magnus Group

CPD ACCREDITED

THE CPD GROUP | APPROVED PROVIDER #780643

Verify @ https://thecpdregister.com

Joint Event

2nd Editionof

WorldOrthopedics Conference &

2nd EditionofGlobalConferenceon

PhysicalMedicine and Rehabilitation

09-11 September, Madrid, Spain

Venue: Rafaelhoteles Atocha C. de Méndez Álvaro, 30, 28045 Madrid, Spain

BOOK OF ABSTRACTS

INDEX	Page No

BOOK OF ABSTRACTS

SEP

09-11

2nd Edition of Global Conference on

Physical Medicine and Rehabilitation &

2nd Edition of

World Orthopedics Conference

BOOK OF

ABSTRACTS

Keynote Speakers

Mel B. Glenn
Harvard Medical School, United States

John Robert Bach
Rutgers University, United States

Shaomin Shi
Medical College of Wisconsin, United States

Stephen S Tower
University of Alaska Anchorage, United States

Elissa Charbonneau
Encompass Health, United States

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

Gerhard E Maale
Dallas Ft. Worth Sarcoma Group, United States

Archana Vatwani
Old Dominion University, United States

Vaidya Balasubramaniam
The Wollongong Hospital (ISLHD), Australia

Matis Georgios
University Cologne Hospital, Germany

Rachid El Khoury
Sultan Bin Abdulaziz Humanitarian City, KSA

Subramanya Adiga
Middlemore Hospital, New Zealand

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

Elizabeta Popova Ramova
MIT University, Republic of North Macedonia

Zhenhuan LIU
Guangzhou University of Chinese Medicine, China

Jean Louis Rouvillain
Pierre Zobda-Quitman University Hospital, France

Thank You All...

Speakers

A M C J B Abeykoon
Chesterfield Royal Hospital NHS Foundation Trust, United Kingdom

Adarsh Amin
Sherwood Forest Hospitals NHS Foundation Trust, United Kingdom

Ady M. Correa
University of Miami, United States

Ahmed Atwa
Blackpool Victoria Hospital, United Kingdom

Amr Elmaraghy
St. Joseph's Health Centre, University of Toronto, Canada

Anahit Voskanyan
Ku Leuven, Belgium

Ankit Bhargava
Jayoti Vidyapeeth Women's University, India

Ann Kuo
Singapore Cancer Society, Singapore

Arvinder Singh Bhatia
Dr Bhatia's Bone & Joint Care Clinic, India

Barbara Mera
University of Illinois College of Medicine, United States

Bilal Khilfeh
University of Washington School of Medicine, United States

Desheng Wu
Bishan Hospital Of Chongqing Medical University, China

Dickson Rollef WAK
Madang Provincial Teaching Hospital, Papua New Guinea

Florian Forelli
Orthosport Rehab Center, France

Hong Liu
Chongqing University Three Gorges Hospital, United Kingdom

Hyun Joo Kang
Soonchunhyang University, Republic of Korea

Jabez Gnany
North Cumbria Integrated Care NHS Foundation Trust, United Kingdom

Jason Corban
New England Baptist Hospital, United States

Jonathan Courtney
Orthopedic Surgery Associates, United States

Julian Aquilina
St Marys Hospital, United Kingdom

kaija Liisa Koovit
University of Strathclyde, United Kingdom

Kamala
European Society of Physical and Rehabilitation Medicine , Azerbaijan

Kinny Quan Velanoski
Unity Health Toronto: St. Joseph's Health Centre, Canada

Lilian Bin Alshaikh
National Rehabilitation Hospital, Ireland

Luke Thomas
Loma Linda School of Medicine, United States

Lunemo Sakafu
Mbeya Zonal Referral Hospital, Tanzania, United Republic of

Maria Beatrice Lindblad
Linköping University, Sweden

Mariam Banoub
University of Illinois College of Medicine, United States

Mauro D'Alessandro
FisioBenessere Sagl, Switzerland

Mervat Sheta
Alexandria University, Egypt

Speakers

Michelle Guadalupe Garcia Ruiz
General Hospital of Mexico, Mexico

Mohammed Salman Alhassan
King Faisal General Hospital, Saudi Arabia

Muhammed Ehsan Nazeer
Cumberland Infirmary, United Kingdom

Na-eun Byeon
Sahmyook University, Korea, Republic of

Natasha Wilch
Symphony Brain Performance & Concussion Nerds Clinical Mentorship Program, Canada

Neville Mamoowala
Leicester University Hospitals, United Kingdom

Nikolaos Kiapekos
Karolinska University Hospital, Karolinska Institutet, Sweden

Noor Mohammad
Bart's Health NHS Trust, United Kingdom

Olivia Dunseath
University College London, United Kingdom

Omid Iaghat
Iran University of Medical sciences, Iran (Islamic Republic of)

Panayotis Jusakos
Lakeland Regional Medical Center, United States

Pradeep Deshpande
Hull University Teaching Hospitals, United Kingdom

Raheel Shakoor Siddiqui
University Hospitals Birmingham NHS Trust, United Kingdom

Raymond Walls
NYU Langone Orthopaedics, United States

Roger H Coletti
Interventional Health, United States

Rohit Ravindran Nair
Blackpool Teaching Hospitals NHS Foundation Trust, United Kingdom

Salim Hirani
Ysbyty Gwynedd Hospital, United Kingdom

Sarav Shah
New England Baptist Hospital, United States

Selin Ozen
Baskent University, Turkey

Seung hee Ho
National Rehabilitation Center, Republic of Korea

Seung Yong Sung
Catholic Kwandong University, Republic of Korea

Shayan Amiri
Iran University of Medical sciences, Iran (Islamic Republic of)

Songlin Zhu
Western University, Canada

Stephanie Reischl
Western University, Canada

Sunyoung Joo
Asan Medical Center, University of Ulsan College of Medicine, Republic of Korea

Tathagath Tiwary
SRM Medical College Hospital and Research Centre, India

Wan Hee Lee
Sahmyook University, Korea, Republic of

Xin Yin Choo
NHS Scotland, United Kingdom

Yan Lynn Ng
NHS Tayside, United Kingdom

Thank You All...

Welcome Message

Mel B. Glenn, MD

Associate Professor

Dept. of Physical Medicine & Rehabilitation

Harvard Medical School, United States

Dear Conference Attendees,

It is my great pleasure to welcome you to attend the session entitled “Chronic Traumatic Brain Injury: Changes, Challenges, and Solutions”. People with traumatic brain injury (TBI) may have chronic cognitive, behavioral, emotional, social, vocational, physical, and medical challenges. Although some will improve over time, others may decline. However cognitive, physical, functional, and medical problems can be addressed through medical, rehabilitation, and lifestyle interventions. Diet, exercise, socialization, and challenging mental activity can have a positive effect on cognitive status. Cognitive deficits, behavioral challenges, and functional limitations can be addressed with rehabilitation programs, even years after injury, though lengthy treatment programs may be needed. Residential rehabilitation programs often result in improvement. This session will provide an opportunity for participants to gain knowledge of the challenges and potential solutions to problems that can arise with chronic TBI.

Welcome Message

Stephen S. Tower

Orthopedic Surgeon Affiliated Professor Washington, Wyoming, Alaska, Montana, Idaho Medical Program (WWAMI – University of Alaska-Anchorage), United States

This meeting is a unique opportunity for musculoskeletal related research to be presented to the benefit of clinicians, scientists, patients, and society. This meeting differs from higher profile orthopedic meetings in that researchers with data contrary to presently popular and industry marketed therapies are as likely to access the podium as highly compensated design surgeons promoting products that are unproven, expensive, and therefore contrary to the best interests of patients and the public.

