needs and gaps, with prompt address and management of these
- The audience will be able to have insight into the benefit of an integrated approach involving rehabilitation clinicians to assess, co-ordinate and integrate medical services from primary health care to community services

- This assessment model provides an example of integrated services for given conditions in rehabilitation that may be transferable to other similar conditions in other specialist areas
- This model improves better health care services and patient care, and improves patient's quality of life

Biography

Dr. Vaidya Balasubramaniam is a Senior Staff Specialist Consultant in Rehabilitation and Brain Injury Medicine at the Rehabilitation Units in Port Kembla and Wollongong hospitals, Illawarra Shoalhaven Local Health District (ISLHD). His qualifications include MBBS, FAFRM (RACP), Fellow of the European Stroke Council, Certified Independent Medical Examiner, Graduate Certificate in Health Professional Education and Leadership, Associate Fellowship with Royal Australian College of Medical Administrators. He is currently the Clinical Lead in Neurological Rehabilitation in ISLHD, Honorary Senior Lecturer at the University of Wollongong and Education Coordinator for advanced training in Rehabilitation Medicine, Co-chair Pharmacy Committee and Senior Examiner FAFRM (RACP).

Dr. Subramanya Adiga

Clinical head of Rehabilitation Medicine department, ARHOP Division, Middlemore hospital, Auckland, New Zealand

Expanding the sensate area in CNS lesions

In case of complete Peripheral Nerve (PN) injuries, often we note shrinking of insensate area due to expansion of the neighbouring intact nerves. However, such a phenomenon is not seen in case of CNS (Central Nervous System) injuries & diseases. Also, even in PN lesions, we do not see the neighbouring nerves taking over the paralysed muscles. The focus of the present work is to explore the causes for such a differences and look for treatment strategies that may help with similar recovery across all the spectrum of nervous system. The methodology used include literature review and peer discussions. The results reveal definite gaps in literature & clinical application of the PN pathology principles to the CNS lesions.

Audience Take Away Notes

- It is expected that this work will lead to many further clinical management and research possibilities using the principles explored and discussed
- There are many areas where PN pathology principles can be applied to CNS lesions. These include strokes with sensory deficits, mid-thoracic level complete spinal injuries and cauda equina lesions. Also, the learnings from the sensory territory expansion/take-over following PN injuries can be used to formulate appropriate research questions and strategies with a view to make similar expansion/ take-over happen with motor recovery following PN lesions. Members from audience can identify the right cases for appropriate interventions and discuss it with the right experts at right time
- Also, this opens up a case for detailed examination & documentation as well as use of neurophysiological investigation for many selective cases with potential for these novel interventions

Biography

Dr. Adiga studied Medicine at Karnataka University, graduated with MBBS in 1987. He further trained in Orthopaedics in India, obtained FRCS Ed diploma from Edinburgh and trained for CCT in Rehab medicine in UK. He obtained further qualifications of FAFRM & FASLM after arriving to New Zealand. He practices neuro-rehabilitation in Auckland and is expert in spasticity & pain interventions. His special interests include lifestyle medicine, stroke & spinal injuries rehab, application of orthopedic & PN pathology principles in day-to-day rehab processes.

Dhairav Shah[1*], Nirati Lakhani[2]

[1]Head Physiotherapist and Founder, Asiya Physiotherapy and Rehabilitation Clinic, Mumbai, Maharashtra, India

[2]Physiotherapist, Asiya Physiotherapy and Rehabilitation Clinic, Mumbai, Maharashtra, India

Treatment of headache by physios: No more a headache for physios

A physiotherapist should be equipped to assess cervicogenic dysfunction in a patient with a headache and hence every headache patient should be assessed by a physiotherapist. Headache and migraine are not mutually exclusive, but are different expressions of the same condition- the sensitized trigeminocervical nucleus. Recent evidence proves the same. Cervicogenic headache as a distinct entity continues to be debated. Cervicogenic headaches affect 22–25% of the adult population. Manual examination of the vertebral segments in a systematic approach is needed to determine the primary cause of the headache from the dysfunctional cervical spine segment. The Watson Headache Approach is an evidence backed method of C0-C3 manual therapy for assessment and management. In recent systematic reviews, cervical mobilization has been found to be beneficial in reducing headache disability, pain intensity, frequency and duration. Passive accessory intervertebral motion and the posteroanterior pressures demonstrate immediate pain relief as well as long-term follow-up show maintained results. Partial diagnosis of a migraine is a common clinical mistake which leads to other modes of treatments such as anesthetic blockades and this can be avoided.

Audience Take Away Notes

- Understand the headache: types, anatomy, pathomechanics and theories
- Dissecting the role of cervical dysfunction and disability in headaches
- Unique systematic physiotherapeutic assessment methods for the accurate diagnosis of cervicogenic dysfunctions and treatment techniques to alleviate symptoms immediately. Physiotherapists will play a role in headache management, in out-patient set-ups, without any invasive procedures
- Inspite of specific diagnostic criteria, symptoms of migraines and cervicogenic headaches overlap. Manual examination can assist in accurate differential diagnosis. Identifying the presence of cervicogenic headache features in migraine patients allows us to understand the possibilities of missed or under diagnosis of cervicogenic headaches

Biography

Dr. Dhairav Shah is a Certified Orthopaedic Manual Therapist (C.O.M.T) from Curtin University, Australia. He completed his Bachelors of Physiotherapy from the Maharashtra University of Health Sciences and is the Founder and Head of Asiya Physiotherapy and Rehabilitation Clinic, located at Mumbai and Surat. He is a Consulting musculoskeletal specialist since 13 years. He also has a Master of Arts (M.A.) degree in Philosophy. He conducted a practical demonstration on cervicogenic headaches at the Conference of Society of Indian Physiotherapists and has multiple on-going research projects. He has learnt from stalwarts such as Kim Robinson, Toby Hall and Dean Watson.

Dr. Mervat Sheta Ali Gawdat Elsawy

Lecturer of physical medicine and rehabilitation, Faculty of Medicine Alexandria University, Egypt

Role of biofeedback pelvic floor training in elderly patients with obstructed defecation

Pelvic floor rehabilitation is essential to manage elderly patients with obstructed defecation. Program of biofeedback will be discussed with prerequisite, indication and mechanism of biofeedback in these patients with usage of other physical modalities to improve emptying of large amount of stool without effort. Examples to patients from Alexandria University before and after rehabilitation will be discussed.

Biography

Dr. Mervat Sheta studied medicine at Alexandria University (1998 -2003). She graduated with excellence grade and honor in 2003 in internal medicine and surgery. She received master grade in physical medicine in 2008 at department of physical medicine and rehabilitation to work as assistant lecturer at the same department to be promoted as lecturer in 2016 after receiving PhD in the same department at faculty of medicine Alexandria University, Egypt. Her fine specialty is pelvic floor rehabilitation as topic of her Thesis in PhD and published many articles in pelvic floor rehabilitation.

M.E. Nazeer[1*], S.Goel[1], M.Nazeer[1], K.Mirza[2]

[1]Department of Trauma and Orthopaedics, KIMS HEALTH Trivandrum, India
[2]Department of Trauma and Orthopaedics, Hoskote Taluk Hospital, Bangalore, India

MPFL reconstruction: A different approach

Background: Numerous surgical techniques of Medial Patellofemoral Ligament (MPFL) reconstruction have been described in the literature with no one technique found to be superior to the other. However, most techniques require drilling bone tunnels in either the patella or femur or both, which can lead to complications such as iatrogenic fracture.

Aim: To describe a different surgical technique that avoids creating bone tunnels and thereby prevents iatrogenic fractures.

Methods: A cohort study was conducted on patients with isolated MPFL injury who underwent MPFL reconstruction between September 2018 and August 2020. The surgical technique employed did not involve creating bone tunnels. Patients were followed up for a minimum of 2 years, and postoperative assessment was done by clinical examination and functional assessment knee scores using Tegner-Lysolhm knee score and Kujala score.

Results: None of the study participants experienced instability, re-dislocation, or patellar fractures during the postoperative period. The mean lateral patellar translation was 1.8 quadrants, and patellar tracking was normal with a negative patellar apprehension test in all participants. The Tegner-Lysolhm Knee Score was good to excellent for 58.6% of participants, fair for 34.5%, and poor for 6.9%. The Kujala Anterior Knee Pain score was more than 80 in 65.5% of participants, and none had a score of less than 60.

Conclusion: The surgical technique described in this study avoided the complication of iatrogenic fractures associated with traditional MPFL reconstruction techniques. Furthermore, the functional outcomes were comparable to those reported in previous studies.

Key Words: MPFL, Tegnor-lysolhm knee score, Kujala score, Patellar fracture.

Audience Take Away Notes

- The technique described is easily reproducible and can be done in an effective way easily
- The learning curve associated with the technique is less and hence new members in the team can be quickly
- There has not been any incidence of patellar fractures associated with this technique nor any incidences of recurrence of patellar dislocations

Biography

Mr. Nazeer obtained his MBBS degree from Travancore Medical College, India, followed by a Master of Surgery (MS) in Orthopaedics from Kasturba Medical College, India. He further honed his expertise through a prestigious fellowship in Arthroplasty and Sports Medicine at KIMS Health Trivandrum, India. He successfully completed the Membership of the Royal College of Surgeons (MRCS) from RCS Edinburgh, UK. Currently serving as a Registrar at Cumberland Infirmary Carlisle.

Yetkin Ozturk[1*], Murat Ayazoglu[2], Cagrı Ozturk[3], Atakan Arabacı[3], Nuri Solak[3], Serhat Ozsoy[4]

[1]Molecular Biology and Genetics Department, Science and Literature Faculty, Istanbul Technical University
[2]Manufacturing Engineering, Istanbul Technical University
[3]Metallurgical and Materials Engineering Department, Chemical, and Metallurgical Engineering Faculty, Istanbul Technical University
[4]Surgery Department, Veterinary Faculty, Istanbul University-Cerrahpasa

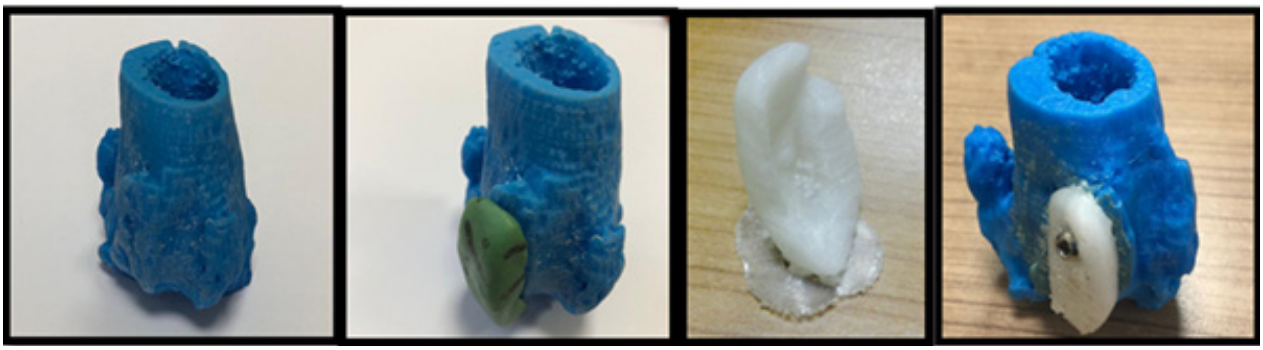
How to create a patient-specific overformed implant for bone reconstruction

There are some challenging situations for bone reconstruction in humans. Implants are very beneficial for reconstruction. They are created anatomically the same as the patient's bone. Patellar luxation is one of them. Mostly seen complications are cartilage damage and pain. This study presents a new patient-specific method of overformed implant design method whose shape is different from normal anatomical shape. The implant prevents luxation of the patella without damaging the cartilage.

Design processes are Computer Tomography, Computer Assisted Design, rapid prototyping of the bone replica, creation of the implant with the surgeon's haptic knowledge on the bone replica, 3D printing of the implant and clinical application. The focus of the method is the haptic design of the implant according to the surgeon's knowledge and experience. The implant is created with the surgeon's hand using a self-hardening paste. It is created on the bone replica of the patient. The surgeon determines how far to go beyond the normal anatomical limits.

The implant was fully seated on the bone. Patella reluxation or implant-related bone problem was not observed 80 days after the operation. Three-point bending test and finite element analysis were performed to determine the biomechanical safety of the implant. The stress acting on the implant was below the biomechanical limits of the implant. More cases with long-term follow-up are needed to confirm the success of this method in patellar luxation. Compared with trochlear sulcoplasty and total knee replacement, there was no cartilage damage done by surgeons with this method, and the implant keeps the patella functionally in the sulcus.

This is a promising multidisciplinary method that can be applied to any part of the bone such as vertebra and maxillofacial bones. This method can solve some orthopaedic problems with the surgeon's haptic knowledge.



Audience Take Away Notes

- Audience will learn to create patient-specific extra-anatomik (overformed) implant creation according to published article called “A new patient-specific overformed anatomical implant design method to reconstruct dysplastic femur trochlea” in Scientific Reports. They will learn to create what they need on the patient-specific bone replica
- Audiences will learn how to use their haptic knowledge and be a part of additive manufacturing using 3D printers
- This extra-anatomic implant design method may be beneficial in some cases and the audience (surgeons) may find critical solutions to problematic orthopaedic problems with this method in case traditional methods do not work
- This method can be applied to any part of a bone, including maxillofacial and vertebral surgery. This is a new approach by forcing anatomical shapes

Biography

Dr. Yetkin Ozturk graduated from Veterinar Faculty at Istanbul University-Cerrahpasa in 2003. He then participated in a one-year internship program at Ludwig-Maximilian University of Munich at Small Animal Surgery Department in 2006. He received his PhD degree in 2014 at Istanbul University-Cerrahpasa, Surgery Department of Veterinary Faculty. Since 2012 he is working as a Dr. lecturer at Istanbul Technical University, Molecular Biology and Genetics Department. He is studying implant design methods and new nerve regeneration methods. He has got one US patent. He has published 5 research articles in SCI(E) journals.

Ahmed Enan, MD*

Professor of orthopaedic surgery, Mansoura Faculty of Medicine, Mansoura, Egypt

THA: Doctor, my leg is longer- The importance of pelvic obliquity and spine deformities in THR

I will discuss during this presentation introduction about the definition and percentage of occurrence limb length inequality during total hip arthroplasty and how much the magnitude of disability resulted from this lengthening or shortening and also, I will discuss the role of pelvic obliquity whether intrapelvic or infrapelvic and soft tissue contractures in occurrence of limb inequality and I will explain the difference between pelvic tilt and pelvic obliquity. I will also discuss the role of spinal deformity and whether the spine is balanced or not balanced in occurrence of limb inequality during hip replacement. I will also discuss the way how both clinically and radiologically we measure the pelvic obliquity and spinal deformities and I will present some slides showing my study in a series of cases of total hip replacements done in a patient with either pelvic obliquity or spinal deformities and I will explain the way how I can avoid preoperatively and intraoperatively the limb length inequality during total hip arthroplasty. I also present slides of few clinical cases from my study. The end slides of my presentation I will introduce the conclusion of my study one of the conclusions is that patients must be aware that in some situations the lower limb must be lengthened to achieve component stability and techniques of accurate preoperative templating, anatomic component geometry & intraoperative assessment have diminished the prevalence of inadvertent lengthening of the limb by reproducing the normal anatomic relationships.

Keywords: THA, Limb Length inequality, pelvic obliquity, spinal deformities

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Melatonin accelerates osteoporotic bone defect repair by promoting osteogenesis–angiogenesis coupling

Background: Previous studies have revealed that melatonin could play a role in anti-osteoporosis and promoting osteogenesis. However, the effects of melatonin treatment on osteoporotic bone defect and the mechanism underlying the effects of melatonin on angiogenesis are still unclear. Our study was aimed to investigate the potential effects of melatonin on angiogenesis and osteoporotic bone defect.

Methods: Bone marrow mesenchymal stem cells (BMSCs) were isolated from the femur and tibia of rats. The BMSC osteogenic ability was assessed using alkaline phosphatase (ALP) staining, alizarin red S staining, qRT-PCR, western blot, and immunofluorescence. BMSC-mediated angiogenic potentials were determined using qRT-PCR, western blot, enzyme-linked immunosorbent assay, immunofluorescence, scratch wound assay, transwell migration assay and tube formation assay. Ovariectomized (OVX) rats with tibia defect were used to establish anosteoporotic bone defect model and then treated with melatonin. The effects of melatonin treatment on osteoporotic bone defect in OVX rats were analyzed using micro-CT, histology, sequential fluorescent labeling and biomechanical test.

Results: Our study showed that melatonin promoted both osteogenesis and angiogenesis in vitro. BMSCs treated with melatonin indicated higher expression levels of osteogenesis-related markers [ALP, osteocalcin (OCN), runt-related transcription factor 2, and osterix] and angiogenesis-related markers [vascular endothelial growth factor (VEGF), angiopoietin-2, and angiopoietin-4] compared to the untreated group. Significantly, melatonin was not able to facilitate human umbilical vein endothelial cell angiogenesis directly, but it possessed the ability to promote BMSC-mediated angiogenesis by upregulating the VEGF levels. In addition, we further found that melatonin treatment increased bone mineralization and formation around the tibia defect in OVX rats compared with the control group. Immunohistochemical staining indicated higher expression levels of osteogenesis-related marker (OCN) and angiogenesis-related markers (VEGF and CD31) in the melatonin-treated OVX rats. Then, it showed that melatonin treatment also increased the bone strength of tibia defect in OVX rats with increased ultimate load and stiffness as performed by three-point bending test.