Welcome Message

Jay Speacteor

American Academy of Podiatric Sports Medicine (AAPSM),

United States

I am honoured to be speaking at the 2024 Global Conference on Physical Medicine and Rehabilitation in Madrid. 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 33 time marathoner and have experienced injuries and know what it is like to experience and come back from injuries.

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.

Welcome Message

Archana Vatwani, PT, DPT, EdD, MBA, CLWT, CDP, CLSSBB, PMP

Department of Physical Therapy, Old Dominion University, Norfolk, VA, USA

Dear Conference Attendees, I am excited to present a session that delves into the fundamental concepts of DEI, underpinning the development of culturally competent leadership within our healthcare systems. This presentation will explore pivotal issues such as systemic racism, unconscious bias, and their impacts on healthcare delivery. This presentation will provide evidence-based insights and introduce tools for self-evaluation and organizational transformation, essential for bridging the DEI gap, incorporating actionable strategies for implementing and sustaining cultural humility across various professional layers.

Welcome Message

Jean Louis Rouvillain

Pierre Zobda-Quitman University Hospital, France

Welcome to the World Orthopedics 2024 conference! As we gather in the heart of Madrid, let’s prepare ourselves for a great event in the world of Orthopedics, The 27 Foot and Ankle session will cover a range of new topics. It's a chance to connect, learn, and exchange ideas that could reshape the future of Orthopedic care.

So, let’s set the stage for a conference that’s bound to be as dynamic and robust as the bones we're so passionate about. Here's to a few days of engaging discussions, enlightening insights, and moments to keep things lively.

Welcome Message

Dr. Vaidya Bala

MBBS FAFRM(RACP) FESO CIME Grad Cert in health Prof Education

AFRACMA, Australia

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 are excited to embrace and share scientific information, knowledge, and advancement in the care of Rehabilitation medicine. Global conference on Physical medicine and Rehabilitation 2024 is hosted in Madrid Spain, organized, and coordinated by Magnus group is unique in that it offers a great opportunities and bespoke novel model in conference organization and delivery. Madrid being a unique southern European hub of the world to host, meet, and greet our global scientific community. GCPR 2024 is a global summit to integrate physicians, allied health clinicians, researchers, health technologist, care givers and above all our communities. The topics reflects 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 2024 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 Madrid in Spain 2024.

Welcome Message

Dr. GEORGIOS K

University of Cologne, Faculty of Medicine and University Hospital Cologne, Department of Stereotactic & Functional Neurosurgery 62nd Kerpener Str., 50937, Cologne, Germany

Dr. GEORGIOS K. MATIS, COLOGNE, GERMANY welcomes esteemed participants to the 2nd Edition of Gobal Conference on Physical Medicine and Rehabilitation (GCPR 2024)! Having reached the 2-year milestone, we are thrilled to host a gathering that delves into ground breaking advancements in healthcare. One of the many topics is the transformative role of intrathecal therapy in enhancing patients' quality of life. Prepare to engage with leading experts, researchers, and practitioners who are at the forefront of innovations in Physical Medicine and Rehabilitation (PMR) and neuromodulation. The comprehensive program includes insightful sessions, providing a platform to explore the latest developments in PMR intrathecal therapy. Together, we will navigate the intricate landscape of rehabilitation, sharing knowledge, experiences, and best practices. Let this conference be a catalyst for collaboration and inspiration, as we collectively work towards optimizing patient care and fostering a healthier future. Thank you for being an integral part of this journey, and here's to another year of ground breaking discoveries and advancements in PMR and neuromodulation. Welcome to an enriching experience!

Welcome Message

Igor Belenkiy

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

Dear participants and colleagues of the conference

It is a great honor and, at the same time, responsibility for me to be not only a participant of this conference, but also to give a keynote presentation in the section Orthopedic Trauma. In recent years, progress in the development of our specialty is evident and is primarily related to the implementation of new technologies in daily practice. These include artificial intelligence, computerized technologies for preoperative planning and execution of surgeries, and many other innovations. Nevertheless, the success in treating our patients has been and continues to be based on the fundamental principles of fracture treatment. They are based on adherence to the basic principles of management of musculoskeletal injuries, which comprise a balance between the biological and mechanical components of osteosynthesis. I believe that exactly these principles will lie at the heart of our presentations.

Dear friends, communication between colleagues is a prerequisite for professional development. This communication is especially useful when we share our experience with colleagues from other countries, continents, and surgical schools. The World Orthopedic Conference gives us this unique opportunity. I wish you all a productive participation in the conference, which will result in the improvement of your professional expertise and the quality of treatment of your patients.

Welcome Message

Dr Subramanya Adiga

Clinical Head of Rehab Medicine, Middlemore hospital, Auckland;
Honorary senior lecturer, Faculty of medical sciences, University of Auckland, New Zealand

Dear Conference Attendees,

It is an honour and great pleasure to write a few welcome notes for the session entitled “Lifestyle approaches to prevent and manage disabilities”.

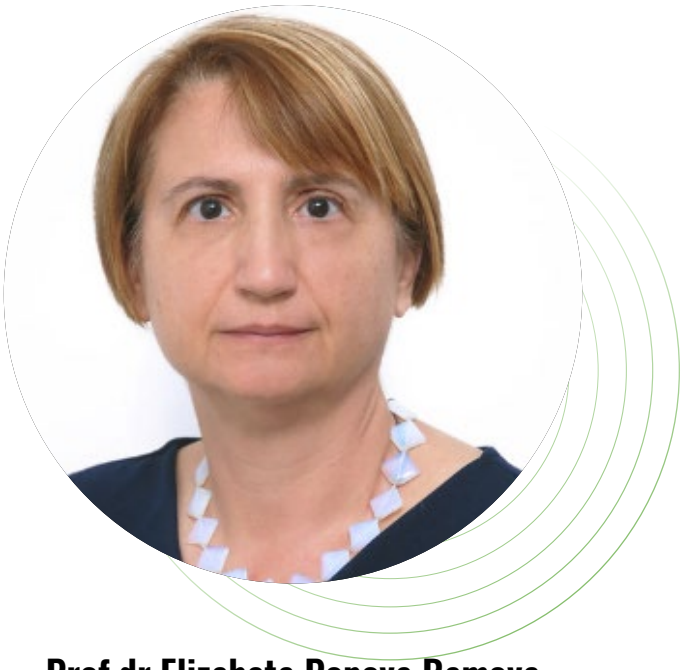
Over the last few decades, there has been an explosion in chronic lifestyle related diseases with a proportional increase in disability. It is not commonly appreciated and taught that many of these conditions are curable by making healthy lifestyle changes. There are many aspects of lifestyle such as diet, exercise, sleep hygiene and screen time over which an individual a lot of control. Good news is that it is never too late - many chronic disabling conditions are not just preventable, but also treatable, with cure or significant reversal/remission achieved through lifestyle changes.

After considering general principles of lifestyle medicine, the author will consider the available evidence for lifestyle management in a few common disabling conditions including osteoarthritis, dementia, degenerative brain diseases, neuropathies, cancer, metabolic diseases, etc.

I hope that you would benefit in many ways from this keynote lecture, including:

- Improving your own health by adopting the right lifestyle!
- Your patients would have already done some research in this area! You can counsel them better than Dr Google!
- You can utilise these interventions along with other conventional approaches. For instance:
    - Weight loss before joint replacement to minimize the morbidity and improve the life of the prosthesis
    - Good lifestyle to improve the quality of life following coronary interventions
    - Lifestyle modifications before and after cancer treatments to improve QoL, reduce stress & depression.

Welcome Message



Prof.dr.Elizabeta Popova Ramova

Republic of North Macedonia

Dear colleagues,

Congress visitors, from all over the world, I wish you all, on behalf of the Conference Organizer, a successful 2024 conference in Madrid. As we look forward to an amazing conference ahead of us, I invite you to participate and contribute with your participation, no matter where you are or what you do in the rehabilitation process. The world needs us, especially in times of climate change and military actions that have taken place. In times of economic crisis and energy deficit, many of us do not even have basic conditions for health care, let alone rehabilitation. But we will continue to strengthen the role of rehabilitation in health systems as an economically viable activity. All nations are united in the intention to build a commitment to rehabilitation services through integration into national health plans and policies, and cross-sectoral work, with meaningful participation of rehabilitation users. We have an important task ahead of us and that is to promote and share our experiences.

ABOUT
MAGNUS GROUP

Magnus Group, a distinguished scientific event organizer, has been at the forefront of fostering knowledge exchange and collaboration since its inception in 2015. With a steadfast commitment to the ethos of Share, receive, grow, Magnus Group has successfully organized over 200 conferences spanning diverse fields, including Healthcare, Medical, Pharmaceutics, Chemistry, Nursing, Agriculture, and Plant Sciences.

The core philosophy of Magnus Group revolves around creating dynamic platforms that facilitate the exchange of cutting-edge research, insights, and innovations within the global scientific community. By bringing together experts, scholars, and professionals from various disciplines, Magnus Group cultivates an environment conducive to intellectual discourse, networking, and interdisciplinary collaboration.

Magnus Group's unwavering dedication to organizing impactful scientific events has positioned it as a key player in the global scientific community. By adhering to the motto of Share, receive, grow, Magnus Group continues to contribute significantly to the advancement of knowledge and the development of innovative solutions in various scientific domains.

ABOUT
CPD Accreditation

APPROVED PROVIDER #780643

Continuing Professional Development (CPD) credits are valuable for attendees as they provide recognition and validation of their ongoing learning and professional development. The number of CPD credits that can be earned is typically based on the number of sessions attended. You have an opportunity to avail 1 CPD credit for each hour of Attendance. Some benefits of CPD credits include:

Career advancement: CPD credits demonstrate a commitment to ongoing learning and professional development, which can enhance one's reputation and increase chances of career advancement.

Maintenance of professional credentials: Many professions require a minimum number of CPD credits to maintain their certification or license.

Increased knowledge: Attending and earning CPD credits can help attendees stay current with the latest developments and advancements in their field.

Networking opportunities: This conference provide opportunities for attendees to network with peers and experts, expanding their professional network and building relationships with potential collaborators.

Note: Each conference attendee will receive 20+ CPD credits.

Table of Contents

BOOK OF ABSTRACTS

SEP

09-11

2nd Edition of Global Conference on

Physical Medicine and Rehabilitation &

2nd Edition of

World Orthopedics Conference

KEYNOTE FORUM

Bridging the DEI gap in physical therapy education and practice: Cultivating culturally competent leadership and sustainable organization change

The presenter will engage in crucial fundamental concepts of Diversity, Equity, and Inclusion (DEI), along with belonging and justice, highlighting their critical role in cultivating culturally competent leadership within healthcare systems. Utilizing a foundation of evidence-based research, this session will discuss some pivotal concerns such as systemic racism, cultural competence, and the prevalence of unconscious bias among healthcare practitioners. The focus will be on exploring bias and its impact on the consistency and equity of healthcare delivery. Participants will be introduced to a variety of self-evaluation and organizational instruments, which are vital in facilitating organizational transformation and ensuring the longevity of efforts to bridge the DEI gap. The presentation will also cover actionable strategies for the implementation and maintenance of effective DEI transformations, cultural humility, and cultural competence at individual, professional, academic, and organizational strata. Moreover, it will emphasize the importance of active participation in public health policy as a catalyst for systemic and societal change.

Audience Take Away Notes:

- Understand the core principles of DEI, along with belonging and justice in healthcare and their pivotal role in developing culturally competent leaders in healthcare settings
- Critically examine issues such as systemic racism, cultural competence, and unconscious bias among healthcare providers, using evidence-based research to understand their impact on healthcare delivery
- Assess how biases influence the consistency and equity of healthcare services, and to understand the importance of addressing these biases for improved healthcare outcomes
- Familiarize participants with various self-evaluation and organizational tools that are essential for initiating and sustaining transformational changes within healthcare organizations to bridge the DEI gap
- Discuss strategies for DEI Implementation and highlight the significance of engaging in public health policy for systemic and societal change in the healthcare sector

Archana Vatwani PT, DPT, EdD, MBA, CLWT, CDP, PMP

Department of Physical Therapy,
Old Dominion University,
Norfolk, VA, USA

Biography

Dr. Vatwani is the Graduate Program Director, Doctor of Physical Therapy Program and Clinical Associate Professor at Old Dominion University (ODU). She is an acute care physical therapist with a clinical expertise in cardiovascular and pulmonary high-acuity patients. She has authored several peer-reviewed articles, abstracts, and presentations. She is the recipient of the 2022 Healthcare Diversity Leader Award from the National Diversity Council, 2022 American Physical Therapy Association Minority Faculty Scholarship award, and a member of the Alpha Eta Honor Society.

Reducing readmissions after discharge from IRF: Using predictive analytics to improve clinical outcomes

Reducing readmissions after discharge from IRF: Differentiating IRF from other post-acute care settings: Increased attention and scrutiny of Inpatient Rehabilitation Hospitals (IRFs) has expanded since initiation of the IMPACT Act in 2008. With the advent of Accountable Care Organizations (ACOs) and harsh penalties to acute care hospitals if patients are readmitted after discharge, it is vital for IRFs to provide exceptional value-based care. In this session, we will explore different strategies that have been successfully used to distinguish IRF level care from other post-acute settings, including subacute care and home health services. Strategies discussed will include an overview of a predictive analytical models we developed to improve clinical outcomes. These include an algorithm to identify patients at high risk of readmission to acute care hospital while hospitalized at IRF, an algorithm developed to identify patients at high risk of readmission after discharge from IRF and strategies to mitigate those risks; and a fall risk model to identify patients at high fall risk while at IRF and strategies implemented to improve this risk. We will discuss how education and reinforcement are necessary to maintain best practices across the enterprise when these clinical quality improvement projects are implemented.

Audience Take Away Notes

- Attendees will learn how development of a unique algorithm to identify patients at high risk for acute care transfer was successfully developed in conjunction with data scientists
- Attendees will learn how to share best practices to reduce fall risk of patients in the IRF setting
- Attendees will learn about social determinants of health and how identifying risk factors for readmission after discharge from the rehabilitation hospital can be mitigated prior to discharge

Elissa Charbonneau DO, MS

Chief Medical Officer Encompass Health Birmingham, AL, USA

Biography

Elissa (Lisa) Charbonneau, D.O., M.S., was appointed to chief medical officer of Encompass Health in June 2015. As chief medical officer, Dr. Charbonneau oversees medical operations, quality and patient care for the company's more than 150 hospitals across the country, which have a combined annual discharge of more than 181,000 patients. Prior to her current role, she served as the company's vice president of medical services. From 2001 to early 2015, she served as medical director at New England Rehabilitation Hospital of Portland, a joint venture of Maine Medical Center and Encompass Health, where she was a staff physician since 1992. Driven by a commitment to mentorship and helping patients receive the best care possible, Dr. Charbonneau has presented on topics including clinical leadership, post-acute care, patient-centered data models, opioid reduction and post-COVID care.

Treatment of pain from postural bad position by computer workers with physical therapy

More and more young people pass in front of video terminals for work, study or entertainment. Sitting in front of video terminals for several hours every day, due to the unsuitability of the workplace, but also the long forced position cause pain in the neck and back.

The aim of our research is to present our experiences in the treatment of functional neck and back pain with physical therapy.