Conclusion: Our study demonstrated that melatonin could promote BMSC-mediated angiogenesis and promote osteogenesis–angiogenesis coupling. We further found that melatonin could accelerate osteoporotic bone repair by promoting osteogenesis and angiogenesis in OVX rats. These findings may provide evidence for the potential application of melatonin in osteoporotic bone defect.

Audience Take Away Notes

- This study reminded us that the effective coupling of osteogenesis and angiogenesis should be highly valued when investigating osteoporotic bone regeneration
- This study may provide new insight and strategy for osteoporotic bone regeneration
- This study is the first to show that melatonin could induce the osteogenesis-angiogenesis coupling, which will bring new inspiration to many other researchers
- This study may provide evidence for the potential application of melatonin in osteoporotic bone defect

Biography

Dr. Sheng Zheng studied orthopedics at the Tianjin University of Traditional Chinese Medicine, China and graduated as MS in 2018. He received his PhD degree in 2023 at the Southern Medical University, China. He is currently doing postdoctoral research at the Third Affiliated Hospital of Southern Medical University, China. He has published more than 10 research articles in SCI(E) journals.

Dr. Satyajit Borah, MS

Senior Consultant, Department of Orthopaedics & Medical Director; TIMeS Hospital, Tezpur, State Assam, PIN – 784001, India

Rational choice of implants in intertrochanteric fractures in the elderly

Half of all hip fractures in the elderly are around the trochanter and nearly 50% are unstable. The goal of treatment of any intertrochanteric fracture in the elderly is to restore mobility early, safely and efficiently, at the same time minimizing mechanical failure of fixation and narrowing the risk of surgery associated complications. Management in the elderly is challenging because of many compounding factors like poor bone quality, poor compliance and memory, poor patience, poor communicability and poor physical status with multiple co-morbidities. Most of the variables are surgeon independent and at times too demanding for the surgeon. Selecting the appropriate implant and placing it accurately is important to achieve the goal such as to restore the patient back to pre-injury physiological status of mobility and wellbeing. Relevant world literature is reviewed to see various hardware options available and their pros and cons. Author's experience with some clinical documentation are shared and discussed. Finally concluded that in elderly various implants can be considered depending upon the particular fracture situation and subjective variables; occasionally the normal hip needs to be sacrificed to give early mobility to the senior.

Audience Take Away Notes

- Audience will be shared with various hardware options available in managing trochanteric fractures in elderly and their uses in variable situations, and the pros and cons of their applications
- The deliberation will help the audience in deciding a rational choice of implants in the more demanding trochanteric fractures
- The discussion will help the audience in putting more insight in considering the elderly as a different population with trochanteric fractures and doing research or clinical studies in the aging population such as to come out with more logical treatment options in this difficult treatment situation

Biography

Dr. Satyajit Borah, graduated (MBBS) from Gauhati Medical College in India (Assam) in 1988 and had his post-graduation (MS) from the same institute in 1995; he has been in independent practice attached to several hospitals and presently a Senior Consultant in Orthopaedics & Medical Director of TIMeS Hospital, Tezpur (Assam), india – 784001. A Past Regional Chair of Indian Orthopaedic Association and a Past State Chair of Indian Medical Association, He is a regular faculty in many medical meetings, delivered many orations and presented in multiple International meetings (Acia-Pacific Congress, Seoul; European Congress, Barcelona; South African Congress, Sun City etc.) He was awarded Honorary Professorship of Indian Medical Association Academy of Medical Specialties in 2022.

Gaurav Jha[1], Jyoti Sravya Mummaneni[2]*, Cherish Muntimadugu[3]

[1]Trauma and Orthopaedics, University Hospitals of Leicester NHS Trust, Leicester, United Kingdom

[2]Urgent Care Services, Kent Community NHS Foundation Trust, Maidstone, United Kingdom

[3]Trauma and Orthopaedics, Royal Lancaster Infirmary, Lancaster, United Kingdom

Triceps tendon avulsion: A case study to often missed and exceedingly rare diagnosis

Triceps tendon rupture is a rare injury that accounts for fewer than 1% of all upper-extremity tendon injuries. Although ruptures at the musculotendinous junction have been observed, the osseo-tendinous insertion in the olecranon is the most prevalent site. Trauma is the most common cause of triceps tendon rupture; however, several systemic concomitant disorders such as Marfan syndrome, hyperparathyroidism, osteogenesis imperfecta, systemic lupus erythematosus, or individuals on steroids can also result in rupture owing to decreased tensile strength. This injury is most common in middle-aged males, but cases have been reported in people of all ages, including youngsters prior to epiphyseal fusion and the elderly. Because of their rarity, such injuries are commonly overlooked and should be considered as a differential diagnosis in all patients who report with pain and swelling at the back of the elbow following a traumatic event.

Method: A 31-year-old man arrived with pain and swelling in his left elbow after falling from a height of 2 metres and catching his elbow under his body while bouldering. The left elbow was tender on clinical examination, with minimal swelling at the triceps insertion and no discernible gap, and active flexion and extension of the afflicted elbow were painful. The characteristic flake sign on lateral elbow radiograph with positive modified Thompson test indicated acute triceps tendon rupture. The location of rupture was exposed through a posterior midline incision, and the flake of bone with the triceps tendon was repaired using the four-stranded Krakow whipstitch No.2 Ethibond suture using the suture anchor technique, achieving satisfactory result. The patient was followed up for 12 months and had a post-operative Mayo Elbow Performance Score (MEPS) was 94 and the Quick Disabilities of the Arm, Shoulder and Hand score (QuickDASH) was 10.

Conclusion & Significance: The summary emphasises the significance and necessity of a comprehensive evaluation because triceps rupture is an uncommon injury and classical clinical signs may not always be present. A strong index of suspicion, physical examination for a palpable gap, and lateral radiographs with a "flake" fracture will help in diagnosis. These injuries are usually overlooked in a typical accident and emergency scenario, and delayed surgical therapy results in long-term functional disability. Hence, a thorough radiological and repeat clinical examination is warranted in doubtful scenarios. Early identification of these injuries and prompt surgical intervention are the cornerstones of a successful functional outcome and good rehabilitation.

Audience Take Away Notes

- Triceps tendon rupture is a rare condition and if misdiagnosed or managed inappropriately can lead to poor outcomes as it is the least common of all tendon injuries
- This case presentation aims to aid identify systemic and mechanical conditions leading to disruption of the tendon
- Due to the rare nature of the disease, it is important to consider such injuries in patients with a normal X-ray scan and limitation of physical examination
- It also important to understand appropriate imaging modalities and examination findings to be performed while suspecting a triceps tendon rupture
- Detailed discussion on operative repairs based on location and intensity of tears along with potential post-operative physiotherapy and complications provide wholistic view on the topic

Biography

Dr. Jyoti Sravya Mummaneni has graduated from MGM Medical College and Hospital, Navi Mumbai in 2019. Has received a Diploma in nutrition and dietetics in 2022. Has experience in Neurosurgery from Gdansk medical university and has worked as a Anatomy Tutor in D.Y. Patil Medical school, hospital and research centre.With keen interest in leadership, has held posts such as Joint secretary (2017) and Vice President (2018) in medical student's association India. Currently working as a specialty doctor in Urgent care at Kent Community NHS Foundation trust. Dr Mummaneni would like to pursue her career in Trauma and orthopaedic Surgery with special interest in interventional and regenerativeorthopaedics.

Kamala Bozan PM&R MD
PTD Hadi clinic MOH Kuwait City, Kuwait

Orthopedic manual therapy in past and nowadays

We should find ways to strategically merge successful OMPT management strategies with other new discoveries on the horizon. Just because a particular approach is new does not merit using it to replace a successful OMPT strategy because that strategy has been deemed outdated.

Audience Take Away Notes

- History of OMT
- How is useful STM
- Will improve pain management procedure with less pain killer
- Stop using opioid

Biography

Kamala Bozan has an extensive educational background in the medical field. She began their journey in 1987, earning an MD degree from Azerbaijan Medical University in 1994. Subsequently, in 1993-1994, she completed an internship at the same university. To further specialize in physical medicine, she pursued additional training at Azerbaijan State Advanced Training Institute for Doctors from 1999 to 2000. Moreover, in 2014-2015, she completed a course in Physical Therapy & Rehabilitation at David Tatishvili Medical Center in Tbilisi, Georgia. She also keeps up with modern advancements in sports and physical medicine through ongoing education.

S. Singal*, D. Jimulia, K. Grewal, S. Mawji, R. Philip, A. Malik, D. Prakash

Trauma and Orthopaedic Surgery Department, Sandwell and West Birmingham NHS Trust, Birmingham, West Midlands, United Kingdom

Adherence to anti-embolism stockings following elective knee and hip replacements for venous thromboembolism prophylaxis– A three loop quality improvement project

Orthopaedic patients are at higher risk of venous thromboembolism (VTE) during their inpatient stay due to reduced mobility. The National Institute for Health and Care Excellence recommends the use of anti-embolism stockings (AES) in combination with pharmacological interventions. A series of quality improvement projects were conducted.

Methods: Patients undergoing elective hip or knee arthroplasty were included in this audit. An initial audit demonstrated poor adherence to national guidelines so a proforma was created to acquire the following information: demographics, length of stay, use of VTE Risk Assessment tool, AES prescriptions, compliance with wearing AES and patient knowledge of VTE prophylaxis. Interventions included staff education followed by incorporating AES prescriptions as part of VTE prophylaxis on the electronic medical prescribing system.

Results: AES prescription improved slightly from 41% to 34% to 46% in the third cycle. Adherence to stocking use on both legs on day 1 improved from 12% to 34% in the second cycle and then decreased to 29% in the third cycle. On Day 3, 77% of patients had AES bilaterally which was higher than the second cycle (72%). Patient understanding of VTE prophylaxis was 92% in the second cycle and 89% in the third cycle.

Conclusion: We have demonstrated the importance of patient and staff understanding of the role of AES in VTE prophylaxis and the challenges of implementing 100% adherence. Ongoing VTE education is vital to improve patient safety and improve outcomes to prevent never events.

Audience Take Away Notes

- This presentation will stress the importance of VTE prophylaxis and the vital role it plays in maintaining patient safety
- Methods of how we can improve adherence to VTE prophylaxis
- Challenges experienced along the way when trying to implement 100% adherence to national guidelines
- I think that this project is something that all departments could follow and carry out to see if they are adhering to VTE prophylaxis guidelines
- Given that this is an international conference, it will be useful to demonstrate how we go about VTE prophylaxis in the United Kingdom. Discussions following the presentation could also allow for suggestions from doctors in other countries, who may have different systems, on how we can improve

Biography

Dr. Singal studied Medicine at Imperial College London, United Kingdom. He graduated with MBBS (Hons) BSc (Hons) in 2021, receiving several academic prizes throughout his medical school career. He now works as a junior doctor at Sandwell and West Birmingham NHS Trust and is keen to pursue a career in Trauma and Orthopaedic Surgery.

S. Singal*, S. Wasim, A. Ravindranath, M. Alam, A. Malik

Trauma and Orthopaedic Surgery Department, Sandwell and West Birmingham NHS Trust, Birmingham, West Midlands, United Kingdom

Senior clinician post-operative reviews following elective total hip and knee replacements - A quality improvement project

Total hip and total knee replacements comprise the majority of elective orthopaedic procedures performed. Guidelines in the United Kingdom recommend that all patients should be reviewed by a consultant at least once every 24 hours. Following the death of an inpatient, a series of quality improvement projects were conducted to investigate adherence to these guidelines in patients undergoing elective hip or knee arthroplasty.

Methods: Patients undergoing elective hip or knee arthroplasty were included in this audit. Our initial audit demonstrated a significant number of patients who were not reviewed by a senior clinician within 48 hours following their operation. The data was presented locally in order to educate staff and develop strategies on how to ensure safe and effective patient care.

Results: A significant improvement was demonstrated, with the percentage of patients reviewed by a senior clinician within 48 hours after their operation rising from 41% to 56%. In addition, our data showed that more patients were being reviewed on day 1 post-operation. Interestingly, patients who were reviewed by a senior clinician within the first 48 hours post-operation had a shorter length of stay in hospital on average than those who were not.

Conclusion: We have demonstrated the importance of post-operative review by senior clinicians in patients undergoing elective procedures, as well as the challenges of implementing 100% adherence. It is vital to carry out such data analysis in order to improve patient safety and to improve our outcomes.

Audience Take Away Notes

- This presentation will stress the importance of senior clinician reviews as part of the post-operative management of elective arthroplasty patients
- Strategies of how we can improve post-operative care for elective patients. Given that this is an international conference, it will be extremely interesting to hear the views of healthcare professionals from other countries
- Shortfalls and challenges experienced along the way when trying to implement 100% adherence to national guidelines
- This is a simple project that all departments could follow and carry out to achieve high quality patient care and prevent the occurrence of never events

Biography

Dr. Sachin Singal studied Medicine at Imperial College London, United Kingdom. He graduated with MBBS (Hons) BSc (Hons) in 2021, receiving several academic prizes throughout his medical school career. He now works as a junior doctor at Sandwell and West Birmingham NHS Trust and is keen to pursue a career in Trauma and Orthopaedic Surgery.

Stephen Tower
University of Alaska Anchorage, United States of America

The association of cobalturia with cobaltism symptoms: A prospective blinded study of 229 post-arthroplasty patients

Introduction: Cobalt is a mitochondrial toxin, clinical cobaltism manifests with constitutional, neurologic, and cardiovascular symptomatology. Cobalt's severe toxidrome is known through case reports from extreme wear or corrosion of joint implants. However, the spectrum and epidemiology of orthopedic-implant cobaltism and its relationship to duration and degree of cobalt exposure is not well defined.

Methods: The relationship of urine-cobalt concentration and duration of exposure to cobalt-chromium joint implants and cobaltism symptomatology were prospectively studied in 229 patients. Subjects received a Cobaltism-Symptom-Inventory-Score (CSIS) based on a protocolized interview and examination followed by a spot urine-cobalt measurement.

Results: 129 (56%) subjects were cobalturic (urine-cobalt ≥1.0 ppb). 122 (53%) subjects had a CSIS of >2, this status significantly associates with cobalturia. Median [IQR] urine-cobalt in the subjects with a CSIS >2 was 4.1[1.1-17.0] ppb compared to 0.5[0.5-1.4] ppb in subjects with CSIS ≤ 2. Cobalturia has a sensitivity of 0.69, a specificity of 0.77, and a positive predictive value of 0.74 for a CSIS of >2. The product of years-exposed to a cobalt-chromium implant and urine-cobalt by quartiles significantly positively associates with the Cobaltism-Symptom-Inventory-Score.

Conclusion: A urine-cobalt of ≥1 ppb indicates adverse systemic exposure to orthopedic-implant generated cobalt. Cobaltism severity as quantified by the CSIS significantly correlates with the product of spot urine-cobalt concentration and years-exposed to a cobalt-chromium orthopedic-implant. Medical provider and public awareness of orthopedic-implant cobaltism is vital because tens-of-millions are at-risk and the toxidrome is reversible if diagnosed early. Further use of cobalt chromium orthopedic-implants needs to be tempered given cobaltism becomes frequently clinically apparent at a spot urine-cobalt of 1 ppb or greater.

Biography

Stephen S. Tower, MD received his medical degree from the University of Washington (Seattle) and completed internship in Internal Medicine at Dartmouth Hitchcock Medical Center (Lebanon, NH) followed by 4 years of service at a General Medical Officer for the Indian Health Service. He then completed residency in Orthopedic Surgery at Oregon Health Sciences University (Portland). He is a member of the American Academy of Orthopaedic Surgeons and is a current Diplomate of the American Board of Orthopedic Surgery. He has practiced Orthopedic Surgery in Anchorage since 1992 and is an affiliate Professor of Medicine at the University of Alaska. He works with Dartmouth Biomedical Engineering Center on research defining the failure mechanisms of modern hip replacements. This collaboration has resulted in multiple peer-reviewed publications. He authored the index case report of cobaltism from modern primary hip replacement in 2010 followed by additional publications concerning this common yet underappreciated entity. His experience with arthroprosthetic cobaltism as patient, surgeon, and researcher has been featured in three book chapters, the Netflix's documentary *The Bleeding Edge*, and episodes on the medical TV serials *House*, *Gray's Anatomy*, *and New Amsterdam*. He continues to practice arthroprosthetic surgery in Anchorage, Alaska.

Guruji Singh[1], Insug O-Sullivan[1], Hee-Jeong Im[1,2*]

[1]Department of Biomedical Engineering, University of Illinois, Chicago, United Sates of America

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The intervention of OA and comorbid depressive disorder by a selective combination of pro/prebiotic treatment

Background: Osteoarthritis (OA) of the knee is a leading cause of chronic pain and disability, affecting >500 million adults globally. The prevalence and incidence of the disorder have been increasing continuously due to increases in lifespan and obesity. Clinically accepted treatment strategies are often ineffective, and opioids have been traditionally recommended as options for OA pain, contributing to a social problem – the opioid crisis. Because no disease-modifying OA drug is currently available, developing an effective treatment strategy for OA is a critical unmet need. OA patients show a higher prevalence of devastating depression than those without OA. Comorbidity with arthritis and depression significantly enhances persistent chronic joint pain. As OA is the most prevalent form of arthritis, depression is the most prevalent psychiatric disorder, ranking in the top five leading causes of disability worldwide. A suicide occurs every 11 minutes in the U.S., primarily due to the ramifications of untreated depression. These reports indicate that it is necessary to change the OA treatment paradigm by addressing a critical issue addressing depression as a modifiable psychological factor for better treatment of OA.

Methods: Probiotics are mixtures of live bacteria and yeasts that are supposed to improve health by establishing healthy gut microflora, and prebiotics stimulate the growth of beneficial bacteria. We identified the best combination of a single probiotic strain and a single prebiotic (LA-synbiotic) for treating OA and associated depression. We evaluated LA- synbiotic as a safe and ideal OA disease-modifying drug in our preclinical animal of knee OA pain with comorbid depression.

Results: Our results provide essential information demonstrating that (i) OA and depression comorbidity drastically magnify joint pain and OA pathology via the activation of VEGF signaling pathways; (ii) The LA-synbiotic synergizes its beneficial effects on joint pain and depressive disorder, establishing a co-treatment strategy; (iii) LA-synbiotic-mediated disease-modifying effects on OA and depression occur via the production of anti-inflammatory bacterial metabolites, SCFAs that modulate peripheral sensory neuronal plasticity and neuroinflammation.

Conclusion: Our results support (i) changes in the OA treatment paradigm by addressing depression as a critical modifiable psychological factor for better treatment of OA, and (ii) LA-synbiotic will be rapidly translatable to clinical settings not only for knee OA but also potentially for a broad spectrum of musculoskeletal pain symptoms, including low back pain, and comorbid depressive disease.

Audience Take Away Notes

- More recently, serious concerns have been raised regarding OA-related chronic comorbid health conditions. For example, individuals with OA have a 2.5-time greater risk of having three or more other chronic conditions. Furthermore, comorbid joint pain and depression make clinical management extraordinarily challenging and complicated. Our study will trigger a line of research to shift the treatment paradigm by implementing an urgent unmet need for OA patient care - from the current treatment approach, focusing on knee OA to a co-therapy strategy by considering modifiable psychological factors such as depression for OA patients

- No information has been reported on the synergistic efficacy of a combination of pre- and probiotics (synbiotics) for OA and/or depression treatment. We evaluated the efficacy of LA-synbiotic on chronic OA and depression by developing a novel co-occurring OA and social isolation-induced depression animal model (comorbidity) that mimics human OA + depression comorbidity condition
- Probiotics, probiotics and postbiotics have been used for over 1,000 years for improving human health. Our results and innovation will facilitate further development of drug design that can be more practical to patient care as a safe OA disease-modifying drug

Biography

Dr. Im Sampen is a Principal Investigator funded by NIH, the Department of Defense (DoD), Veterans Affairs (VA) and Foundations as a multidisciplinary osteoarthritis (OA) pain research group. Her research has been instrumental in establishing preclinical rodent models to examine mutual cause-and-effect relationships in OA that link tissue degeneration with pain. She has served on multiple NIH and Foundation study sections administered by NIAMS, VA, or international funding agencies. She also served as an Editor-In-Chief for Gene Reports or Executive Editor (Gene) and an Editorial board member of numerous international journals. She has been a member of the Orthopaedic Research Society (ORS) since 2000 and served the ORS as Nominating Committee (elected), an Executive Member of Women's Leadership Forum and Asian Leadership Forum member. She received various awards and honors, such as the Arthritis National Research Foundation Scholar Award, OARSI Investigator Award, Kappa Delta Elizabeth Winston Lanier Award from the ORS, and VA Research Scientist Award.

Garcia Ruiz Michelle Guadalupe[1*], Garcia Ruiz Maria del Carmen[2]

[1]Department of Physical Medicine and Rehabilitation, General Hospital of Mexico, Mexico City, Mexico

[2]Department of Orthopedic, General Hospital of Mexico, Mexico City, Mexico

Epidemiology of peripheral nerve entrapment injuries in sports

Introduction: Peripheral nerve injuries occurs during sports training or competition, this injuries are caused by pressure, stretching, or bone fracture, and are more frequent on upper limbs. Electrodiagnostic testing such as nerve conduction studies serves as an extension of the neuromuscular physical exam. Nerve injuries are categorized as neurapraxia, axonotmesis and neurotmesis. However, very little is known about the epidemiology of peripheral nerve injuries in sports.

Purpose: To analyze the epidemiology of peripheral nerve entrapment injuries in athletes in a large metropolitan city.

Methods: Descriptive, prospective, and comparative study. 10 athletes from different sport categories were studied with a mean age of 25 years. The measurement was performed through a nerve conduction study using a electromyograph.

Results: 10 patients were studied, both sexes with a mean aged of 25, 40% were woman, 60% were man. 60% had a peripheral nerve injury. 40% was carpal tunnel syndrome, 10 % Guyon´s canal syndrome, 10% radial nerve syndrome.

Conclusion: 60% of athletes suffered a peripheral nerve injury, the injury more frequently seen was carpal tunnel syndrome. Peripheral nerve injuries in sports are rare, so it is important to study for early diagnosis, and an early rehabilitation.

Audience Take Away Notes

- Analyze the importance of peripheral nerve injuries in athletes
- Understand the use of electromyography in nerve entrapment injuries
- Demonstrate the importance of seek medical advice to treat injuries
- This research can be used to expand the research in other faculties
- It can provide new information to diagnose nerve injuries using nerve conduction studies in specific population

Biography

Dr. Michelle Garcia studied Medicine at UNAM University and graduated as MD in 2016. She is resident in the Department of Physical Medicine and Rehabilitation at General Hospital of Mexico and will perform her fellowship in orthopedic rehabilitation in National Rehabilitation Institute. She is interested in the line of sports medicine and dance medicine.

Roger H. Coletti, MD, FACC, FASNC, FACAI
Interventional Health. PA, United States

EMG guided chemodenervation for post-laminectomy syndrome

Post-laminectomy syndrome is reported to range from 20 to 60%. The etiology of post-laminectomy syndrome is stated to be variable but multiple treatment modalities focus on nerve blocks or nerve ablation. Patients requiring a laminectomy procedure commonly have secondary chronic muscle spasms which are likely to persist despite a successful surgical procedure. Relief of the secondary chronic spasm and pain will lead to an increased overall success rate for the surgical procedure. It has been demonstrated that the CMECD procedure that makes use of EMG guidance and the off-label use of phenoxybenzamine successfully resolves chronic muscle spasm and resulting chronic pain with a single procedure. The procedure consists of identifying sites of spontaneous electrical activity (SEA) in the muscle which correspond to areas of chronic ischemia secondary to unresolved chronic muscle spasm. The injectate includes Lidocaine and dexamethasone to mitigate short-term and medium-term discomfort from the procedure. Lidocaine also immediately resolves the SEA allowing mapping of the areas successfully treated which facilitates identification of areas yet needing to be treated. Pain resolution is immediate allowing the treated individual to try various movements to illicit other adjacent or distal sites of pain. Local discomfort at the sites of injection may persist for up to one week but typically lasts 3-4 days. Phenoxybenzamine creates a covalent bond on the alpha-adrenergic receptor resulting in a functional duration of action of 2-3 months as the receptors have to be replaced slowly over time. Individuals treated with the CMECD® procedure do not demonstrate recurrence of muscle spasm or pain unless the original or similar overuse injury is repeated. The CMECD® procedure use is unrestricted and can be quickly learned and the phenoxybenzamine/dexamethasone injectate to which Lidocaine is added can be obtained from New Jersey pharmacy and shipped within the United States. Phenoxybenzamine can also be obtained from a US manufacturing source and shipped worldwide.

Biography

Dr. Coletti did a fellowship in interventional cardiology in New York and had a career in interventional cardiology in New Jersy and Delaware, USA. He was board certified in internal medicine, cardiovascular disease, interventional cardiology, and nuclear cardiology. He had an interest in chronic muscle spasm and found that chronic muscle spasm had an ischemic etiology and developed a technique using EMG guidance to reverse the ischemia and resolve the chronic muscle spasm. His publication in this area is 12 abstracts, a book and 2 recent articles. He is currently retired from clinical practice and no longer has institutional affiliations.

Tingshan Yan
Royal Berkshire Hospital NHS Trust, United Kingdom

Clinical and functional results of lateral ulnar collateral ligament repair for posterolateral rotatory instability of elbow

Lateral Ulnar Collateral Ligament (LUCL) injury can result in posterolateral rotatory instability requiring surgical fixation. Ligament reconstruction is widely used but here we evaluate the surgical outcome direct repair of lateral ulnar collateral ligament.

Methods: In this retrospective observational study, we included all cases of direct repair of LUCL that were performed in the last five years. Patients were identified from theatre coding and confirmed with operation notes. Electronic Patient Records were reviewed for demographics, diagnosis, intraoperative findings and complications. Patient reported outcome scores, using Mayo Elbow Performance Score (MEPS) was used as the primary outcome.

Results: 15 patients with avulsion and/or attenuation of the LUCL underwent direct repair between 2018 and 2022. Two were lost to follow up and 13 included. Eight were on the dominant arm side. The mean age of patients at the time of injury was 38.8 (range 18-61 years). 6 patients were operated on for acute trauma (mean days to operation = 20), 6 for trauma sequelae (mean days to operation = 299) and 3 for chronic instability (mean days to operation = 715). In all cases pathology was at the humeral attachment and the quality of the ligament assessed to be good for repair. LUCL was fixed with a 3.5mm anchor in all cases. At a mean follow up of 26 months, the mean MEPS score was 99. According to Nestor grading, 12 patients had excellent and 1 had good result. One patient underwent cubital tunnel decompression three months post LUCL repair.

Conclusion: In the management of both acute and chronic elbow posterolateral rotary instability, a direct repair of the LUCL when possible, achieved excellent to good clinical outcomes and eliminated the need for ligament reconstruction.

Abdulhamid Sayed Issa
Modern Consulting Hospital, Syrian Arab Republic

Hybrid Limited Shoulder Surgical Management (HLSSM)

The idea of HLSSM is to have a minimally invasive procedure, whereby the arthroscopic surgery begins with an examination of the shoulder joint, the location, and size of the lesion are determined, and then the lesion is accessed in a minimally invasive open surgical manner for surgical repair with no arthroscopic instruments but conventional surgical instruments in the second step.

Results: The average duration of the operation is 35 minutes, and the minimum duration is 25 minutes. This technique is simple, safe, and cosmetically acceptable for patients, full recovery after about three months of the procedure, and it is low cost. They can be used by shoulder surgeons experienced in shoulder arthroscopy and the Mini Lateral Shoulder Approach (MLSA) technique, especially in countries where arthroscopic shoulder release and anchor screw repair are expensive or unavailable.

Biography

Dr. Abdulhamid Sayed Issa, Specialist in Orthopedic Surgery. He holds (a Syrian Board Certificate from the Syrian Ministry of Health in 2012), a practicing doctor since (2003), a lecturer at (the Faculty of Medicine, Aleppo University 2009-2012), he has international research and articles in the field of Orthopedics.

Stacey Quo DDS, MS
University of California, San Francisco, United States

Changing the growth trajectory in children through skeletal traction

Midface retrusion creates a size deficiency problem in the upper airway that has been improved in children using surgical midface advancement and orthopedic protraction of the maxilla. The results of these treatments have been mostly promising at enlarging the pharyngeal airway. Recently introduced bone anchored maxillary protraction (BAMP) uses implant inserted devices to the jaws to bring the maxilla forward against a backward pressure to the lower jaw.

Objective: This retrospective study examines the use of BAMP as a strategy to treat maxillary retrusion, including children with obstructive sleep apnea.

Materials and Methods: 17 children, ages 11-17, with maxillary hypoplasia with a resulting malocclusion had bimaxillary traction against four bone anchors placed in the maxilla and mandible. 100-200 grams of elastic traction was applied full time, over an average duration of 12 months. Pre and progress treatment cephalometric films were taken to measure skeletal changes. Of the 17 children, 5 children had polysomnography at the onset and progress of treatment.

Results: Preliminary results show improvement in respiratory and cephalometric parameters, with the outcomes dependent on the length of treatment. The maxilla was advanced in a forward direction. The mandibular growth direction was variable. Positive outcomes were not seen in all patients, with the results dependent on compliance wearing the elastic traction. The PSG studies similarly show variable results. The small sample size precludes any conclusive findings, but offers another possible treatment option for pediatric SDB that should be further investigated.

Conclusion: The application of Bollard implants may be an approach he children older than 10 years of age with important maxillary restriction. But these results must be balanced against the long term effect of BAMP, as there is growth restraint against the lower jaw and this may impact the size of the hypopharyngeal airway space. This suggests that BAMP offers potential improvement for those pediatric SDB patients with maxillary retrusion.

Biography

Stacey Quo DDS, MS, maintains a full time private practice in Palo Alto, California, limited to orthodontics. She has been involved in the treatment of sleep disordered breathing (SDB) patients since 1998, and also maintains a position as Adjunct Assistant Clinical Professor at the Stanford School of Medicine's Sleep Clinic, and as Clinical Professor at the UCSF School of Dentistry. She serves as Co-Director of the UCSF Dental Continuing Education Series on Sleep Medicine for Dentists. Treating both adults and children, her practice is a balanced mix of multidisciplinary cases, surgical orthodontics, and early interceptive care. She has extensive experience in treating pediatric and adult SDB. Having published and lectured internationally on the treatment of pediatric sleep disordered breathing in both medical and dental conferences, she has co-authored chapters on facial growth and treatments for the SDB patient.

BOOK OF ABSTRACTS

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ORTHOPEDICS AND PHYSICAL MEDICINE

Intrathecal drug delivery systems

Intrathecal drug delivery systems are implanted pumps that target pain relief or anti-spasm medication to an area of the spine that relays signals between an affected area of the body and the brain. Persons with chronic pain or muscle spasms may be considered for such a device if, over time, the medications they have been taking have become less effective, or the side effects more difficult to tolerate. Although receiving an implanted pump is not a cure, using one may allow patients more symptom relief, participation in daily activities, and better rest. With these systems, medication is immediately released into the fluid surrounding the spinal cord and directly reaches the nerves in the spinal cord that are responsible for symptoms, such as perception of pain. For this reason, much lower amounts of the active medication, such as morphine or baclofen, are needed than when medication is taken by tablet or intravenous infusion. Compared to medication taken by mouth, an intrathecal pump usually only requires 1% of the dose. Not only is direct delivery more effective, it also avoids, to a large degree, overall side effects that occur with medication taken by mouth or injected into the bloodstream through intravenous infusion. The presentation will describe the implantation of such systems, highlight the differences between fixed- & variable-rate pumps, underly the significance of various infusion modii, describe the possible associated risks & complications, and illustrate how refills are generally done.

Audience Take Away Notes

- Intrathecal therapy as one of the many available neuromodulation options to treat chronic pain & spasticity
- Better control of pain & spasticity leading to more constructive physiotherapy sessions
- Advantages & disadvantages of targeted drug delivery
- Improvement of patients quality of life

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Biography

Dr. Georgios Matis is a senior consultant for neurosurgery. He leads the chronic pain / spasticity sector of the Department of Stereotactic & Functional Neurosurgery in the University Hospital of Cologne. He has been trained in Greece (General University Hospital of Alexandroupolis, G. Papanikolaou General Hospital of Thessaloniki & 417 Army Equity Fund Hospital of Athens), USA (Department of Neurosurgery, Weill Cornell Medical College, New York, NY), Switzerland (Department of Neuroradiology, University Hospital of Zurich, Zurich) and Germany (Department of Stereotactic & Functional Neurosurgery, University Hospital Cologne, Cologne). He is a member of two medical associations (Thessaloniki, Greece & North Rhine, Germany) and also a member of the German Neuromodulation Society (DGNM) and the International Neuromodulation Society (INS). He serves as reviewer for many international journals and is Editorial

Board member for Neuromodulation: Technology at the Neural Interface and Interventional Pain Medicine and Neuromodulation. He holds the position of Editor-in-Chief of the Internet Journal of Neurosurgery. He has published many articles in Greek and international Pubmed-indexed journals and hold many lectures as invited speaker in numerous international congresses and webinars. At the same time, he is Public Education Committee member of the International Neuromodulator Society. He is involved in many international clinical studies and has been active as instructor for many colleagues in Germany and abroad. He is also an active member of the medical advisory board of the German CRPS Support Group and member of several online consultation platforms. He is actively involved in social media trying to raise awareness about spinal cord stimulation and neuromodulator.

Advances in the active treatment of migraines

Headaches are one of the most frequent disorders of the nervous central system. Around 50% of the adults worldwide have had a headache in the last year, and among them 30% describe it as migraine. Up to a 4% of the headache sufferers present 15 or more days of pain per month. Migraine, especially when it is chronic, can be complicate to treat successfully. The most common therapeutic strategy is the pharmacological, in this line there are many drugs developed with doubtful effectiveness. The research in migraine and other chronic pain conditions now days are being focused in the modifiable factors that could be influencing the patients triggering or maintaining their pain. One of this factors identified has been physical activity levels. We now that sedentary people tend to have more headaches than more active people. Among conservative and non-pharmacological strategies the biobehavioural interventions are proposed, engaging Psychologists and Physical Therapists in the treatment of migraine patients. Using cognitive-behavioral therapy for stress management from the psychological area and a biobehavioral Physical therapy approach seems an appropriate approach since they will influence over some of the modifiable factors. One of the strategies included in the biobehavioral approach of Physical Therapy is exercise. In this presentation the results of a systematic review and meta-analyses regarding the exercise used as part of the therapy for migraine patients will be presented.