Material and Method: Inclusion criteria: age of 18-25 years, average daily use of video terminal 8-12 hours, without structural changes of the spine. Evaluation of the treatment effect: NAS scale, ROM of the spinal column, examination of the spine in the sagittal plane, neurological symptoms with radicular compression as an exclusion criterion.

Physical Therapy: Acupuncture, laser acupuncture, electroacupuncture, sonophoresis, postisometric relaxation technique, typing. Time of treatment 5 days.

Results: All 20 patients with an average age of 22 years had multiple episodes of neck and shoulder pain in the last 6 months. They used an analgesic tablet. Movement limitations in head rotation and anteflexion were found in all before treatment after treatment respectively. Palpatory pain, while sitting and working at the computer reduced significantly, Satisfaction with the treatment with a score of 5 on the scale from (0-5).

Discussion: Physical procedures and alternative methods, as well as postisometric relaxation, have their significance in reducing pain. The application of sonophoresis with local analgesic gels has an advantage over oral administration. Functional typing is easy to apply if there is training for its application, with a previous analysis of pain localization and muscle functional deficit.

Conclusion: Individually targeted analgesic therapies, as well as education on passive relaxation techniques, provide pain relief within 5 days, while for longer-term pain reduction as a result of working at a computer, ergonomic work in front of the video terminal, the use of relaxation techniques and healthy habits are required. To maintain the physiological curves of the neck and chest segment.

Keywords: Physical Therapy, Neck and Back Pain, Young People.

Elizabeta Popova Ramova

College for wellness, spa and physiotherapy, Faculty for Dental medicine, MIT University Skopje, Republic of North Macedonia

Biography

E.P.Ramova is graduated doctor of ordinary practice since 1987, specialization in PM&Reha (1998), at the Medical Faculty (MF) in Skopje. She received her master's degree (2002) doctorate at the FM in Nis, R.Serbia (2010). She has been engaged in educational activity since 2005. She worked as a professor at Uni. St.Clement Ohridski (2007-2018). She works like professor at MIT University, Skopje, since 2019. She is a Dean of Faculty for medical Sciences. She has published 222 studies, 20 professional books. She was on a visiting study: Germany (1997, 2000), Italy (2016). Memmber of: ISPRM, Cochran Rehabilitation, Editorial Board of 14 sciences journals. Certified Nutritionist.

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

Georgios K. Matis MD, MSc, PhD, FINR(CH)

University of Cologne, Faculty of Medicine and University Hospital Cologne, Department of Stereotactic & Functional Neurosurgery 62nd Kerpener Str., 50937, Cologne, Germany

Biography

Dr. Georgios Matis is a senior consultant for neurosurgery. He leads the chronic pain/spasticity section of the Department of Stereotactic & Functional Neurosurgery at 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). Dr. Matis is a member of two medical associations (Thessaloniki, Greece & North Rhine, Germany) and also a member of the German Neuromodulation Society (DGNM), the International Neuromodulation Society (INS), and the International Society of Pain & Neuroscience (ISPN). He serves as a reviewer for many international journals and is an Editorial Board member for Neuromodulation: Technology at the Neural Interface (IF: 3.025), Pain Practice (IF: 3.079), and Interventional Pain Medicine and Neuromodulation. He holds the position of Editor-in-Chief of The Internet Journal of Neurosurgery.

Dr. Matis has published many articles in Greek and international Pubmed-indexed journals and held many lectures as an invited speaker at numerous international congresses and webinars. At the same time, he is the Co-Chair of the Medical and Public Education and Engagement Committee of the International Neuromodulation Society and member of the Marketing Committee of the North American Neuromodulation Society (NANS). Dr. Matis is involved in many international clinical studies and has been active as an 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 a member of several online consultation platforms. He is actively involved in social media trying to raise awareness about spinal cord stimulation, intrathecal therapies and neuromodulation.

Ablation of biofilm using very low to low frequency Electromagnetic-Force (EMF) and antibiotics at MIC

Introduction: Approximately 1-3% of patients with total joint replacements develop bacterial or fungal infections which respond poorly to antibiotic treatment. These infections are often serious enough to warrant removal, debridement, and replacement of the implant. There is a need to provide a non-invasive solution for treating infections occurring on medical implants.

Methods: Coupons (19mm x 25.4mm x 2mm) composed of 430 stainless steel, were inoculated with MRSA M2 Methicillin and incubated for one week at 37 C in Tryptic Soy Broth (TSB) to culture biofilms. M2 MRSA was minimally susceptible to 1 µg/ml of vancomycin. After biofilm growth, the coupons were washed to remove non-adherent bacteria and transferred to 50 mL tubes containing 40 mL TSB with and without vancomycin. Bacteria were exposed to an AC-EMF at 10.7 mTelsa at low radio frequency of 30-100kHz frequency for varying times to heat the coupons to 45, 55, 60, and 65 degrees C. After exposure to EMF and overnight incubation, the coupons were washed four times with PBS. Biofilm bacteria were removed from the coupons using a plastic scraper. Bacteria in the culture supernatant and in the biofilm were enumerated by plating on agar plates and Colony-Forming Units (CFU) were determined.

Results: The increased temperatures had little effect on the CFU/mL when cultured without the addition of vancomycin. However, in the presence of 1 µg/ml of vancomycin, temperatures increase of 45C and 55C resulted in significant reductions of CFU. The CFU had a log 3 reduction at 45C and went below the limit of detection at 55C. Increases in temperatures from 37 C to 55C and to 65C results in reductions of CFU's dropped to below the limit of detection in the supernatant at 65C.

Discussion: EMF at very low to low frequency and low Tesla can eradicate biofilm when externally applied through AC wires with MIC amounts of antibiotics. This may result in in the non-invasive treatment of biofilm related infection on implants or give higher rates of success with procedures like DAIR.

Gerhard E Maale

Dallas Ft. Worth Sarcoma Group, United States

Biography

Gerhard E. Maale has accumulated extensive years of postgraduate education across various fields, including biomedical engineering, molecular biology, DNA and RNA biochemistry, clinical chemistry, biofilm engineering, pharmacology, orthopedic oncology, and pathology. In the realm of rapid molecular diagnostics, he served as the Chief Medical Officer (CMO) at Abbott, overseeing rapid bacteria identification for orthopedic platforms through 16S DNA deep sequencing using IBIS technology (electrospray double mass spectrometry). His professional journey includes roles such as Associate Professor in the Department of Orthopedic Surgery at Texas Tech University School of Medicine (1984-2000), Clinical Associate Professor in Orthopedic Surgery at UT Southwestern (1988-1996), and Consultant to William Beaumont Army Hospital Orthopedics (1988-2002). He also held positions as Clinical Associate Professor of Orthopedics at Texas Tech in Lubbock and El Paso (1988 2002) and Associate Professor in the Department of Pathology at Texas Tech University School of Medicine (1984-2000). Gerhard E. Maale directed Orthopedic Oncology and completed a Fellowship at the University of Texas Southwestern Medical School (1990 2001). He served as a Consultant for the Montana State University Center for Biofilm Engineering from 2000 to 2010. Throughout his career, he has received several honors, including a medical student research award from the University of Florida College of Medicine for 1975 and 1976, the Journal of Trauma Residents' Award for the Northeast Regional Competition (1983-1984 NIH and NCI sponsored for Oncology Fellowship), and Teaching Excellence Awards for Southwestern Orthopedic Residents in 1990 and 1992. Currently, Gerhard E. Maale is involved in various roles and projects, including working as a consultant for Neuro Resource Group, serving as a Lead Investigator for research at Montana State University and Rapid Molecular Diagnostics LLC. He is also a Clinical Professor of Orthopedic Surgery at Baylor Regional Medical Center at Plano, Director of Orthopedic Oncology at Medical City Hospital Plano, CMO at Zyvex Labs Lab, Inc., and Professor of Orthopedic Surgery at Oklahoma State University since 2020. His work spans topics such as orthopedic applications of a cutaneous handheld neurostimulator, inhibition of biofilm formation, antibiotic-loaded pellets, and local elution levels in patients with periprosthetic joint infections.