Audience Take Away Notes

- Mind opening regarding to exercise and the management of migraine and headaches
- An overlook of the conservative and active treatments for migraine will be presented
- The evidence based most recommended exercise prescriptions will be described
- Clinicians will be able to apply immediately the active intervention with their patients
- For a clinician it will be very interesting due to the specific recommendations that will be exposed
- Researchers might extract some ideas about the assessment of chronic pain patients and exercise interventions for their own research

Alba Paris-Alemany MD, PT, PhD.

Complutense University of Madrid, Spain

Biography

Dr. Alba Paris-Alemany, MD, PT, Ph.D. is an Associate professor at the Complutense University of Madrid. Her expertise is orofacial and craniofacial pain, and craniomandibular and vestibular disorders. She has done clinical practice for more than 14 years in that specialized field at FisioCranio-Clinic, Madrid. She has been teaching in pre-graduate and post-graduate programs of Physical Therapy since 2013 and now continues her teaching at the Complutense University of Madrid. She belongs to the Research Group Motion in Brains where she has developed most part of her research. Her research streams are related to chronic pain management, movement representation, craniofacial pain, temporomandibular disorders, and dizziness. She has published more than 50 scientific articles in indexed international journals. She usually peer-reviews and has edited two special issues. She is a member of the International Association for the Study of Pain (IASP), and secretary of the Physical Therapy group at the Spanish Society of Pain (SED). In addition, she is a member of the teaching team at the Institute of Neuroscience and Craniofacial Pain (INDCRAN) in Spain, a post-graduate school that offers courses for physical therapists on the topic of cervico-craniofacial pain and disorders.

Assessment of the therapeutic effect of physical modalities

The physical Modalities (FM) hot, cold, natural magnets, water, sunlight, have been used by man empirically. In modern medicine, the emergence of physical therapy equipment is related to the development of technology. Introduced into medicine as a form of treatment more than 200 years ago, they were still seen as quackery. The application was the patient's choice and other branches of medicine looked down on doctors and physiotherapists. The purpose of our presentation is to outline the guidelines for a standard presentation of the treatment effect of a physical modality.

Material and Method: For material, we used an analysis of papers that used the application of FM in the last 20 years, in terms of type of source, applicator, daily, weekly and batch dosage, inclusion and exclusion criteria for treatment. Another principle of analysis was how the effect of the treatment on the patient was assessed.

Results: When applying any device and physical agent action, we should be guided by pre-standardized instructions from the manufacturer of the device. The effect of the treatment needs to be measurably shown in relation to before and after the treatment. The most commonly used methods are: 1) Measurement of pain 2) Measurement of joint mobility, 3) Measurement of swelling, effusion, tissue defect, bone mass, 4) Application of a specific questionnaire or functional test. Standard patient groupings by sex, age and disease are represented as well.

Discussion: papers published online are helpful in creating the research protocol. Until 20 years ago such research was hard to find and there were many papers from other specialties denying the effects of FM, even calling it quackery.

Conclusion: FM is applied as a non-drug therapy as a state-of-the-art method, but the place in the health system must be earned, respecting medical ethics.

Key words: Physical modalities, Effect assessment standards.

Elizabeta Popova Ramova

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Biography

Elizabeta Popova Ramova has completed his PhD in Medicine at the Department of PM&Reha, Faculty of Medicine Nis, University of Nis, R.Serbia in 2010. She has been engaged in educational activity since 2005. She worked as a professor at the Medical School from 2007 to 2018. In 2020, she was selected as an Assistant Professor at MIT University, in the scientific field of PM&Reha. Scientific activity: published 210 studies, 17 of which have an impact factor. She was on a visiting study in Germany in 1997, 2000 and in ISICO, Italy in 2016. Foreign language uses: Serbian, English, German. She has several certificates for active participation in international congresses, conferences, a license for doctor's practice, for low energy laser treatment, musculoskeletal echosonography, aromatherapy and nutrition. Scientific opus: spinal deformities, pain management, alternative methods based on medical evidence, non-pharmacological treatment. Member of ISPRM, Cochran Rehabilitation, Editorial Board of 14 sciences journals abroad.

Neuroimaging by evaluation nerve repair and remodeling of acupuncture in children with cerebral palsy

Objective: To investigate the effect of and acupuncture on brain plasticity and motor development in children with cerebral palsy. Investigate effect on mechanism of apoptosis of brain nerve cells, regulating the expression of neurotropic factors, promoting the remodeling of nerve synaptic structure and motor development in young rats with cerebral palsy. Two: To evaluate the effect and mechanism of acupuncture on cerebral palsy. Three: The nerve repair effect of acupuncture on cerebral palsy.

Methods: In this study, 146 cases of brain injury and 1078 cases of cerebral palsy were included by randomized controlled study with ICF Gross motor function measure, Peabody fine motor function, Gesell, muscle tension, joint activity, activity of daily living transcranial doppler, skull B ultrasound, Brain Nuclear Magnetic Resonance Imaging MRI, Positron Emission Tomography SPECT, Diffusion tensor tractography evaluation method.

Results: The recovery rate of extracellular space (92.3%) was significantly higher than that of the control group (70.8%) (P <0.05), Transcranial Doppler, TCD total efficiency (79.3%) was significantly higher than that in the control group (51.8%) (P <0.05). Acupuncture to promoting the development of neurological and cognitive movement under 6 months children, effectively reduce the neurological sequelae. The total effective rate of the children with cerebral palsy was 87% in the acupuncture group, which was significantly higher than that of the control group (P <0.01). The total effective rate of Brain MRI was 59.55% in the acupuncture group and 13.25% higher than that in the control group (P <0.01). The total effective rate was 91.3% in the 1 year follow-up group, which was significantly higher than that in the control group (P <0.01). The FA value of white matter fiber bundle was significantly higher than that of acupuncture at 60 times (P <0.05). The recovery rate of ultrasonous brain injury (86.7%) in acupuncture group was significantly higher than that in control group (64.4%) (P <0.05). The recovery rate of brain SPECT in acupuncture group was 96.4%, which was significantly higher than that in the control group (P <0.01).

Conclusion: Acupuncture rehabilitation not only promote the development of white matter and gray matter in children with cerebral palsy, but also promote the brain function of children with cerebral palsy remodeling and compensation, and promote social adaptation, language and other cognitive function development, children with cerebral palsy movement and Fine motor function development and recovery, improve the children's self-care ability.

Keywords: Cerebral palsy, Acupuncture, Nerve repair, Remodeling, Motor function.

Zhenhuan LIU

Nanhai Maternity and Children Hospital Affiliated to Guangzhou University of Chinese Medicine, China

Biography

Zhenhuan LIU professor of pediatrics, Pediatric acupuncturist Ph.D. Tutor. He has been engaged in pediatric clinical and child rehabilitation for 40 years. Led the rehabilitation team to treat more than 40,000 cases of children with intellectual disability, cerebral palsy and autism from China and more than 20 countries, More than 26800 children's deformity returned to school and society and became self-sufficient. The rehabilitation effect ranks the international advanced level. Vice-chairman of Rehabilitation professional committee children with cerebral palsy, World Federation of Chinese Medicine Societies. Visiting Professor of Chinese University of Hong Kong in recent 10 years. He is most famous pediatric neurological and rehabilitation specialists in integrated traditional Chinese and Western medicine in China. He has edited 10 books. He has published 268 papers in international and Chinese medical journals.

Neurocognitive and reactive rehabilitation training techniques and testing in athletes following ACL reconstruction

The incidence of knee injuries in sport, particularly involving the ACL, appears to be increasing yearly, especially in younger age athletes. Even more concerning is that the frequency of ACL reinjury also appears to be increasing year over year. Improving the rehabilitation process and program and the objective criteria and testing methods used to determine Return To Play (RTP) readiness following ACL surgery is one aspect of the rehabilitation process that can significantly help in reducing reinjury rates. Numerous studies have reported neurocognitive and neuromuscular changes to the lower extremity following ACL injuries. Furthermore, brain function in some individuals has been shown to exhibit neuroplasticity following ACL injury. The well designed ACL rehabilitation must include neurocognitive training techniques to completely rehab the individual & prevent another knee injury. In regards to return to play the majority of clinicians are still using post-operative time frames as their number one criterion for clearance to RTP. This flawed method demonstrates an inadequate reflection of the true unpredictable, dynamic environment athletes are returning to participate in. In our clinical experience objective testing to allow for clearance to sport participation following an ACL injury should incorporate rehabilitation techniques and testing involving neurocognitive and reactive training due to the nature of the injury typically occurs because of failed control of unanticipated reactive movements. The purpose of this presentation is to share innovative and unique neurocognitive rehab techniques and the testing sequence we currently employ with an emphasis on reactive neuromuscular training consisting of 8 total tests in 3 categories: Reactive lights (Blazepod) are utilized for testing's, reactive shuttle run tests, and reactive hop tests. The use of a more dynamic testing battery will serve to decrease the reinjury rates when an athlete is cleared for participation by assessing readiness in chaotic circumstances that are more truly reflective of the sporting environment each athlete is working to return to. Finally, with an increase in neurocognitive and reactive rehab training techniques athletes will gain a greater sense of confidence.

Audience Take Away Notes

- Understanding the importance of neurocognitive and reactive training to better prepare athletes for unanticipated reactive movements and decrease re-injury rates with RTP following ACL injury
- Expansion on current objective criteria for RTP following ACL injury to include neurocognitive and reactive rehabilitation techniques and testing
- An innovative and unique neurocognitive rehabilitation testing sequence consisting of eight different tests utilized to assist in clinical decision making for returning athletes for sport following ACL injury

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Biography

Dr. Kevin E Wilk, DPT, FAPTA received his BS in physical therapy from Northwestern Medical School – Programs in Physical Therapy in 1984, he received his DPT from Massachusetts General Health Sciences in 2005. He is the Founder & Associate Clinical Director of Champion Sports Medicine in Birmingham, AL, he is also Director of Rehabilitative Research at the American Sports Medicine Institute. He is an adjunct clinical professor at Marquette University – programs of Physical Therapy He has published 173 articles on sports medicine & rehabilitation, written 11 textbooks, and has lectured internationally. Dr Wilk was induced into the Sports Physical Therapy Section of the APTA Hall of Fame & is also a Catherine Worthing ham Fellow of the APTA. Kevin is an active clinician, researcher & educator.

BOOK OF ABSTRACTS

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ORTHOPEDICS AND PHYSICAL MEDICINE

Claire Munsie*, Jo Collins, Meg Plaster

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Positive benefits of group-based exercise for adolescent and young adult cancer survivors; A digital multimedia presentation of the patient experience in their own words

Adolescents and Young Adults (AYAs) often experience a myriad of acute and chronic toxicities as a result of cancer treatment. In survivorship, this can significantly impact AYAs' physical and psychosocial functioning and Quality of Life (QOL). Initially this presentation will share patient insights into the vast impacts a cancer diagnosis and its treatment has on this population. Additionally, it will report both the objective results alongside the patient voice to demonstrate the physical and psychosocial benefits of group-based exercise in AYA cancer survivors. To date, One hundred and ten AYAs have enrolled in 12-week group-based exercise programs that were delivered in a community setting. Participants completed pre and post intervention assessments of physical (1RM strength, grip strength, VO2 peak, pushups and sit ups) and psychosocial measures. Following the intervention, participants were invited to share their experience of the program via video or audio recording. Ninety-one participants have completed the program over a five year period with an overall attendance of 76%. Results have demonstrated significant improvements in all 1RM strength measures, pushups and sit ups ($p \leq 0.01$). Subjectively reported fatigue, pain, social, emotional, role and physical functioning quality of life variables also improved significantly from baseline to post intervention ($p \leq 0.05$). No detectable change was evident in VO2 peak over time. Participant interviews revealed the greatest impacts were on psychosocial functioning and group connectedness in this cohort. Collectively these objective results and patient insights have demonstrated that a group-based exercise program is an effective intervention to improve physical fitness, functioning and QOL in AYA cancer survivors. While the greatest objective benefits were evident in strength and functional measures, the patient voices provided perhaps the greatest insight into the magnitude of positive benefits of this program for this cohort. Participants reported that the program resulted in them feeling healthier, happier and more engaged in life, allowing them to lead their lives to their full potential. Additionally, through partnering with consumers and collecting these reflections the program has been shaped to better meet the needs of the patient cohort it is serving.

Audience Take Away Notes

- Insights into the patient experience of a group based exercise program directly through recorded audio and visual medium
- The value in partnering with consumers in helping to shape patients services
- The objective benefits on physical and psychosocial outcomes of an exercise program in adolescent cancer survivors
- Lessons learnt from this presentation will be transferable to other practitioners in similar cohorts. The presentation will highlight how this program can be adapted or modified for other cancer cohorts for rehabilitation providers worldwide

Biography

Claire is an accredited exercise physiologist with 15 years experience in musculoskeletal and exercise oncology rehabilitation. She has worked with the WA Youth Cancer Service for the last 8 years developing the exercise physiology service to incorporate inpatient, outpatient and outreach services for young people throughout their cancer care. She recently completed her PhD investigating the impact of integrated exercise on functional decline and treatment toxicities in adolescents and young adults undergoing cancer treatment.

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Effect of robotic lower limb rehabilitation training on joint function and complications after internal fixation of femoral neck fracture

Objective: To investigate the effect of robotic lower limb rehabilitation training on postoperative joint function and complications of femoral neck fracture with internal fixation.

Methods: A prospective study was conducted to select 112 patients with femoral neck fractures undergoing internal fixation in our hospital from June 2020 to June 2021, including 71 males and 41 females; The age ranged from 41 to 72 years, with an average of (60.5 ± 5.8) years; Garden classification: 35 cases of type II, 37 cases of type III, and 40 cases of type IV; Causes of injury: 37 cases of traffic accident injuries, 31 cases of falling injuries, 23 cases of falling injuries, and 21 cases of heavy object injuries. According to the random number table method, they were divided into a control group and a study group, each with 56 cases. The control group received routine rehabilitation training, and the research group received robotic limb rehabilitation training on the basis of the control group. Harris hip function score and Berg balance scale (BBS) score were compared between the two groups before and after intervention, and the excellent rate of hip function recovery and the incidence of complications were counted.

Results: After intervention, the Harris score and BBS score in the study group were (86.2 ± 5.1) and (44.7 ± 4.4), respectively, higher than those in the control group (80.9 ± 7.3) and (37.8 ± 3.4) ($P<0.05$). The excellent rate of functional recovery of hip joint in study group was 94.6%, which was higher than 76.8% in control group ($P<0.05$). The complication rate in the study group was 3.6%, lower than that in the control group (16.1%) ($P<0.05$).

Conclusion: Robotic lower limb rehabilitation training can improve the function and balance of hip joint after internal fixation of femoral neck fracture and reduce complications.

Key words: Femoral neck fracture; Lower Limb Rehabilitation Robot; Joint function; Complications.

Audience Take Away Notes

- In this study, Lokomat Pro lower limb rehabilitation training robot was applied to the routine rehabilitation training of patients in the research group, and its exoskeleton system can automatically control and simulate the hip, knee and ankle motion states of normal people, correct abnormal movement patterns of patients, construct normal gait structure, and stimulate limb muscle group proprioceptors to realize the reconstruction of motor function innervation network in the cerebral cortex and its nerve fiber conduction system
- The results of this study showed that the Harris score and BBS score in the study group were higher than those in the control group, and the excellent rate of hip function recovery was higher than that in the control group ($P<0.05$), considering that the combined application of robot lower limb rehabilitation training and conventional rehabilitation training can stimulate peripheral deep sensation and shallow sensory input by simulating the gait cycle, regulate the central nervous system, and improve joint function and balance function

- The incidence of postoperative complications in the study group was lower than that in the control group (P<0.05), which suggested that robotic lower limb rehabilitation training could also reduce postoperative complications. The reason is that the application of robot lower limb rehabilitation training at the same time as conventional rehabilitation training can appropriately reduce weight through the robotic exoskeleton system, design appropriate joint angles according to the function of the lower limbs, and promote the patient's limbs to train for a long time in accordance with normal physiological patterns to improve blood circulation and reduce joint pain; The robotic exoskeleton system can also detect the interaction between patients and robots in real time, provide auxiliary power in time, promote joint function recovery, and reduce complications such as loose internal fixation and fracture

Biography

Tianshu Zhao, Master candidate, Beijing Sport University, major in rehabilitation medicine and physical therapy, research direction is sports rehabilitation medicine, the main research objects are overuse tendinopathy, artificial intelligence rehabilitation, exoskeleton robot, orthopedic postoperative rehabilitation, etc.

Quinette Louw*, Thandi Conradie

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Rehabilitation services in South Africa: Capacity and innovation for strengthening services

Rehabilitation is an essential health service that improves the lives of people with a wide range of health conditions – including many people with disabilities – through optimising their day-to-day functioning. Rehabilitation services in low-and middle income countries such as South Africa remain underdeveloped, consequently the growing number of people who need rehabilitation in these settings are left behind. The South African government initiated several health reforms to improve access to quality healthcare and reduce inequities. However, rehabilitation has generally not been integrated into major health reforms in South Africa which prohibited opportunities for strengthening rehabilitation. South Africa is about to embark another major health reform, the National Health Insurance (NHI), which is intended to provide a health safety-net for the most vulnerable in society. Information on the current situation of rehabilitation in the country is crucial in order to ensure appropriate actions to integrate rehabilitation within NHI. This presentation aims to describe findings of a national rehabilitation capacity project and will particularly focus on the challenges, opportunities and innovations of rehabilitation services.