A novel approch to removal of cemented hips and knees using AC Electromagnetic Fields (EMF)

Introduction: The removal of orthopedic prosthetic implants fixed with bone cement during revision surgery can be difficult. The use of high-speed burrs or revision instruments can cause considerable debris, bone loss, and increased operative times which results increased infections rates. The use of a noninvasive AC Electro-Magnetic-Field (EMF) that is applied externally to the cemented prosthetic implant and renders the bone cement plastic state may facilitate easier revisions with cemented prosthesis.

Methods: Prosthetic femoral components for total knees and hips were cemented into "Saw Bones" proximal and distal femurs with radiopaque bone cement. The components were made of cobalt-chromium alloys and zirconium oxide. The experiment was performed by hand to simulate surgical revision processes. The embedded implant was exposed to a 30-100kHz frequency EMF. The implant was placed under tension and removed from the bone cement coating using approximately 40lbs of force No increase in temperature was detected at the exterior surface of the bone cement. In a separate experiment, pliers were used, and the bone cement was easily removed from the prosthetic implant using approximately 5lbs of torque.

Results: The bond between the bone cement and the implant appeared to be disrupted by the heat and the bone cement became more ductile. Plastic deformation easily occurred as a result of the applied tension and the bone cement underwent a ductile rupture, as opposed to a brittle fracture. This behavior was also seen when the 5lbs of torque was applied.

Discussion: The invention represents a significant time-saving and safety improvement for revisions of cemented implants that are required to be removed. The procedure mitigates damage to tissue and bone, probably will reduced infection rates, and reduces effort by the surgical team.

Gerhard E Maale

Dallas Ft. Worth Sarcoma Group, United States

Biography

Gerhard E. Maale has accumulated extensive years of postgraduate education across various fields, including biomedical engineering, molecular biology, DNA and RNA biochemistry, clinical chemistry, biofilm engineering, pharmacology, orthopedic oncology, and pathology. In the realm of rapid molecular diagnostics, he served as the Chief Medical Officer (CMO) at Abbott, overseeing rapid bacteria identification for orthopedic platforms through 16S DNA deep sequencing using IBIS technology (electrospray double mass spectrometry). His professional journey includes roles such as Associate Professor in the Department of Orthopedic Surgery at Texas Tech University School of Medicine (1984-2000), Clinical Associate Professor in Orthopedic Surgery at UT Southwestern (1988-1996), and Consultant to William Beaumont Army Hospital Orthopedics (1988-2002). He also held positions as Clinical Associate Professor of Orthopedics at Texas Tech in Lubbock and El Paso (1988 2002) and Associate Professor in the Department of Pathology at Texas Tech University School of Medicine (1984-2000). Gerhard E. Maale directed Orthopedic Oncology and completed a Fellowship at the University of Texas Southwestern Medical School (1990 2001). He served as a Consultant for the Montana State University Center for Biofilm Engineering from 2000 to 2010. Throughout his career, he has received several honors, including a medical student research award from the University of Florida College of Medicine for 1975 and 1976, the Journal of Trauma Residents' Award for the Northeast Regional Competition (1983-1984 NIH and NCI sponsored for Oncology Fellowship), and Teaching Excellence Awards for Southwestern Orthopedic Residents in 1990 and 1992. Currently, Gerhard E. Maale is involved in various roles and projects, including working as a consultant for Neuro Resource Group, serving as a Lead Investigator for research at Montana State University and Rapid Molecular Diagnostics LLC. He is also a Clinical Professor of Orthopedic Surgery at Baylor Regional Medical Center at Plano, Director of Orthopedic Oncology at Medical City Hospital Plano, CMO at Zyvex Labs Lab, Inc., and Professor of Orthopedic Surgery at Oklahoma State University since 2020. His work spans topics such as orthopedic applications of a cutaneous handheld neurostimulator, inhibition of biofilm formation, antibiotic-loaded pellets, and local elution levels in patients with periprosthetic joint infections.

Tibial plateau and pylon fractures: Similarities and differences

Tibial plateau and pilon fractures have many similarities. These injuries affect two large joints of the lower extremity that bear a large axial support load and have relatively poor soft tissue coverage, which is critical in cases of high-energy injuries and is also of great importance in the choice of surgical approaches for osteosynthesis. Moreover, the intra-articular nature of both fractures suggests, according to modern concepts, that surgical treatment is necessary to achieve complete (anatomical) reduction of articular surfaces and stable fixation of bone fragments to provide early active rehabilitation. However, the attempt to precisely restore the configuration of articular surfaces, as a rule, significantly increases the extent of additional surgical injury as well as the risk of complications. Thus, there is a conflict between the intention to achieve high-quality reduction and the preservation of the biology of the injured area.

This is also seen in the results of treatment. For example, in more than 30% of cases after surgical treatment for tibial plateau fractures, marked displacement of the articular surface fragments remains. This displacement is typical for posterolateral areas of plateau. Current results of surgical treatment for pilon fractures are also far from desirable. Similar to plateau fractures, many authors believe that the main reason for the unsatisfactory outcomes of surgical treatment of comminuted pilon fractures is inadequate reconstruction of the articular surface, which is most often caused by inaccurate reduction of the posterior fragments of the distal part of the tibia.

The first step towards high-quality osteosynthesis is the classification of the fracture. In recent years, there has been a revision of the AO/ASIF and J. Schatzker (1974) classifications used for plateau and pilon fractures, mentioned in relevant literature. This is primarily due to the implementation of CT scanning and three-dimensional visualization of the affected metaepiphyses of the tibia into clinical practice. Due to the wide use of CT in the diagnostic process, it became clear that the incidence of fractures of the tibial plateau with involvement of its posterior parts reaches 60%, which was the main reason for the development of new classifications. In 2010 C.F. Luo et al. proposed a three-column concept, dividing the proximal tibia into medial, lateral, and posterior columns, specifying the localization of lesions and changing the approach to preoperative planning of the discussed fractures. S.M. Chang et al. (2014) divided tibial plateau into four quadrants: anteromedial, anterolateral, posteromedial, and posterolateral. M. Kfuri and J. Schatzker (2018) supplemented the classical classification of J. Schatzker (1974) with CT data. The addition of 3D X-ray imaging data allowed these authors to evaluate the whole range of plateau fractures in both the sagittal and

I.G. Belenkiy*, B.A. Mayorov, G.D. Sergeev

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

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. 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.

frontal planes, and to classify them in detail with an eye toward possible techniques for reduction and fixation of the bone fragments. As a result, they identified four fragments, each of them can be accessed via a certain approach for direct reduction and fixation of the articular surface fragments, provided that the ligamentous structures responsible for knee joint stability remain intact. The supporting column theory is also used in the classification of fractures of the distal metaepiphysis (pilon) of the tibia. M. Assal (2008) proposed to distinguish medial, lateral, and posterior columns in this area. A detailed classification of pilon fractures based on the analysis of CT data in 108 patients was proposed by C. Topliss et al. (2005), who identified 10 types of fractures depending on the size and positioning of the major articular fragments: lateral, medial, posterior, and central impingement fragment, the so-called "die punch" fragment, combining them into two groups (sagittal and coronal fractures), based on the predominant fracture line. Thus, in pilon and plateau fractures, several classifications can be used in clinical practice. No classification contradicts to any other, but complements them, providing more information about the specific patterns of the bone lesions.