Key rehabilitation service challenges: Challenges included inadequacies in human resources, integration of rehabilitation at primary care, guidelines, and specialised long-term care facilities. Continuity of care across levels of care was sub-optimal due to inefficient referral systems. The workforce density was less than 0.5 per 10 000 people and rehabilitation services were mostly located at tertiary institutions. In most regions, primary care and community rehabilitation, hinged on weekly outreach services in three of the provinces. Specialised rehabilitation services, albeit limited, were reported in selected regions for children with developmental delays and disabilities, people with vision and hearing loss, and people with mental health conditions. Rehabilitation did not include any services for the elderly e.g., fall prevention programmes).

Opportunities and innovations: Strategies that complemented available rehabilitation services at community level. These strategies included engaging community health workers and including NGOs and community peer support groups. In one region, mid-level health workers) were employed to act as conduits between patients and the healthcare system. Other innovations to augment services included improvement in service coordination and use of technology to facilitate task sharing.

Conclusion: Rehabilitation service capacity in South Africa should be better aligned to the scale and type of population needs. Rehabilitation faces many challenges, but also opportunities for innovation and improvement to enhance the rehabilitation capacity. Political will and moderate financial investment can notably improve access to quality rehabilitation services, especially at primary care. Future focused, locally centred leadership should prevail as the country's health sector transforms towards a NHI initiative, in which rehabilitation is a core element.

Audience Take Away Notes

- The audience will learn about the assessment process and outcomes of a national rehabilitation capacity project in the context of a low resource setting
- The audience will acquire knowledge about cost-effective innovations to strengthen rehabilitation, especially in low-and middle income countries
- The audience will be presented with the pragmatics, logistics and challenges pertaining to the strengthening of rehabilitation in low-and middle income contexts
- Researchers will acquire knowledge about new research directions or expand their current research in the field of rehabilitation capacity and service transformations to strengthen rehabilitation within local health systems

Biography

Professor Quinette Louw is the Executive head of the Department of Health and Rehabilitation Studies at Stellenbosch University, South African Research Chair in Innovative Rehabilitation and adjunct professor at the University of South Australia. Her qualifications include a BSc from the University of the Western Cape, a MASP as well as PhD from the University of South Australia. She published 180 research papers and supervised 100 postgraduates (masters and doctoral). Her research aims to optimize human functioning and advance rehabilitation in low-and middle income settings. Her specific research activities include the contextualization of evidence-based rehabilitation, development of innovative methods and clinical guidance tools to facilitate the translation of evidence for enhanced capacity, access and quality of rehabilitation services within the health system. Prof Louw is acknowledged by the National Research Foundation as a B2 rated scientist. She regularly serves on national and international expert and guideline panels (e.g., WHO). Prof Louw has fostered long-term, productive linkages with national and international research institutions, professional bodies and relevant government departments.

Salah N El Tallawy
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Management of musculoskeletal pain: An update with emphasis on chronic musculoskeletal pain

Musculoskeletal pain is a challenging condition for both patients and physicians. Many adults have experienced one or more episodes of musculoskeletal pain at some time of their lives, regardless of age, gender, or economic status. It affects approximately 47% of the general population. Of those, about 39–45% has long lasting problems that require medical consultation. Inadequately managed musculoskeletal pain can adversely affect quality of life and impose significant socioeconomic problems. This manuscript presents a comprehensive review of the management of chronic musculoskeletal pain. It briefly explores the background, classifications, patient assessments, and different tools for management according to the recently available evidence. Multimodal analgesia and multidisciplinary approaches are fundamental elements of effective management of musculoskeletal pain. Pharmacological, non-pharmacological, as well as interventional pain therapy are important to enhance patient's recovery, well-being, and improve quality of life. Accordingly, recent guidelines recommend the implementation of preventative strategies and physical tools first to minimize the use of medications. In patients who have had an inadequate response to pharmacotherapy, the proper use of interventional pain therapy and the other alternative techniques are vital for safe and effective management of chronic pain patients.

Biography

Prof. El-Tallawy studied at both Minia and Cairo University, Egypt. He completed his 1st MSc in the year 1989 in Anesthesia, 2nd MSc 1996: Pain Management and MD: 1995: Anesthesia and Pain Management. He worked in both Minia and Cairo Universities, Egypt from 1985 - Now, In King Saud University as a locum (part time from 2011–2023). He has more than 48 published articles in SCI/E Journals. He presented more than 60 presentations in national and international conferences. Reviewer and editor of many medical journals. He joined the following:

- IASP member from 1992 – now
- WIP
- ASPRIRE research group for improving postoperative pain from 2017–2022
- Middleast advisory board for pain from 2004-now
- NEMA Research institute from: 2018-now and others

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Pulmonary rehabilitation in older patients with asthma

Asthma could be identified as chronic inflammation of airways in addition to airflow limitation and airway hyperresponsiveness. Although it is known as a childhood disease, asthma incidence in the elderly has been increasing due to longer life expectancy. The prevalence of asthma is reported 1–18 percent in different countries, becoming a severe global health problem. Globally, it is predicted that more than 100 million people will get diagnosed with asthma until 2025 because of modern lifestyle and urbanization. In Turkey, the prevalence of asthma is reported at 3.8 percent in 2019. The prevalence of asthma in adults over 65 years old is reported between 4 percent and 13 percent, and the number of patients with asthma aged 65 years and older is also estimated to increase more considering expected higher the number of older people. Furthermore, older patients with asthma may have higher morbidity and mortality, a greater financial burden to health systems, and poorer quality of life than younger ones.

The diagnosis of asthma depends on medical history, physical examination parameters, and objective pulmonary functions measurement. Cough, wheezing, chest tightness, variable expiratory airflow limitation, and dyspnea that worsen in the early morning hours or with exercise are typical asthma complaints. Increased breathing frequency and ventilation caused by exercise may lead to dyspnea in asthma in every stage, and older patients with asthma may feel more dyspnea than adult patients. Dyspnea on exertion and fear of triggering symptoms may lead to avoidance of physical activity in elderly patients with asthma, resulting in exercise intolerance, decondition, decrease in walking distance, social isolation, and depression. Aging may also contribute to decreased muscle strength, primarily type II muscle fibers in the lower extremities, which may further deteriorate the physical function and physical independence in elderly patients with asthma. Moreover, decreased functional exercise capacity and quadriceps muscle strength, and increased risk of falling were also reported in elderly patients with asthma compared to their healthy peers. Thus, restoring expected levels of physical activity, preserving muscle mass, preventing asthma symptoms, pulmonary functions, and avoiding adverse effects from asthma medication can be defined as the main goals of asthma management.

Asthma patients with dyspnea, decreased exercise tolerance, a restriction in daily activities, and impaired general health status may be candidates for Pulmonary Rehabilitation (PR). PR could be defined as a comprehensive approach based on a detailed assessment followed by patient-based therapies that involve education, exercise training, and behavior change according to The American Thoracic Society (ATS) and the European Respiratory Society (ERS). A PR program for asthma patients may consist of patient education, exercise training, psychosocial/behavioral support, nutritional therapy, outcome assessment, and motivational approaches to adherence to the long-term rehabilitation recommendations. Participation in moderate physical activity programs can improve cardiovascular fitness, quality of life, and dyspnea management in asthma. Forms of exercises for these patients may include breathing retraining, cardiovascular endurance training and strength training. Moreover, it is believed that gains in strength of quadriceps muscle in pulmonary patients may optimize the performance of daily living activities that individually load these muscles, particularly stair climbing, and sit to stand.

Biography

Elif Develi is an Assistant Professor of Department of Physiotherapy and Rehabilitation at Yeditepe University in Turkey since 2017. She has a BSc, MSc and PhD degree in Physiotherapy and Rehabilitation from Yeditepe University. She worked as a bursary student at same university between 2013 – 2017. She is the member of Turkish Thoracic Society, Turkish Respiratory Society and European Respiratory Society. She got 8 silver sponsorship with her studies focused on pulmonary rehabilitation for the attendance of the Turkish Respiratory Society Congress and European Respiratory Society International Congress. Her current research interests focus on pulmonary rehabilitation including asthma and elderly.

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Incidence of Surgical Site Infection (SSI) in patients aged 60 or above, who underwent operative fixation / prosthetic replacement for fractures of the neck and trochanter of femur

Background: Post-operative surgical site infection following orthopaedic implant surgery is a major complication and the incidence ranges from 1-2% to 22% (2). Surgical site infection is a devastating complication and may be difficult to treat. The surgical site infections impose financial burden to the patient, grossly reduces his quality of life as well as increase the mortality.

Method: This prospective study was conducted on 107 patients aged 60 or above undergoing operative fixation / prosthetic replacement for fractures of the neck and trochanter of femur in KIMSHEALTH, Trivandrum during the period of November 2020 to June 2022.

Results: The surgical site infection was diagnosed in 2 (1.9%) patients within 3 months after surgery. Klebsiella pneumoniae was an infective organism isolated in both cases and Acinetobacter baumannii also isolated in one case.

Conclusion: From this study, it can be conclude that our institute is very particular in ensuring adequate aseptic precautions to prevent SSI. As this study could not find any statistically significant preoperative risk factors, which cause Surgical Site Infection. It is suggested that it needs further detailed study to find out the risk factors causing Surgical Site Infection and methods to prevent it.

Key words: Surgical site infection, Neck of femur fracture, Intertrochanteric fracture.

Audience Take Away Notes

- Importance of aseptic precaution
- Methods to prevent surgical site infection
- Incidence of surgical site infection and its importance

Biography

Dr. Gowrishankar S, studied MBBS at Malankara Orthodox Syrian Church Medical College, Kolenchery, India and is currently doing post graduate residency in KIMS HEALTH, Trivandrum, Kerala, India.

Dr. Rohan Krishnan
Consultant Orthopaedics Surgeon, Maulana Azad Medical College, New Delhi

Can amputation be prevented in case of a Madura Foot

Mycetoma is a chronic, granulomatous infection, mainly involving the foot, is endemic to tropical and subtropical regions and is caused either by bacteria (actinomycetoma) or fungi (Eumycetoma). The disease typically involves cutaneous and subcutaneous planes, or sometimes bones, forming granulomatous nodules with multiple sinuses discharging coloured grains. Actinomycetomas are more responsive to antibiotics whereas eumycetomas are notoriously resistant, posing a therapeutic challenge. In view of this, the currently accepted treatment standard is debridement (local surgical excision) for small localised lesions, while in advanced cases amputation is deemed necessary. We present a case of eumycetoma foot since 15 years with extensive involvement of the foot including bones. Conventional wisdom would have suggested amputation but a limb salvage trial was given. The patient underwent thorough soft tissue debridement and local, antifungal impregnated beads insertion followed by oral antifungal for 3 months. During this period patient required soft tissue clearance two more times to eradicate fungal colonies which showed up later in the form of external sinuses. The final results were inspiring and have been presented in the paper, evoking a discussion and further exploration of whether amputation can be avoided in a case of eumycetoma foot.

Biography

Dr. Rohan Krishnan MBBS, MS Ortho, FRSPH London is an Consultant Orthopedic Surgeon at MAMC & Associated Hospitals, Govt of New Delhi. He is editor in Chief of Medical Dialogues Newspaper & MDTV Channel. He is also Chairman & Past National President of Federation Of All India Medical Association (FAIMA) which is an organisation of the Youth Doctors of India and have more than 100000 members. He is the founder of the organisation and Founder Director of Dr Rohan Krishnan Healthcare and Educational Trust which is working towards varied health programs specifically in rural and tribal areas. He is a well known Medico social activist and has worked as President of Resident Doctors Association of PGIMER, New Delhi, President of Students Union of Rajiv Gandhi University, Karnataka. On health forum he has done more than 25 shows to generate public awareness with more than 1 lakh viewers.

Gali Dar[1, 2*], Nili Steinberg[3]

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Running surfaces affect Achilles tendon structural integrity among long distance runners

Background: Load and joint kinematics change with differences in running surface. Running regularly on trails compared to road might influence the load on the Achilles tendon and its adaptations along with other factors such as balance, strength and proprioception.

Objective: To investigate Achilles tendon structure and functional tests in road and trail runners.

Methods: The study included 26 road and17 trail runners. All running at least 3 times per week with a minimum of 20km per week and had participated in running competitions over 2 years. Each participant was examined for Achilles tendon structure (via Ultrasound Tissue Characterization (UTC) imaging) and functional tests in addition to demographical questionnaire. Main Outcome Measure included: The percentages of Echo types I, II, III and IV within the tendon, tendon length and width, tendon cross sectional area (via UTC imaging); ankle inversion movement discrimination ability (via AMEDA device); dynamic postural balance (via Y balance test); jumping performance (by triple hop distance test) and hip muscle abduction muscle strength (by hand held dynamometry).

Results: Significant difference in the distributions of the four echo-types in the UTC examination was found between groups. Percentage of echo-types I was significantly lower while echo-types II was higher in the road group compared with trail group (67.3%, 28.9% and 74.15%,22.1%, respectively) ($p<0.001$). No significant differences between genders and groups was found for other tests.

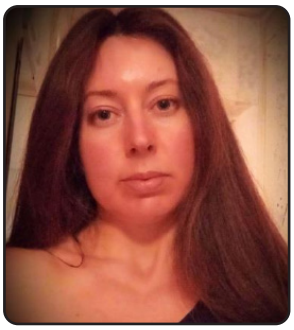
Conclusions: Tendon integrity as examined with UTC is different between road and trail runners. These suggest an influence of running surface on Achilles tendon structure.

Audience Take Away Notes

- Understand the use of ultrasonography tissue characterization (UTC) to assess tendon structure
- The findings of the research may be used by athletes and coaches to plan training programs
- The finding may assist in prevention of running injuries
- Ideas for future studies

Biography

Dr. Dar is a physical therapist (B.PT) and has completed her M.Sc. and PhD from the Department of Anatomy, Tel-Aviv University, Israel. She is a full member in the Department of Physical Therapy at Haifa University, Israel being the head of the department since 2019. She is also working as a physiotherapist in "Wingate Institute" which is the national institute for physical education and sport in Israel. Her research focuses on the musculoskeletal system in order to better understand function, injuries and treatment.



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Predicting cup implantation safety - Focus on acetabular bone stock

Statement of the Problem: Implantation of the cup above or laterally to the level of the hip biomechanical center is considered to be a risk factor for the acetabular component's instability, so its implantation in the projection of the true acetabulum is desired but accompained with risk of medial wall perforation and neuvascular complications. Thus precised quantative assessment of medial wall bone stock in site of the planned acetabular component's bony bed during DDH is required.

Methodology & Theoretical Orientation: There were revealed a complex comparative MSCT- mophometric investigation of 32 normal hips and 65 hips with DDH Crowe I-III types. There were assessed medial wall bone width in projection of the lig. teres bed and planned acetabular component's bony bed centre according to the proposed MSCT- measuring technique; their correlation with indeces of femoral head's cranial migration, acetabular horizontal sphericity angle and centre-edge (Viberg's) angle. Mann- Whitney test, one-way analysis of variance and Spearman's rank correlation were used respectively.

Findings: Width of the acetabular medial wall in projection of the lig. teres / acetabular component's bony bed centre was defined as: 4,3 mm (3,3; 4,8) / 7,2 mm (6,2; 7,8) for normal hips, 9,95 mm (7,5; 11,6) /11,85 mm (9,8; 13,5) for Crowe I hips, 15 mm [(1,7; 17,3)/15,7 mm (13,5; 17,3) for Crowe II hips and 15,45 mm (13,7; 19,8) / 16,05 mm (12,8; 20,2) for Crowe III hips, respectively. Weak correlation of acetabular medial wall bone stock in projection ofacetabular component's bony bed centre with femoral head's cranial migration indicates the invalidity of the Crowe's DDH staging for THR's needs and the necessity of independent measuring of the index during individual preoperative planning.

Conclusion & Significance: Positioning of the cup at the level of the hip's biomechanical centre requires its medialisation that can be achieved safely only with medial wall width not less then 12-15 mm in both localisations, otherwise it should be turned to cotypoplasty technique. Since conventional biplanar X-ray imaging is invalid for precise measuring of the aforementioned indeces due to superimpositioning, the proposed MSCT-morphometric technique could be of help in terms of individual safe implantation technique selection during THR preplanning for DDH.