The next stage of the diagnostic process is CT scanning. Many authors recommend performing it right after the initial external fixation. Data obtained allow us to determine the individual fracture patterns of both localizations. We call this approach the 360° preoperative visualization. It allows us to see all the components of injuries to the proximal or distal metaepiphyses of the tibia and fibula, to determine exact surgical approaches, to pick the necessary implants, and to plan their positioning.

Surgical treatment. The current trend is to provide the fastest approach to the zone of greatest interest during osteosynthesis, which, consequently, implies the choice of an adequate surgical approach and, more often, a combination of approaches that are minimally sufficient for limited open direct reduction of intra-articular fracture fragments. Each of the damaged columns is fixed with a separate implant. Number and localization of approaches are limited by the condition of soft tissues and topography of important anatomical structures. It is recommended to maintain a soft tissue bridge at least 7 cm wide between two neighboring longitudinal incisions. Length of the incision is also relevant to the risk of postoperative soft tissue complications. For this reason, many surgeons use a limited-open access technique to minimally expose the impacted or splitted off articular fragment - the zone of interest. It can be stated that in complex plateau and pilon fractures of tibia, we should follow the concept of 360° intraoperative visualization, i.e., perform several small, mostly direct approaches in order to be able to perform direct open anatomical reduction of all damaged bone columns. In comminuted fractures of the discussed localizations, most specialists recommend placing the main buttress plate on the side of the compressed column and fixing the other bone columns with additional conventional or low-profile plates.

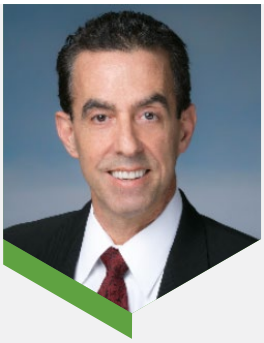
Some differences in the approaches to surgical treatment of patients with plateau and pilon fractures are caused, first of all, by a significant difference in the circumference of the shin in the knee and ankle areas, particularly by a significantly smaller volume of soft tissues at the level of the distal metaepiphysis of the tibia. These features of the anatomy should be considered by surgeons when choosing surgical approaches for osteosynthesis. Careful preoperative planning and examination of the patient will allow to take into account the described features of the segment, better understand the fracture pattern, as well as to reduce the risk of postoperative complications.

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, pulsed electromagnetic fields have NOT been proven to be effective in treating MTSS.

Audience Take Away Notes

- Audience could 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. 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 a past president of the American Academy of Podiatric Sports Medicine and is the Scientific Director of their yearly Stand Alone Meeting in Sports Medicine. Dr. Spector is a Global Clinical Director for Special Olympics Internation. He has published several papers and is a frequent lecturer both in the United States and Europe. Dr. Spector is in private practice at Atlanta Sports Podiatry in Johns Creek, GA, USA.

Distraction-free ankle arthroscopy for anterolateral impingement

The origin of chronic pain after external ankle sprain is better known with arthroscopy's contribution. Chronic hypertrophic synovitis of the anterolateral ankle region is seemingly the cause, resulting in "anterolateral ankle impingement". But is partial synovectomy with fibrosis resection under arthroscopy always possible without any distraction? Are results affected?

This retrospective study concerned only patients with soft tissue ankle impingement. All cases with bone and joint diseases were excluded. The final sample of 24 patients had a mean age of 35 years (21-54 years) and presented anterolateral mechanical pain associated with oedema following external ankle sprain. Medical and rehabilitative treatment was undertaken for more than six months before arthroscopy. Average time between trauma and arthroscopy was 21 months (5-60 months). Clinical examination revealed no ankle instability or laxity. Debridement with joint lavage was systematically performed under arthroscopy without any distraction.

Average patient follow-up was 22 months (12-92 months). All patients had a good KITAOKA score, with 22 patients registering excellent results. There were no septic complications or algodystrophy. Two transient hypoesthesias were observed in the dorsal surface and lateral border of the foot with full postoperative recovery at six months. Distraction was never used and simple dorsiflexion was sufficient to perform arthroscopic debridement

In this study, anterolateral ankle impingement diagnosis was primarily clinical. Arthroscopic treatment yielded significant benefits on pain, oedema and resumption of sport activities. Arthroscopic treatment of anterolateral ankle impingements is thus possible with simple dorsiflexion and no distraction, resulting in a possible decrease in complication rates.

Level of Evidence: Level IV, Retrospective Cohort Study.

Keywords: Ankle, Arthroscopy, Lateral sprain, Chronic lateral ankle pain, Antolateral impingement.

Jean Louis Rouvillain[1*], Wael Daoud[1], André Pierre Uzel[2], M Severyns[1]

[1]Department of Orthopaedic Surgery and Traumatology 2C, Pierre Zobda-Quitman University Hospital, BP 632, 97200 Fort-de-France, Martinique, French West Indies

[2]Department of Orthopaedic Surgery and Traumatology, Guadeloupe University Hospital, Les Abymes 97110 Guadeloupe, French West Indies

Biography

Professor Jean Louis Rouvillain, a highly accomplished orthopedic professional, attained qualifications in general surgery in 1981 and orthopedic surgery in 1982. Serving as the Chief of the Orthopedic and Traumatologic Department from 2002 to 2020, he also held the position of Professor in Orthopedic and Traumatology at Antilles Guyane University from 2000 to 2020. Specializing in HIP, Knee, and Foot surgery, his research interests span Biomaterials, Sickle cell disease, Trauma, Sport surgery, and Foot, Hip, and Knee disciplines. He was the President of Ethic committee in Medical Research from 2004 to 2009 and is the Medical Coordinator of the Medical Research and Innovation Department of Martinique from 2013 to 2018. Professor Rouvillain contributed 122 publications and delivered 245 communications in International Congress. He was the past President of AOLF (Association des Orthopédistes de Langue Française) and member of SICOT since 1990, SICOT, EFORT, SOFCOT, and SFA.

Noninvasive management of Ventilatory Pump Failure (VPF)

47 years of experience managing, extubating, and decannulating children and adults with ventilatory pump failure and as little as 0 ml of Vital Capacity (VC) will be presented. Ventilator weaning and spontaneous breathing trials are irrelevant. There are 20 with Spinal Muscular Atrophy type 1 (SMA1) over 20 years of age using Noninvasive Support (CNVS) from as young as 3 months of age and CNVS dependent patients since leaving Iron Lungs in 1954, all without tracheostomy tubes. Thus, no one needs a trach tube for only being too weak to breathe. NVS settings must be used along with Mechanical In-Exsufflation (MIE) at 50 to 70 cm H2O to clear secretions. We also have 4 Duchenne (DMD) patients over 50 years of age, 3 having never been hospitalized despite CNVS dependence since as young as 14 years of age. The following will be demonstrated: 1) No one needs a trach tube for only being too weak to breathe; 2) Vent weaning is unnecessary to extubate unweanable patients with VPF to continuous NVS; 3) "NIV" needs to be distinguished from NVS and both must be complemented by using MIE to clear the airways at 50 to 70 (not 20-40) cm H2O; 4) Lung ventilation and coughing are vital bodily functions that can not be ethically matched with controls; 5) Muscles are strengthened by rest and exercise, not struggling using decreasing pressure support; 6) Specifically trained respiratory therapists are required for noninvasive management to spare necks, quality of life, and save lives.

John R. Bach MD

Rutgers University New Jersey Medical School, USA

Biography

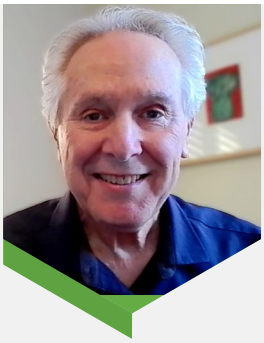
Dr. John R. Bach MD graduated from the now Rutgers New Jersey Medical School in 1976 and is Professor of Physical Medicine and Rehabilitation and Professor of Neurology. He has been Medical Director of the Howard Rusk Ventilator Unit at New York University, the Kessler Institute ventilator unit, and for 37 years Director, Co-Director, and staff attending of the University's Muscular Dystrophy Association Clinic, Medical Director of the Center for Ventilator Management Alternatives, University Hospital, Newark, N.J. He has over 300 peer review publications and 200 chapters and 12 books on neuromuscular disease and mechanical ventilation.