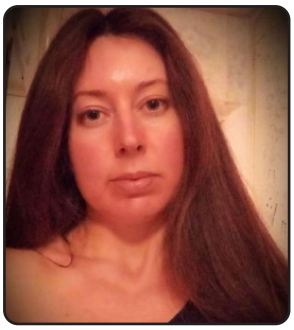
Audience Take Away Notes

- The proposed novel approach of CT acetabular bone stock quantification will allow making THR preoperative diagnosing more precise and individualized in terms of safety and implant stability hence diminishing the risks of complications
- Since conventional imaging is invalid for precise measuring of the aforementioned indeces due to superimpositioning, the proposed CT- morphometric technique could be of help in terms of prevention neurovascular damage during implantation, especially for patients with DDH and protrusion coxarthrosis

- Application of the proposed diagnostic approach will help to select the optimal implant's design, size, method of fixation as well as the necessity in additional surgical techniques such as medialisation, cotyloplasty or bone grafting

Biography

Elena Kovbasa has obtained her PhD degree at the age of 29 years in Dnipro State Medical University, Ukraine. Her PhD thesis was dedicated to implantation characteristics of acetabulum implicated to THR during developmental dysplasia of the hip. After that she had been working as an Assistant Professor of Trauma and Orthopaedics Department of Dnipro State Medical University, Ukraine since 2019. Since 2023 she's Head of the Department of Clinical Sciences of Kharkiv Institute of Medicine and Biomedical Sciences. The main field of scientific search is preoperative planning for THR in various hip joint pathologies and postural balance restoring after THR during DDH. She has over 40 publications and international conferences reports, those have been cited over 30 times, and her publication h-index is 2.5.



Elena Kovbasa[1*], Andriy Alieksieiev[2], Dmytro Iershov[3], Iegor Korchagin[4], Serhiy Marchenko[5]

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[5]Department of Orhopedic Surgery, Dnipro Clinical Regional Hospital, Dnipro, Ukraine

Acetabular bone density CT-evaluation - Implications to THR

Statement of the Problem: Implantation of the acetabular component into poor-quality bone during total hip replacement (THR) is considered to be a major risk factor for its instability. High incidence of developmental dysplasia of the hip (DDH) and occult endocrine-related bone tissue pathology as well as invalidity of routine DXA for assessment of acetabular bone density justify the necessity of precise preoperative bone quality evaluation directly in the presumed implantation site.

Methodology & Theoretical Orientation: There were revealed a complex comparative CT-mophometric assessment of acetabular spongious bone X-ray density (attenuation coefficient-based) due to proposed approach of 32 normal hips and 65 hips with developmental dysplasia Crowe I-III types. Patients with DXA-verified osteoporosis or osteopenia were noted and moved to separate research group. The evaluation implied 5 mm- interval measuring due to topographical zones (supraacetabular area, anterior and posterior acetabular walls). Obtained results were stratified due to dysplastic sectoral deficiency subtype: antero-lateral, postero-lateral or total deficiency and analyzed with appropriate statistical methods. Mann-Whitney test, one-way analysis of variance and Spearman's rank correlation were used respectively.

Findings: All dysplastic hips showed increasing of X-ray density of supraacetabular area with simultaneously with X-ray density loss of anterior and posterior acetabular walls in all sectoral deficiency subtypes. There were determined progressive increase of the X-ray density of the supraacetabular bone and steady decrease of anterior and walls ones in correlation with the femoral head cranial displacement. The most severe loss of acetabular spongious bone X-ray density in all the zones was observed during the total sectoral deficiency subtype.

Conclusion & Significance: Detected changes of acetabular spongious bone X-ray density reflectsthe local degenerative processes and following changes of the biomechanical bonetissue properties occurred due to dysplastic deficiency formation that influence primary and delayed acetabular component's stability. The defined normal ranges and regularities of acetabular spongious bone X-ray density changes during DDH that should be taken into consideration for preoperative planning of acetabular component implantation.

Audience Take Away Notes

- The proposed novel approach of CT-based acetabular bone density evaluation allows making THR preplanning more precise and individualized in terms of safety and implant stability hence diminishing the risks of complications
- Since routine DXA is invalid for precise evaluation of spongious bone density at the planned implantation site, the proposed CT-morphometric approach could be of help in terms of prevention of primary and secondary instability, especially for patients with developmental dysplasia of the hip and concomitant endocrine pathology
- Application of the proposed diagnostic approach will help to select the optimal implant's design, size, method of fixation as well as the necessity in additional surgical techniques such as bone grafting, augmentation etc

Biography

Elena Kovbasa has obtained her PhD degree at the age of 29 years in Dnipro State Medical University, Ukraine. Her PhD thesis was dedicated to implantation characteristics of acetabulum implicated to THR during developmental dysplasia of the hip. After that she had been working as an Assistant Professor of Trauma and Orthopaedics Department of Dnipro State Medical University, Ukraine since 2019. Since 2023 she's Head of the Department of Clinical Sciences of Kharkiv Institute of Medicine and Biomedical Sciences. The main field of scientific search is preoperative planning for THR in various hip joint pathologies and postural balance restoring after THR during DDH. She has over 40 publications and international conferences reports, those have been cited over 30 times, and her publication h-index is 2.5.

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Grisel's Disease: A rare cause of torticollis in the pediatric age

Atlantoaxial Rotatory Displacement (AARD) is a pediatric cervical spine rotatory instability caused by C1-C2 subluxation or facet dislocation. The most common presentation is a young child who presents with torticollis. Common causes include infection, trauma, recent head or neck surgery, idiopathic or other associated conditions such as Down's syndrome, rheumatoid arthritis, tumors or congenital anomalies. Grisel's disease is the non-traumatic condition of AARD following a respiratory infection or retropharyngeal abscess thought to be linked to lymphatic edema in the cervical spine. Diagnosis is made by CT-scan of the cervical spine. Treatment can vary from a soft collar to surgical fusion, depending on the severity and chronicity of the condition. We present a 11-year-old girl with a 3-day onset neck pain and a left facial swelling. She also presented torticollis, limitation in cervical motion and trapezius contracture, without elicit pain on cervical spinous processes. Her parents brought her after a failed attempt of management with pain killers alone. A cervical CT-scan revealed an increase of the region of the palatine tonsil, with a thin ipsilateral peri-tonsillar phlegm (3x8mm) and bilateral non-suppurating reactive adenopathies as well as a rotatory C1-C2 subluxation (Fielding I). She was admitted under intravenous antibiotic, non-steroidal anti-inflammatory drugs and with a cervical collar. She had a favorable evolution completing 10 days of amoxicillin-clavulanate and 7 days of cervical immobilization. She was discharged after a complete symptom resolution. She was evaluated one month later where she presented herself asymptomatic. The reassessment cervical CT-scan showed no lesions. Grisel's disease is often miss diagnosed in the presence of an infection near the cervical area in children. However, it can be successfully treated with antibiotics in order to assess the underlying infection, pain killers, muscle relaxants and cervical immobilization. We came to raise awareness in the orthopedic community for this identity since antibiotics would not be the only appropriate management.

Audience Take Away Notes

- Show how a very common disease in children can affect the musculoskeletal system
- Show the more common features of such condition
- Show the adequate management to such condition
- Create awareness in the Orthopedic Community

Biography

Dr. Marta studied Medicine at the University of Porto, Portugal and had her Master's Degree at 2019. She then completed one year of General Residency in Hospital de Santa Luzia, Viana do Castelo. In 2020 she started her Orthopedics Residency at Centro Hospitalar do Tamega e Sousa where she currently works. In 2021 she received her post-Graduate title in Sports Medicine and is currently undergoing the Doctorate in Hospital Sao Joao, Porto. She has participated in more than 400 surgeries as first surgeon and more than 500 as a first helper.

Gowrishankar S[1*], Muhammed Jasim[2], Muhammed Ehsan Nazeer[3]

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Functional outcome of comminuted/displaced middle third clavicle fractures (Type 2b) treated by plate fixation

Introduction: Clavicle is the bony link from thorax to shoulder girdle and contributes to movements at shoulder girdle. Clavicle fracture is a common traumatic injury around shoulder girdle due to their subcutaneous position. Recent studies have showed a higher rate of nonunion and shoulder dysfunction in subgroups of patients with clavicle fractures. The purpose of the study is to prospectively analyze the functional outcome of mid third displaced clavicular fractures treated by open reduction and internal fixation with plate osteosynthesis.

Materials and methods: Forty four cases of middle third displaced (Robinson type 2b2) clavicular fractures are treated with plate osteosynthesis. We used precontoured anatomical plate in our studies. The primary outcome measures are functional constant and murley shoulder score. Patient was followed up at 2,6 weeks and 3 month time. The secondary outcome measures were incidence of associated injuries in comminuted/displaced midshaft clavicle fracture.

Result: Out of 44 cases 31 were males and 13 females. Right side clavicle involved more than the left side. 95.5% of patients had excellent grades and a good grade in 4.5% of patients were observed. The mean Constant Shoulder score was 95.39, mean Constant Shoulder score of normal shoulder in study population was 98.16. We also noticed that Road traffic accidents were the common mode of injury among patients. Out of 44 patients in the study 29 patients had associated injuries, So majority in the group had associated injuries.

Conclusion: Open reduction and rigid internal fixation of displaced midshaft clavicular fracture has resulted in good fracture union rate and excellent functional outcome.

Key words: Clavicle, Middle third, Displaced, Fractures, Reconstruction plate, Locking compression plate, Functional outcome.

Audience Take Away Notes

- The ideal patient for undergoing open reduction and internal fixation of fracture using plate fixation
- The reliability of constant shoulder outcome score
- The role of early rehabilitation post operatively

Biography

Dr. Gowrishankar S, studied MBBS at Malankara Orthodox Syrian Church Medical College, Kolenchery, India and is currently doing post graduate residency in KIMS HEALTH, Trivandrum, Kerala, India.

Lavindra Tomar
Department of Orthopeadics and Joint Replacement, Max Super Speciality Hospital, Delhi, India

Total hip arthroplasty in dysplastic hips

Dysplasia of the hip is a congenital orthopedic condition characterized by abnormal development of the hip joint. It affects the acetabulum and femoral head, leading to joint instability, pain, and functional limitations. Total hip arthroplasty (THA) has emerged as a reliable and effective treatment option for patients with dysplasia hips who have not responded to conservative management. This abstract aims to provide a comprehensive review of the current knowledge regarding THA in dysplasia hips.

The primary goal of THA in dysplasia hips is to restore joint stability, relieve pain, and improve functional outcomes. Preoperative evaluation plays a crucial role in determining the severity of dysplasia, assessing bone quality, and planning the surgical approach. Radiographic assessments, including the measurement of acetabular and femoral parameters, aid in the selection of appropriate implants and surgical techniques.

Surgical management of dysplasia hips poses unique challenges due to the anatomical abnormalities associated with the condition. The acetabulum may require extensive reconstruction using bone grafts, cup augmentation, or specialized implants to achieve optimal implant positioning and stability. The femur may also present with deformities, necessitating the use of modular stems or custom-made implants. Various surgical approaches, such as the posterior, anterolateral, or direct anterior approach, have been utilized, each with its advantages and limitations.

Postoperative care and rehabilitation protocols are critical for ensuring successful outcomes in THA for dysplasia hips. Early mobilization and strengthening exercises are encouraged, while precautions are taken to avoid dislocation. Long-term follow-up is essential to assess implant survival, functional outcomes, and potential complications, including instability, wear, and periprosthetic fractures.

Several studies have reported favorable outcomes following THA in dysplasia hips, with significant pain relief, improved joint stability, and enhanced functional capabilities. Patient satisfaction rates have been high, highlighting the effectiveness of THA in restoring quality of life. However, complications such as dislocation, nerve injury, and infection can occur, warranting meticulous surgical technique and patient selection.

In conclusion, THA is an effective and reliable treatment option for patients with dysplasia hips who have exhausted conservative management. Preoperative planning, surgical technique, and postoperative rehabilitation play crucial roles in achieving optimal outcomes. Further research is warranted to refine surgical approaches, implant designs, and long-term outcomes in this specific patient population. Through continued advancements in technology and surgical techniques, THA will continue to evolve as a valuable treatment modality for dysplasia hips, providing patients with improved pain relief and functional restoration.

Audience Take Away Notes

- Attendees will gain a thorough understanding of the condition, its challenges, and the surgical techniques involved in restoring joint stability and improving functional outcomes
- Attendees will learn about radiographic assessments and measurements that aid in selecting appropriate

- implants and surgical approaches, enabling them to enhance their preoperative planning skills
- Attendees will gain insights into early mobilization, strengthening exercises, and precautions to prevent complications such as dislocation. This knowledge will enable them to develop effective postoperative care plans and rehabilitation protocols for their patients
- The presentation emphasizes on various tips and tricks gained through experience of 20 years to make treatment of this condition simpler

Biography

Dr. L Tomar is a specialist Orthopedic Surgeon with more than 30 years of experience in Orthopaedics & Joint Replacement, and 10,000 Joint Replacement Surgeries. An eminent personality in the field of invasive and non-invasive Orthopedic procedures, his expertise lies in providing complete patient care while performing all involved surgical and non-surgical procedures with absolute precision. He has wide-ranging skills in Knee and Hip Replacement surgeries. he has extensive training in the latest technology and procedures in the field of Joint Replacement and has the expertise to perform complex surgeries in the Orthopaedics, Primary Arthroplasty & Revision Arthroplasty (Hip & knee).

Ghazi Racil

Research Laboratory (LR23JS01) “Sport Performance, Health & Society”, Higher Institute of Sport and Physical Education of Ksar Said, University of Manouba, Tunis 1000, Tunisia

Combined training effects in hurdler

This study aims to determine the effect of flexibility exercises combined with plyometrics in hurdles race, on physical fitness, motor skills (MS) and hip range of motion. Thirty-four male hurdlers, (age=15.7±0.7 years, body mass=59.7±2.3 kg, height=170.8±2.4 cm) were randomly assigned to four independent groups. The (Gflex+plyo), the (Gplyo), the (Gflex) and a control group (Gcon). All participants performed different tests: a test of right and left hip flexion (RHF, LHF) and extension (RHE, LHE), Squat Jump (SJ), Countermovement Jump (CMJ), Stiffness Jump (STFJ) and three (MS) exercises (running, hopping and leaping). A 60-m sprint on the hurdles was also performed. The two-way analyses of covariance for repeated measures showed that Gflex+plyo increased significantly: the CMJ, performance on 60-m and showed higher performance in the between groups’ comparison. The Gflex+plyo and Gflex showed the higher percentages of changes in flexibility (RHF: 3.2±1.3% and 3.0±2.1%; RHE: 6.4±2.4% and 9.4±4.1%, LHE: 8.4±3.4% and 7.8±4.3%, respectively). Gplyo increased significantly the LHF (3.9±1.4%) more than the other groups. In the between groups’ comparison, Gplyo showed the higher percentage of change in STFJ (6.4±1.8%) and the Gflex+plyo showed the higher values in running and hopping (10.7±4.6% and 13.3±2.1%, respectively). Specific stretching exercises combined with plyometrics may be more beneficial than other training strategies in young sprint-hurdlers. This may better improve physical fitness, hip range of motion and may increase different level of skills which may better improve performance in hurdles race.

Biography

Dr. Ghazi Racil is a PhD, at the High Institute of Physical Education and Sport, Tunis, Tunisia, and graduated as Physical Education Teacher in 1987. He then joined the research group in the Faculty of Sciences in Tunis at the Department of Biological Sciences in 2010, and he was recruited at the Institute of sports in Ksar Said in Tunis. He received my PhD degree in 2015 at the faculty of Sciences in Tunis. Currently working at Exercise physiology and body composition. His research is into Dialectology, Nutrition and Dietetics and Nutritional Biochemistry. Current project is 'perceived exertion and training in young obese.' indeed he is working on motor skills in the young age and the effect of rhythm in performance development.

Jena Buchan
Faculty of Health, Southern Cross University, Gold Coast, QLD, Australia

When evidence or experience isn't there: The importance of the client in evidence-based practice

Within medicine and allied health degrees and practice, there is a strong emphasise and expectation for undertaking evidence-based practice. This approach to practice suggests healthcare practice should be based on an integration of research evidence, clinical experience, and client values. However, this poses a range of challenges. For example, new practitioners often have little to no clinical experience to draw upon, apart from what they may gain from work-integrated learning. What then arises is a common reliance and education focus on use of research evidence to guide client care. However, research evidence is not always available, be it related to the condition(s) the client has or specific rehabilitation guidance around their personal circumstances and side-effects. This can present challenges for both students and practitioners, particularly in relation to working with clients where neither research evidence nor clinical experience may exist around their health situation and needs. As such, there a growing need and recognition of the importance of the third aspect of evidence-based practice: client values. This has significant implications for everything from the education and training of future practitioners to the delivery of healthcare services. Drawing on personal case studies, research projects, and current practice approaches, resulting from years of experience as an accredited exercise physiologist and university academic with a focus on work-integrated learning, this presentation will present 'on the ground' learnings on client-centred care. Healthcare practitioners will be challenged to examine their own practices, identify opportunities to consider all aspects of evidence-based practice, and gain simple tools and approaches to ensure the client is at the centre of care and practice.

Audience Take Away Notes

- Regardless of whether individuals are healthcare practitioners, educators, students, or a combination of a few, this presentation intends to provide them with ideas on how to approach evidence-based practice, with a particular focus on the client values aspect
- This presentation will challenge individuals to examine their own practices, and identify ways they implement the various aspects of evidence-based practice, as well as ways to adapt when the 'evidence' isn't there
- This presentation will offer simple tools and ideas around enhancing client-centered care, both in education of future practitioners and in their own professional practice

Biography

Dr. Buchan completed her undergraduate dual degree in Biology and Exercise and Sports Science at the University of North Carolina-Chapel Hill in 2007. She then gained a Master of Health Sciences from the University of Notre Dame-Australia in 2010, where she led the establishment of a student-led rehabilitation and staff fitness exercise clinic, still in existence today. During this time, she also gained her Exercise Physiologist accreditation with Exercise and Sports Science Australia. After a one-year Euro trip break, Jena joined the iHOP cancer research group at Queensland University of Technology (QUT; Australia). Here she completed her PhD under Professor Sandi Hayes, running a randomized controlled trial looking at the physical and psychosocial impacts of exercise in women with breast cancer-related lymphoedema (completed 2015). Since this time, she has been an academic in exercise science and physiology, including work-integrated learning lead, currently working at Southern Cross University (Gold Coast, Australia). She also actively practices as an Accredited Exercise Physiologist, with a specialization in oncology.