Chronic traumatic brain injury: Changes, challenges and solutions

People with Traumatic Brain Injury (TBI) may have chronic cognitive, behavioral, emotional, social, vocational, physical, and medical challenges. Attention, cognitive speed, verbal learning are commonly impaired. Susceptibility to dementia is controversial. Contractures and spasticity can be problems for those with motor deficits. Pain problems, particularly headaches, are common. Psychological difficulties, including depression, anxiety, and substance use, are common. Friendships suffer, and support networks are often small. Social functioning, including vocational success, is more closely associated with psychological status than with cognitive abilities. Employment outcomes vary, and depend to some degree on resources available. Some, especially the elderly, will have significant functional decline over time, while others will continue to make gains. Those who had mild TBI often have long-term functional deficits. Life expectancy is lower for many people with TBI. Mortality related to pneumonia, seizures, and suicide are significantly higher among people with TBI. Obesity and cardiovascular disease are more common than in the general population. Cognitive, physical, functional, and medical problems can be addressed through medical, rehabilitation, and lifestyle interventions. Diet, exercise, socialization, and challenging mental activity can have a positive effect on cognitive status. The Mediterranean, MIND, and similar diets can help to preserve cognitive status. Both aerobic and resistance exercises may prevent cognitive decline and improve physical and cardiorespiratory status. Avoidance of medications that impair cognition is important. Cognitive deficits, behavioral challenges, and functional limitations can be addressed with rehabilitation programs, even years after injury, though lengthy treatment programs may be needed. Residential rehabilitation programs often result in improvement.

Audience Take Away Notes:

- People with TBI may have chronic cognitive, behavioral, emotional, social, vocational, physical, and medical challenges.
- Although some improve, a significant percentage of people with TBI will decline over time, especially as they age.
- Mortality related to pneumonia, seizures, and suicide are significantly higher among people with TBI.
- Obesity and cardiovascular disease are more common than in the general population.
- Cognitive, physical, functional, and medical problems can be addressed through medical, rehabilitation, and lifestyle interventions.
- Clinicians will become more aware of the consequences of chronic TBI and will therefore be able to intervene to improve the patients' status as needed.



Mel Glenn M.D

Department of Physical Medicine and Rehabilitation, Spaulding Rehabilitation Network/ Harvard Medical School, Boston, Massachusetts, U.S.A

Biography

Dr. Glenn completed his training in 1982 after, he joined the faculty of Tufts University School of Medicine. In 1993, Dr. Glenn became Professor and Chairman of the Department of Rehabilitation Medicine at Boston University School of Medicine and Chief of Rehabilitation Medicine at Boston Medical Center. In 1998, he joined the Department of Physical Medicine and Rehabilitation (PM&R) at Spaulding Rehabilitation Hospital in Boston. He is Associate Professor in the Department of PM&R at Harvard Medical School. He is Massachusetts, Rhode Island, and National Medical Director of NeuroRestorative. He has published more than 60 peer-reviewed journal articles and book chapters.

- They can prescribe and implement interventions, direct people with chronic TBI to rehabilitation programs, and recommend lifestyle modifications.
- Researchers will be more aware of the issues that need further research. They can include what they have learned in their own teaching programs and presentations.
- Rehabilitation programs can be designed that incorporate medical, lifestyle, physical, behavioral, emotional, social, and vocational interventions. Will it improve the accuracy of a design, or provide new information to assist in a design problem.
- Rehabilitation programs can be designed to address the problems that are specific to chronic TBI.
- Other Benefits: Government agencies, insurance companies, and other payers can better understand the needs of those with chronic TBI.

Understanding chronic pain: Are we missing the mark?

Chronic pain is perhaps the most burdensome health issue facing the planet. Our understanding of the pathophysiology of chronic pain has increased substantially over the past 25 years, including but not limited to changes in the brain. However, we still do not know why chronic pain develops in some people and not in others.

Patients with chronic pain are still managed with, in mind, the conceptualization of René Descartes on the existence of pain centers in the brain activated through an electrical system following a nociceptive response.

Most of the recent developments in pain science, that have direct relevance to clinical management, relate to our understanding of the role of the brain, the role of the immune system, or the role of cognitive and behavioral factors.

Although the Biopsychosocial model of pain management was presented decades ago, the Bio-reductionist model remains, unfortunately, at the heart of many practices across professional and geographic boundaries.

A large body of evidence shows that nociception is neither sufficient nor necessary for pain. Pain is a conscious experience that can certainly be, and often is, associated with nociception, however, always modulated by countless neurobiological, environmental, and cognitive factors.

This presentation will highlight the current misconceptions of chronic pain concepts, and their misperceptions by clinicians. It will also attempt to bridge the considerable gap between what we already know on pain but somehow disregarded, the development in pain science, and clinical practice.

Keywords: Nociception, Biopsychosocial Model, Chronic Pain.

Audience Take Away Notes

- This presentation will highlight the current misconceptions of chronic pain concepts, and their misperceptions by clinicians. It will also attempt to bridge the considerable gap between what we already know on pain but somehow disregarded, the development in pain science, and clinical practice
- It is unfortunate how majority of clinicians are still managing chronic pain the may they manage acute pain, hoping this advocacy presentation will push clinicians to attain more trainings on chronic pain management

Dr. Rachid El Khoury

Clinical Development Unit, Sultan Bin Abdulaziz Humanitarian City, Riyadh, KSA

Biography

Dr. Rachid is an Osteopath and a Physical Therapist from Canada and the US with over 30 years of experience. He completed a post professional training in structural osteopathy at the Michigan State University College of Osteopathic Medicine, and the University of New England, along with a Fellowship in Advanced Manual and Manipulative Therapy from Canada. He is trained in the management of chronic and psychosomatic pain. He is a former clinical tutor in osteopathy and advanced manipulative therapy in Canada, with the spine as the main area of interest. He is a visiting faculty since 2006 at Saint Joseph University in Beirut, teaching at the undergraduate, Master's, and Doctor of Physical Therapy programs, and, since 2006 as well, he is the Rehab Development Manager at Sultan Bin Abdulaziz Humanitarian City- Riyadh-KSA.

Synthetic mesh reconstruction of extensor mechanism ruptures following total knee arthroplasty: Surgical technique and clinical outcomes

Background: Quadriceps or patellar tendon rupture following Total Knee Arthroplasty (TKA) is a rare but potentially devastating complication. Surgical management remains challenging, particularly for patients with chronic tears or tears with large residual gaps. The purpose of our study is to present our surgical technique for extensor mechanism reconstruction with synthetic polypropylene mesh and evaluate postoperative patient outcomes and complications.

Methods: This study was a retrospective review of 25 patients with extensor mechanism ruptures following TKA (12 quadriceps tendon, 13 patellar tendon) who were repaired with synthetic mesh reconstruction at our institution from 2012-2021. Pre- and postoperative knee range of motion, strength, Knee Society functional knee scores, ability to walk, and patient satisfaction were recorded to evaluate patient outcomes, and complications such as infection and failure rates were also assessed.