Roger H. Coletti, MD
Interventional Health, PA, Lewes, DE, United States of America

Treatment of chronic muscle spasm and pain with the CMECD® procedure

It has been noted by multiple researchers that there is Spontaneous Electrical Activity (SEA) at painful trigger points. This author has studied chronic muscle spasm and found that SEA is always present and appears to be the cause for the chronic nature of muscle spasm. Chronic muscle spasm can last for years and cases where the spasm lasted for decades were not only found but successfully treated with the CMECD® procedure. This procedure consists of EMG guidance searching for the SEA and using a combination of phenoxybenzamine, Lidocaine and dexamethasone to extinguish the SEA. Large areas of muscle often need to be treated. Thanks to lidocaine acting as an antiarrhythmic, the SEA is extinguished within seconds and the phenoxybenzamine then takes over after about one hour. With the resolution of the SEA, the muscle can immediately relax. The phenoxybenzamine forms a covalent bond on the alpha motoneuron receptor and the result is a duration of action of 2-3 months. This is enough time for the muscle to recover the prolonged effect of ischemia resulting from the prolonged spasm. Muscles treated in this fashion need only a single injection. Recurrences are rare and only occur if there is a repeat overuse or traumatic injury. The CMECD® procedure is available for use by any medical caregiver that is licensed to give injections. The ability to permanently relieve chronic pain without the use of opioid drugs should prompt interest in this procedure.

Audience Take Away Notes

- The audience will be exposed to an EMG guided injection procedure that will allow them to treat chronic pain resulting from chronic muscle spasm with a single injection regardless of the length of time the chronic spasm had been present. Details and practical considerations will be covered. The EMG presentation will be reviewed with treatment and outcome EMG videos. Theoretical considerations will be discussed
- The ability to make use of the CMECD® procedure will allow PM&R physicians to facilitate the rehabilitation of individuals suffering from chronic pain that limits their function. The economy of the procedure will allow them to directly treat patients directly and be rewarded with the personal accomplishment of immediate and sustained relief of chronic pain. The EMG findings that will be presented offer an opportunity for further research in the origin and treatment of chronic pain and chronic muscle spasm

Biography

Dr. Coletti received a BA from Georgetown University College of Arts and Sciences. He received a Master of Arts from Hofstra University. He received his MD from State University of New York at Downstate. His medical internship and residency was performed at Nassau County Medical Center in East Meadow, NY. He did two years of cardiology fellowship at Columbia Presbyterian Medical Center in New York and then transferred to Westchester County Medical Center where he completed one year of Interventional Cardiology fellowship. He was awarded FACC, FASNC, and FSCAI fellowship status. Current interest is chronic muscle spasm and pain.

Zachary J. Eisner*, Peter G. Delaney, Haleigh Pine, Kenneth Yeh, Ilyas S. Aleem, Krishnan Raghavendran, Patricia Widder

The University of Michigan Medical School, Michigan Center for Global Surgery, and LFR International, United States of America

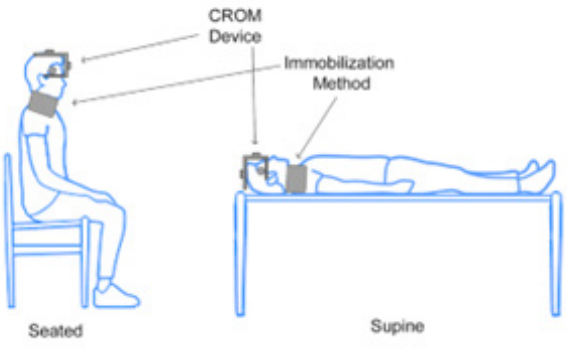
A Novel cervical-spine immobilization technique for traumatic spinal cord injury prevention in resource-limited settings

Objective: Traumatic spinal cord injury (TSCI) constitutes a considerable portion of the global injury burden, disproportionately affecting low- and middle-income countries (LMICs). Prehospital care can address TSCI morbidity and mortality, but insufficient emergency medical services suggest alternatives to high-income standards such as cervical collars are necessary for patients with suspected traumatic spinal cord injury. We propose a novel method of c-spine immobilization using folded towels.

Methods: Using non-inferiority trial design, thirty healthy patients (median age=22) were enrolled to test the efficacy of folded towels in comparison with rigid cervical collars, foam neck braces, and no immobilization. We measured cervical range of motion (CROM) in six cardinal directions in seated and supine positions. A weighted composite score (CS) was generated to compare immobilization methods. A preserved fraction of 75% was determined for non-inferiority, corresponding to the difference between the median values for CROM between control (no immobilization) and c-collar states.

Results: C-collars reduce median CROM in six cardinal directions in seated and supine positions by an average of -36.83° seated (-17.75° supine) vs no immobilization. Folded towels and foam neck braces reduced CROM by -27° seated (-16.75° supine) and -14.25° seated (-9.5° supine), respectively. Compared to a 25% non-inferiority margin (permitting an average 9.21° of cervical movement across six cardinal directions), the CS determined folded towels are non-inferior (CSseated=0.89, CSsupine=0.47). Foam neck braces are inferior (CSseated=2.35, CSsupine=2.10). CS>1 surpassed the non-inferiority margin and were deemed inferior.

Conclusions: Folded towels are a non-inferior means of immobilizing c-spine in extension and rotation, but not flexion, vs c-collars. We propose folded towels could be trialed in combination with backboards to deliver affordable and effective prehospital TSCI management in resource-limited settings.



Biography

Zachary received his degree in Biomedical Engineering from Washington University in St. Louis, where he graduated Magna Cum Laude. In addition to working as an EMT, he earned certifications in FEMA Incident Command and Management Systems, as well as EMS instruction through the National Association of EMS Educators. In 2018, Zach co-founded LFR International, a nonprofit organization that collaborates with low-resource communities around the world to train first responders and establish sustainable emergency medical services. Zach is currently pursuing his M.D. as a Dean's Scholar at the University of Michigan and hopes to pursue a career in global surgery.

Makgabo John Tladi, FCS, MMED[1]*, Mamokoma Becky Kgole, BSC, MBChB, FCP, MMED, Cert in Pulmonology[2]

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[2]Sefako Makgatho Health Science University, Dr George Mukhari Academic, Medforum private and Jakaranda Hospitals, Pretoria, South Africa

Vitamin D combination of osseous and non-osseous benefits with supplementation

A living tissue needs nutrients to survive and bone physiology should be balanced in order to be healthy. Vitamin D plays a critical role for both bones and other body tissue homeostasis. Various conditions have been found to be associated with low vitamin D and low levels of vitamin D in the bone can manifest from childhood. Various medical conditions can affect the bone directly or indirectly. Studies have shown that there could be an association between low vitamin D and medical conditions, including orthopaedic conditions. Other secondary bone diseases can be prevented if the level of vitamin D is within normal range. We believe that giving patients vitamin D can reduce the cost of operations as well increase patients lifespan. The aim of the review article was to outline the benefits of vitamin D for both osseous and non-osseous conditions and also to convey the importance of knowledge of vitamin D supplementation for an orthopaedic surgeon.

Audience Take Away Notes

- Why it is important to check patient's vitamin D levels
- The benefits of normal vitamin D can reduce unnecessary cost of uncontrolled medical conditions
- Various conditions that are commonly encountered by an orthopeadic surgeon can be controlled if vitamin D is within normal range

Biography

Registar at Sefako Makgato Health Science in 2016. Dr MJ Tladi studied MBChB at Sefako Makgatho Health Science in 2006. He did his orthopedic surgery at Sefako Makgato Health Science in 2016. He did his sub-specialty in foot and ankle at Linksfield Private hospital and University of Witwatersrand in 2017. He has multiple publications as well international presentations. He is a full time private orthopedic surgeon at Louis Pasture and Jakaranda private hospitals, mainly doing adult foot and ankle conditions.

J Gnany[1]*, D. Alicehajic-Becic[2], M Ehsan[3], N Koshy[4], N Jagadeesh[5], A Smily[6]

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[5]Registrar in Trauma & Orthopedics, Wrightington Wigan and Leigh NHS Foundation Trust, United Kingdom
[6]Medical graduate, Manipal University, Mangalore, India

Osteoporosis vertebral fractures– Assessment and intervention using frax tool

Introduction: Osteoporosis is the most prevalent systemic skeletal disorder affecting the bone structure leading to increased risk of bone fractures and disability among the population. Osteoporosis is a characterized by low bone mineral density. Over 500,000 patients with fragility fractures present to UK hospitals each year. Previously a pathway was established to assess the asymptomatic fractures and a referral pathway to fracture liaison services were created locally. We are looking to improve efficiency of the pathway since the time it was implemented. Since inception of Frailty Bone Health clinic in August 2020, new pathway agreed for specialist clinic follow up (>65 years to frailty bone health clinic, <65 years/ or already under care of rheumatology clinic).

Aims: To improve completion rate of NOGG defined standards for patients presenting with vertebral fractures under orthopaedic care.

Materials and methods: 47 patients were assessed for osteoporotic risk fractures in line with standard NOGG admitted under Orthopaedic care at RAEI, Wigan, UK.

Results: 29 out of 47 (61%) individuals in the cohort have had previous fractures, which increases the risk of subsequent osteoporotic fractures. Frax calculated and documented – 68%, Mineral bone bloods checked – 72.3%, DEXA ordered – 63.6%, referral to specialist clinic – 56%, initiated on bone protection – 80%.

Conclusions and discussion: We had established a referral pathway (>65 years to elderly care clinic, <65 years to rheumatology clinic) and educated junior doctors to make the referrals as appropriate, included FRAX calculation as part of training and induction. On implementation of FRAX tool on HIS has been user friendly. We have seen significant improvements in the documentation using FRAX tool and increased number of referrals to specialist care.

Audience Take Away Notes

- To identify the patients under risk of osteoporosis as per NOGG guidelines
- To establish an appropriate pathway to specialist osteoporotic clinic
- To prevent subsequent fractures in patients with osteoporosis, by bone protection therapy

Biography

Jabez Gnany graduated medical school from Rajiv Gandhi University of health sciences, Bangalore, India. After which he developed keen interest in trauma and orthopaedics. He completed his postgraduate training in Trauma & Orthopaedics from Father Muller medical College Hospital in 2018. After serving in a trauma centre for a three years, he became an affiliated member of Royal College of Surgeons in Edinburgh in 2022. He pursued MCh in Trauma & Orthopaedics with special interest in soft tissue knee between 2021 to 2023. He currently works as a Registrar in Trauma & Orthopaedics at North Cumbria Integrated Care NHS foundation Trust Carlisle, UK.

J Gnany[1]*, M Shetty[2], M Ehsan[3], N Koshy[4]

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[2]Professor Spine Surgery, Father Muller Medical Hospital, Mangalore, India

[3,4]Registrar in Trauma & Orthopedics, NCIC NHS Foundation Trust, Carlisle, United Kingdom

Short segment pedicular fixation for thoracolumbar fractures with use of screws in fractured vertebrae

Introduction: It has been estimated that 6% of all fractures involve the spinal column, approximately 90% occurring within the thoracic or lumbar regions. Thoraco-lumbar injuries classically exhibit a bimodal distribution, with peaks among males under 30 years of age and in the geriatric population. Short segment pedicular fixation is a best way of fixation of these fractures.

Aims: To assess clinical outcomes of the management of acute thoraco-lumbar fractures by short segment pedicle screw fixation with screws in the fractured vertebrae.

Methods: 32 Adult patients with acute thoraco-lumbar injuries admitted under Spine surgery unit at FMMCH, Mangalore, India.

Results: 24 out of 32 patients had no neurological deficits and categorised under ASIA-E accounting for 75% of the cases. Vertebral body height was restored to 70.25% from 40.09%. Degree of segmental kyphotic angle restored to 8.370 from 15.32 0. The Oswestry disability index, pre-operatively was an average of 44.28 % reduced to 32.52%. Visual analogue score calculated was 7, which shows moderate to severe pain which improved during rehabilitation.

Conclusion: The technique of short segment pedicle screw fixation with screws in fractured vertebrae was found to be safe as our study did not show worsening of the preoperative neurological status in any patients with ASIA C and above. The procedure resulted in smaller incision, lesser operative time and less blood loss, adequate indirect decompression of the spinal canal. The outcome in terms of improvement of ASIA impairment scale was determined by the initial injury. Hence it was found to be an effective and safe technique which retains the biomechanical stability as compared to the long segment fixation while requiring smaller incision, lesser operative time, less blood loss.

Audience Take Away Notes:

- To appropriately assess vertebral fractures based on clinical and radiological evaluation
- To categorise as to which morphological type of fracture requires surgical fixation
- Clinical outcomes following stabilisation of fracture

Biography

Jabez Gnany graduated medical school from Rajiv Gandhi University of health sciences, Bangalore, India. After which he developed keen interest in trauma and orthopaedics. He completed his postgraduate training in Trauma & Orthopaedics from Father Muller medical College Hospital in 2018. After serving in a trauma centre for a three years, he became an affiliated member of Royal College of Surgeons in Edinburgh in 2022. He pursued MCh in Trauma & Orthopaedics with special interest in soft tissue knee between 2021 to 2023. He currently works as a Registrar in Trauma & Orthopaedics at North Cumbria Integrated Care NHS foundation Trust Carlisle, UK.

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24-26 AUGUST

DAY 03

WORKSHOP

JOINT EVENT ON

ORTHOPEDICS AND PHYSICAL MEDICINE

Lisa Marshall OTR/L, CLT, CLWT
Specialty Rehabilitation Inc, United States

Occupational therapy's role in treating (SCI) Subtle Cognitive Impairments

Subtle Cognitive Impairment (SCI) is a prevalent sequela, often unnoticed condition. (SCI) are seen in long COVID, cancer-related cognitive impairments, "chemo brain," anxiety, depression, and mild brain injury (concussion). AOTA advocates for our unique role in addressing functional cognition (the cognitive ability to perform daily life tasks, which includes metacognition, executive function and other domains of cognitive functioning, and performance skills). Evidence suggests Subtle Cognitive Impairments appear to be underdiagnosed; however, they can greatly impact a person's occupation and ability to participate in ADL/IADL and work skills. Under recognized SCI can impact the rehabilitation process, and when identified, the Occupational Therapy practitioner can provide treatment strategies to the multidisciplinary rehabilitation team to help improve outcomes. This course will review current knowledge of (SCI), how to differentially diagnose (SCI) from Mild Cognitive Impairments (MCI), and the latest evidence regarding screening, self-reported measures, and best practices for treatment. Identification of contributing factors to SCI and the role of the OT practitioner as an integral part of the multidisciplinary team in SCI management will be presented. Participants will have strategies for immediate implementation into each practice setting.

Audience Take Away Notes

- The participant will identify the differences between Subtle Cognitive Impairments (SCI) and Mild Cognitive Impairments (MCI) for a differential diagnosis
- The participant will identify how unrecognized (SCI) can contribute to difficulties in the rehabilitation process
- The participant will identify intervention strategies that OT practitioners can present to members of the multidisciplinary team to improve function and outcome measures for the individual with (SCI)
- The participant will identify appropriate functional outcome measures given a case study of a patient presenting with symptoms of SCI
- The participant will identify intervention strategies for SCI, addressing contributing factors provided within a case study of a complex patient undergoing evaluation for SCI

Biography

Lisa Marshall, OTR/L, CLWT, CEO, Specialty Rehabilitation Inc. Lisa Marshall graduated with a BS in OT from Thomas Jefferson University in 1989. She founded Specialty Rehabilitation Inc. (SRI) in 2002—an outpatient OT/PT oncology rehabilitation clinic. She developed (CORE) Certified Oncology Rehabilitation Expert certification program and serves served as Director of Oncology Education at the International Lymphedema and Wound Training Institute. Lisa is an accomplished speaker who has lectured for the American Occupational Therapy Association (AOTA), universities, and numerous nonprofits. In 2021, AOTA issued Lisa the Achievement Award for Exemplary Contribution to Oncology and Lymphedema Rehabilitation.

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24-26 AUGUST

DAY 03

POSTERS

JOINT EVENT ON

ORTHOPEDICS AND PHYSICAL MEDICINE

Qing Zhao[1,2], Qianxin Liang[3], Manlin Xie[2], Yanfang Zou[2], Fubin Liu[2], Jiaming Dong[2], Jiali Ye[2], Guilong Liu[2,4], Yue Cao[2], Zhaodi Guo[1,2], Ge Sun[1], Lei Zheng[1,2], Kewei Zhao[1,2*]

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Rhizoma drynariae extracellular vesicles promote osteogenic differentiation of human bone marrow mesenchymal stem cells via the estrogen receptor pathway

Extracellular vesicles (EVs) originating from plant have been exploited for treating many diseases. *Rhizoma Drynariae* (RD) is a natural plant herb with clear clinical efficacy against osteoporosis, but has some side effects. Here, we analyzed whether *Rhizoma Drynariae-derived* extracellular vesicles (RDEVS) could be targeted to enrich in bone tissue or cell and enhance anti-osteoporosis therapeutic effect. RDEVs were isolated from fresh *Rhizoma Drynariae* by juice and differentially centrifuge-based methods. RDEVs are enrich with nucleic acids, proteins and lipids. RDEVs can be internalized by human bone marrow mesenchymal stem cells (hBMSCs) and promote osteogenic differentiation. In the presence of estrogen inhibitor, the osteogenic differentiation of hBMSCs is diminished, which RDEVs can reverse.The estrogen receptor signaling pathway could be a possible mechanism of action. Using ovariectomized mice model, we demonstrated that RDEVs can also target bone tissue in vivo and have the effect of enhancing bone mineral density in osteoporotic mice. The data in vivo and vitro suggest that RDEVs have the potential to target bone tissue enrichment and treat osteoporosis.

Audience Take Away Notes

- Whether Rhizoma Drynariae-derived extracellular vesicles (RDEVS) could be targeted to enrich in bone tissue or cell
- Whether Rhizoma Drynariae-derived extracellular vesicles (RDEVS) could enhance anti-osteoporosis therapeutic effect
- What is its possible mechanism

Biography

Dr. Kewei Zhao studied Medical Laboratory at Guangzhou Medical College and graduated as MS in 1999. He then joined the research group of Prof. Aiwu Wu at the same institution. He received his PhD degree in 2018 at Southern Medical University. He has published more than 10 research articles in SCI(E) journals.

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Combining radial extracorporeal shock wave therapy and local corticosteroid injection in patient with chronic non specific neck and low back pain: Is it improving the quality of life?

Chronic pain is defined as pain that persists beyond three to six months after tissue injury. The prevalence of chronic pain has been reported in many studies. It is a multidimensional problems that can affect physical and psychological aspects of the afflicted individual's life, work and daily activities. Neck and low back pain are musculoskeletal conditions that often becomes chronic and can result in high level of disabilities. The Global burden of disease study identified neck pain as the fourth highest condition on number of years lived with disability. Low back pain as well, is the second leading cause of disability among adults of all ages worldwide, nearly 15% of the patients with low back pain may be presentably disabled. The etiology of mechanical neck pain is under debate, and it seems to be multifactorial. Thus, some cases of chronic neck pain considered non specific. At the same time, many patients with low back pain cannot be specifically diagnosed and approximately 85% of cases cannot be attributed to specific pathological changes or nerve root irritation; therefore, most patient with low back pain have non specific low back pain. The primary goal in chronic pain treatment is to improve the patient's level of function and the capacity for return to work, while decreasing as much as possible the frequency and intensity of pain while simultaneously reducing medication consumption. The multimodal regimen is superior to unimodal pain treatments in terms of pain reduction, improved physical fuctioning and returning patients to workforce. This descriptive qualitative study initially will review the patients latest condition after underwent three months of radial extracorporeal shock wave therapy (rESWT) and local corticosteroid injection combined. Fifty patients referred from neurology department are enrolled in this study. Patients must have experienced of unexplained neck and back pain for three to six months, adults over the age of 18 and have underwent twice weekly of rESWT using 1500 pulses/session with energy level of 2-4; 10-16 Hz, for 7 minutes and once local corticosteroid injection using 1 ml of lidocaine and 2 ml of dexamethasone. We use SF-36 questionnaire, modified ODI score and numerical rating scale (NRS) to evaluate the patients disabilities. The outcome had to be pain and or disability. Based on the questions answered, results have demonstrated improvement in patients daily activities, returning to work and also reducing pain recurrences. This study shows that steroid injection alone doesn't provide a long term pain free effect but combined with radial extracorporeal shock wave therapy make the patients pain free for longer time. This multimodal regimens approach are helping them with chronic non specific neck and back pain achieving their best quality of life. Nevertheless, further studies are needed to evaluate the efficacy of this combination therapy or other multimodalites treatment for chronic pain. The development of refined clinical strategies to predict positive outcomes and to optimize individualized combination therapy is the goal for future improvements.

Audience Take Away Notes

- This study shows that steroid injection alone doesn't provide a long term pain free effect but combined with radial extracorporeal shock wave therapy make the patients pain free for longer time. This multimodal regimens approach are helping them with chronic non specific neck and back pain achieving their best quality of life
- Physicians may applied this combination therapy on their patients with chronic non specific pain that have not improved using unimodal treatments
- The results have demonstrated improvement in patients daily activities, returning to work and also reducing in pain recurrences, but further studies with bigger subjects are needed to evaluate its efficacy

Biography

Dr. Maria Inez recently works as resident medical officer in Siloam Hospital Lippo Village, Indonesia. She has an interest in physical medicine and rehabilitation, therefore began to start study furthermore about it based on various cases she found in the field, affiliated with pmr specialists in medical rehabilitation unit in the hospital.

Ria Asuncion[1], Ahmad El Kouzi[1], Meena Jain[2*], Andre Catalano[3], Mehwish Farooqi[1], Vivek Prakash[3], Amber Fifer[1], Megan Meinke[3], Danah Bakir[2]

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Enhancing physical therapy referral practices for patients with parkinson's disease: A quality improvement initiative

Background: Parkinson's Disease (PD) is a neurodegenerative disorder that affects older adults and is the second most common neurodegenerative disease. The cardinal motor features of PD include bradykinesia, rigidity, postural instability, and tremor. Evidence for the efficacy of rehabilitation therapies in the treatment and management of PD has been expanding, demonstrating improvements in function, activities of daily living, speech volume, and quality of life. Despite these positive studies, rehabilitation therapy, including physical therapy and speech therapy, remains underutilized. The goal of this project is to establish a baseline referral percentage to Parkinson disease- specific rehabilitative services, determine any specific factors that affect referral to rehabilitation therapy, and find ways to improve and increase referral to rehabilitative services for a better quality of life in patients with PD.

Methods: We reviewed the electronic medical records of patients (n=127) who presented to our Parkinson's Disease center, with a diagnosis of Parkinson's disease in the year of 2021 as a new patient visit. Patients were excluded if they had severe limitations to mobility at baseline or had severe dementia. Patient data was analyzed and reasons for referral and non-referral were collected, if available.

Results: 127 patients were included in the final analysis. 73 (57%) patients were male and 103 (81%) were white, with an average age of 72.5 (Standard Deviation (SD) = 10.7). 31 (24%) patients were recommended PT, 8 (6.3%) OT, and 4 (3.1%) ST. There was no clear finding regarding specific factors facilitating or limiting patient access to rehabilitative services. Race and sex showed no significant association with therapy referrals ($p = 0.58$, $p = 0.16$ respectively). 51 (40%) patients with PD had a secondary diagnosis which affected gait. The most common secondary diagnosis that affected gain were back pain (12.6 %), lower extremity arthritis (10.2 %), and neuropathy (6.3%). A diagnosis of back pain was the only diagnosis significantly associated with referral to PT ($p = 0.02$).

Conclusions: Research shows the benefits of early intervention with physical therapy and exercise services in persons with Parkinson's Disease, however in actual practice we see that less than a quarter of patients are referred to therapy services. Future studies might include larger databases of patients in different settings, a review and evaluation of steps taken to increase referral numbers, and perhaps outcome measures for patients referred to therapy versus those that weren't. We plan to collect data for the year 2022 as a possible limitation for referral may have been due to COVID during the year of 2021. Furthermore, we are interested in reviewing the number of patients that attend community-based therapy services as well such as Rock Steady Boxing, Dance for PD, and LSVT BIG. Our goal is to improve referrals and use of rehabilitative services for patients with Parkinson's Disease to improve their quality of life.

Audience Take Away Notes

- Audience members will learn about the importance of rehabilitative services and exercise in people living with Parkinson's disease. This work will highlight gaps in the transition from research findings to what is actually seen in practice. It may encourage audience members to look at their own clinic numbers regarding Parkinson's Disease and rehabilitative services. A decision tree will be discussed that may help clinicians improve and increase referral to rehabilitative services. Audience members may be able to implement decision trees in their own clinics to help improve the quality of life for people living with Parkinson 's disease

Biography

Meena Jain is a third-year medical student at Southern Illinois University School of Medicine and she is planning to go into Physical Medicine and Rehabilitation with a focus in neurorehabilitation. She studied neural science and dance at New York University in 2020. She was a researcher with the Suzuki Lab at NYU where she studied the effects of exercise on cognition and mood. She currently has a research interest in rehabilitative services for people living with strokes, neurodegenerative diseases, and traumatic brain injuries.

Selma Denis Squassoni[1*], Nadine Cristina Machado[1], Monica Silveira Lapa[1], Eliseo J. Sekiya[2], Joao T.Ribeiro[3], Elie Fiss[1]

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Autologous stem cell infusion in COPD patients: Impact on quality of life and physical performance

Chronic Obstructive Pulmonary Disease (COPD) is a serious disease that affects millions of people around the world, however, there is still no well-established curative treatment. Quality of life and the six-minute walk test (6MWT) are used to evaluate the response of COPD patients to treatment. Stem cell therapy is a promising therapeutic alternative with great potential in these patients.

Objectives: to evaluate the impact of autologous stem cell infusion on quality of life and physical performance in patients with COPD.

Interventions: Twenty patients with advanced COPD were randomized into four groups: Control (no stem cell therapy); BMMC (bone marrow mononuclear cells collected by aspiration of the iliac crest; MSC-AT (mesenchymal stem cells derived from adipose tissue; and Confusion (BMMC and MCS-AT infused at the same time). The parameters of the 6MWT and quality of life questionnaire were evaluated over 12 months after treatment.

Results: Treated groups showed improvement of the quality of life over the baseline score in relation to the Control group: Confusion (47.62%); MCS-AT (34.22%); BMMC (10.39%). The 6MWT results showed no difference in distances, but the Borg scale scores and oxygen saturation ($SatO_2$) levels did not decrease.

Conclusions: Stem cell treatments, especially autologous MCS-AT and the combination of MCS-AT with autologous BMMC tended to modify the quality of life positively, without deteriorating physical performance after 12 months of follow-up compared to the results following conventional treatment (control). Stem cells may provide a new therapeutic approach with broad potential to be investigated in patients with advanced COPD.

Audience Take Away Notes

- Quality of life in COPD, New therapeutic treatment COPD, Better physical performance in patients with COPD
- Is a potential new therapeutic option in severe COPD patients
- The results suggest that patients improve their quality of life after SCT and sustain it for one year. This new therapeutic approach could be one more option to COPD patients with severe disease
- Yes other faculty could use this research to expand their research or teaching
- Yes, this provides a practical solution to a problem that could simplify or make a designer's job more efficient
- Yes, Will it improve the accuracy of a design, or provide new information to assist in a design problem
- Cellular therapy offers a new therapeutic approach with great potential for the treatment of COPD

Biography

Physiotherapist graduated in 1993, Master's degree in Health Sciences Quality of Life from Faculdade de Medicina do ABC 2004 and PhD in Health Sciences from Faculdade de Medicina do ABC 2018. ABC (FMABC), supervisor of the postgraduate internship at Centro Universitario Saude ABC (FMABC), volunteer member of the research ethics committee of the Centro Universitario Saude ABC (FMABC). Has experience in Physiotherapy and Occupational Therapy, with emphasis on Respiratory Physiotherapy, working mainly on the following topics: Dpoc, pulmonary rehabilitation, walking test, quality of life and smokers.

Puja Sengupta BS[1]*, Mina Botros MD[2], Mattie Raiford MD[2], John P. Ketz MD[2], Catherine Humphrey MD[2], Sandeep Soin MD[2], John T. Gorczyca, MD[2]

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The immediate impact of pelvic arterial embolization on trauma patient with unstable pelvic fractures: A systemic review and meta-analysis

Transcatheter Arterial Embolization (TAE) has been reported to control hemorrhage and lower the mortality rate among patients with unstable pelvic fractures. However, there are limited literature examining the efficacy of TAE stopping hemorrhage in unstable pelvic fractures; the rate of transfusion pre–versus post–angioembolization; and the mortality among patients with unstable fractures who underwent embolization. The purpose of the study is to examine the effects of angioembolization on patients presenting with unstable pelvic fractures. The systematic search included PubMed; MEDLINE; EMBASE; CINAHL; ClinicalTrials.gov; and bibliographic reference lists. The primary outcome was defined as mortality, change in systolic blood pressure [pre- versus post–TAE], and change and rate of Packed Red Blood Cells (PRBC) transfusion [pre- versus post–TAE]. Among 3782 publications, 33 examined the mortality rate among patients undergoing angioembolization, 12 examined the rate of change in transfusion after TAE, and 8 systolic blood pressure [pre- versus post- TAE]. The 33 studies included 3492 patients who underwent angiography and 2154 embolization secondary to uncontrolled hemorrhage. A higher ISS is positively correlated with and mortality in the embolized group. The time from the injury to angiography is positively correlated with mortality rate among patient who underwent embolization. In the 12 studies, 407 underwent angioembolization. Patients were transfused an average of 1.67 Units pRBC/h before TAE, whereas 0.25 U pRBC/h after embolization. Further, 8 studies, which included 231 patients, evaluated change in Systolic Blood Pressure (SBP). The average SBP was 85.6 mmHg prior to TAE and 96.8 mmHg after TAE. Angioembolization is effective in controlling hemorrhage by improving the systolic blood pressure and reducing mortality and rate of transfusion in hemodynamically unstable patients with unstable pelvic fractures. However, severe bleeding persists post-TAE. Therefore, resuscitative efforts must continue after embolization. Efforts should be taken towards rapid TAE and protocol-driven early embolization.

Audience Take Away Notes

- The audience will learn about the effectiveness of Transcatheter Arterial Embolization (TAE) in controlling hemorrhage and lowering mortality rates among patients with unstable pelvic fractures. They will also learn about the limitations of current literature in examining the efficacy of TAE in stopping hemorrhage in unstable pelvic fractures, the rate of transfusion pre- versus post-angioembolization, and mortality rates among patients with unstable fractures that underwent embolization
- The audience can use the findings from this study to inform their clinical practice when dealing with patients with unstable pelvic fractures. They can use the knowledge gained from this research to evaluate the efficacy of TAE in controlling hemorrhage and reducing mortality rates in patients with unstable pelvic fractures. This information can help healthcare professionals make informed decisions about the appropriate course of treatment for these patients
- This research could also benefit other faculty members who are interested in expanding their research or teaching in this area. It provides valuable insights into the effectiveness of TAE in managing unstable pelvic fractures, which could serve as a starting point for further research and investigation

- Finally, this research provides practical solutions for managing unstable pelvic fractures, which could simplify or make healthcare professionals' jobs more efficient. It could improve the accuracy of patient assessment and treatment, providing new information to assist in a clinical problem. The findings of this study could help to reduce mortality rates, decrease the rate of transfusion, and improve patient outcomes

Biography

Puja Sengupta is a 4th year medical student, Class of 2024, at Lake Erie College of Osteopathic Medicine. She is currently completing her Masters in Medical Education. Puja completed her undergraduate degree in Biology and Chemistry. Before medical school, Puja has numerous experiences in the healthcare field as an EMT, Delirium CAM evaluator, research assistant at Icahn School of Medicine in the Bone Department. Puja is involved in many research projects and current research interest include pelvic fractures, trauma, joint and hip replacement and orthopedics in minority population.

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Improving post-operative mortality by early identification of cognitive impairment in femoral fracture patients in patients over 65

There are approximately 80,000 hip fractures treated in UK alone costing over 2 billion pounds. Studies have found that hip fracture patients with reduced cognition have a higher overall risk of complications, mortality and reduced long-term outcome. Data was collected retrospectively between the periods of Nov - Dec 2020 and Jan - Feb 2021 in patients who sustained a femoral fracture over the age of 65, requiring surgical management. The first cycle involved analysis of 141 patients; of these 46% of patients had pre-operative reduced cognition (AMTS ≤ 7) and the mortality rate amongst this group was 10.6%. We presented our findings and educated all staff to assess cognition both pre and post-operatively. Trust guidelines were changed to ensure cognitive assessment both pre and post-operative in femoral fracture patients. The second cycle after our intervention, found that mortality rates decreased to 1.38% (compared to previous 10.6%) in patients with reduced cognition pre-operatively. Mortality rate significantly reduced after cognitive assessment improved within the trust. Interestingly cognitive impairment in itself is a risk factor of developing a hip fracture. There is therefore a large overlap between hip fractures and cognitive decline and we must be mindful to assess cognition to predict a higher mortality risk in our patients - especially those over 65. Increased assessment of cognition significantly reduced the mortality rate, overall risk of complications and length of patient stay - hence helping to reduce the economic burden on the National Health Service.

Audience Take Away Notes

- Cognitive impairment is an important risk factor when considering hip fracture patients – in both mortality prediction and as an independent risk factor for development of a hip fracture itself
- Cognitive assessment pre and post operatively significantly reduces mortality
- Assessing cognition will overall help reduce hospital length of stay, overall complications and economic burden on the health care system

Biography

Dr. Shuchi Kohli studied Medicine at Masaryk University, Czechia in 2021, graduating with MD. She then began her foundation training in London where she is heavily involved with research and teaching. She has many published peer review articles and has delivered numerous national and international presentations.

Participants List

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Cavin Staff University of Queensland, Australia	45
Claire Munsie WA Youth Cancer Service, Australia	102
Dhairav Shah Asiya Physiotherapy and Rehabilitation Clinic, India	70
Dimitrios Giotikas Mediterraneo Hospital, United Kingdom	33
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"We wish to meet you again at our upcoming events next year..."

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