Results: At a mean follow-up of 51.8 months (range, 12 to 99 months), patients showed significant improvement in average Knee Society functional knee scores (31.6-86.3, $p<0.001$), extension lag (43.5°-5°, $p<0.001$), and extension strength (2.8/5-4.5/5, $p<0.001$). 20 (80%) of 25 patients reported good or excellent levels of satisfaction postoperatively, with these patients achieving knee range of motion from 0°-120°. All patients required assistive devices for ambulation preoperatively, but 22/25 (88%) patients no longer required an assistive device at their most recent postoperative visit. Three patients experienced postoperative infection and required revision surgery, while two patients experienced re-rupture of the construct following postoperative falls.

Conclusions: Management of extensor mechanism ruptures following TKA remains a clinical challenge, though synthetic mesh reconstruction with our surgical technique provided excellent postoperative gains of function with low overall complication rates. This is an effective option for management of extensor mechanism ruptures after TKA, particularly in patients with large tears which are not amenable to primary repair.

Audience Take Away Notes

- The audiences should realize the extensor mechanism failure following Total Knee Arthroplasty (TKA) is a rare but devastating complication. Surgical management remains challenging for those with chronic ruptures or large residual gaps.
- We would like the audiences to understand our surgical technique with synthetic mesh reconstruction for management of extensor mechanism ruptures after TKA particularly in patients with large tears which are not amenable to primary repair.

Shao-Min Shi[1*] MD, Logan M. Andryk[1] MD, Glenn G. Shi[2] MD, Taurean Baynard[1] MD, Mark C. Xu[3] MD, Edward M. Nelsen-Freund[1] MD

[1]Department of Orthopaedic Surgery Medical College of Wisconsin 8701 W. Watertown Plank Rd. Milwaukee, WI, USA 53226

[2]Department of Orthopaedic Surgery Mayo Clinic, Jacksonville 4500 San Pablo Rd. S. Jacksonville, FL, USA 32224

[3]Department of Orthopaedic Surgery Univeristy of California, San Francisco 1500 Owens St. San Francisco, CA, USA 94158

Biography

Dr. Shao-Min Shi joined the Department of Orthopaedic Surgery in Medical College of Wisconsin in 1992 as an assistant professor in 2007 as a distinguished professor. After receiving his Doctor of Medicine Degree from Xian medical school, China in 1973, Dr. Shi completed his orthopaedic surgery residency at the First Affiliated Hospital in Xian. He then served as an associate professor of Orthopaedic Surgery and Director of Hand Surgery before coming to the United States in 1988, completing Hand Surgery Fellowship in Grand Rapids, Michigan. In 1991, Dr. Shi began a clinical fellowship at the Christine M. Kleinert

- This study highlights that synthetic mesh is a very promising material to augment tendon repair during extensor mechanism reconstruction, as it maintains excellent tensile strength, has a low chance of tissue reaction, and a low disease transmission risk compared to allograft.
- Along with the clinical benefit of mesh reconstruction, there is also a significant financial benefit as compared to allograft. Using synthetic materials over allograft may save a substantial institutional cost.

Institute for Hand and Microsurgery in Louisville, Kentucky, where he was awarded a hand surgery scholarship. He received his master's degree in 1988 and PhD in orthopaedic surgery in 1992.
A member of the American Society for Reconstructive Microsurgery, Dr. Shi's clinical interests/research include hand and microsurgery. Dr. Shi also focuses on clinical treatment and research of post-surgical neuroma pain and knee chronic extensor mechanism rupture after TKA.

A surgeon sings the cobalt blues

I will present a chronological account of my experience as patient, surgeon, researcher, and patient safety activist concerning Orthopedic-Implant-Cobaltism (OIC). My goals are to familiarize those listening with the following.

- Cobalt's toxidrome
- Risk stratification for cobalt exposure based on implant type
- Use of urine-cobalt and blood-cobalt to monitor patients at-risk
- Use of the Cobaltism-Symptom-Inventory to screen patients for cobaltism
- Approximate at-risk population
- Remediation
- Alternative orthopedic implant materials
- Flawed pre-market and post-market orthopedic-implant regulatory processes
- Role of Conflict-of-Interest in promotion of flawed orthopedic implants

Stephen S. Tower MD

Orthopedic Surgeon Affiliated Professor Washington, Wyoming, Alaska, Montana, Idaho Medical Program (WWAMI – University of Alaska-Anchorage)

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. Dr. Tower 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. Dr. Tower continues to practice arthroprosthetic surgery in Anchorage, Alaska.

Lifestyle approaches to prevent and manage disabilities

Over the last few decades, there has been an explosion in chronic lifestyle related diseases with a proportional increase in disability. It is not commonly appreciated and taught that many of these conditions are curable by making healthy lifestyle changes. While there are some environmental challenges that can only be avoided partially, there are many other aspects such as diet, exercise, sleep hygiene and screen time over which an individual has much better control. Good news is that it is never too late as many conditions are not just preventable, but also treatable, with cure or significant reversal or remission achieved through lifestyle changes.

After considering general principles of lifestyle medicine, the author will consider the available evidence for lifestyle management in a few common disabling conditions including osteoarthritis, dementia, degenerative brain diseases, neuropathies, cancer, metabolic diseases, etc.

Audience Take Away Notes

- Clinicians can benefit by improving their own health by adopting the right lifestyle!
- As patients would have already done some research in this area, clinicians will be able to have intelligent & informative discussions with them when considering their treatment options
- These interventions go well together with other conventional approaches. For instance:
    - Weight loss before & after joint replacement will minimize the operative morbidity and improve the longevity of the prosthesis
    - Good lifestyle following coronary stenting is likely to prolong the effective stent life and improve the quality of life
    - Appropriate lifestyle modifications before, during and after cancer treatments improves quality of life, reduce the stress & depression as well as prolong the life in many patients

Dr. Subramanya Adiga

Department of Rehab Medicine, Middlemore Hospital, Auckland, New Zealand

Biography

Dr. Adiga studied Medicine at Karnatak 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 orthopaedic & PN pathology principles in day-to-day rehab processes.

Rehabilitation of movement disorders: A practical experience

Movement disorders rehabilitation has evolved over 2-3 decades harnessing the principles of neuroplasticity with specific goal directed functional intervention in a timely manner. The duality of bradykinesia with hyperkinetic movements associated with motor control deficits results from neuroanatomical overlay resulting in significant medical, physical, functional, and psychosocial impairments and disabilities. The key framework that guides the principles of movement rehabilitation relies on neuroplasticity retraining to maintain bodily structure and function. In the past the main objectives were medication management followed by supplementation of physical therapy as a monodisciplinary with lack of coordinated care.

In the last few decades, plenty of evidence points to a well-structured integrated coordinated care to achieve best outcomes in patients with Movement disorders.

It is with this in mind; our local health district commissioned a specialized movement assessment pathway program with a multidisciplinary integrated assessment of patients with movement disorders which works in close collaboration with neurology specialist and family physicians to bridge the gap and to maximize patient centered outcomes.

I would like to share my personal evidence based practical experience that I have gained in my clinic to the wider scientific medical community and encourage the centers around the globe to set up a similar and even better integrated assessment to benefit patients with movement disorders.

Dr. Vaidya Bala

MBBS FAFRM(RACP) AFRACMA FESO Grad Cert in Health professional Education

Biography

Dr. Vaidya Bala is a Senior Staff specialist in rehabilitation Medicine currently working at The Wollongong Hospital which is part of the Illawarra and Shoalhaven Local health district Hospital in the city of Wollongong, New South Wales, Australia. He is currently the head of the Movement assessment program which provides an integrated assessment for Movement disorders and a clinical lead in neurological Rehabilitation for the district. Dr. Bala has recent papers on his Novel model of care in Movement assessment program was published in the Movement disorder journal September 2023 and he presented at the conference at International Movement disorder in Denmark 2023. Dr. Bala is a Fellow of the Australian Faculty of Rehabilitation Medicine and an honorary Fellow of the European Stroke council and Associate Fellow of the Royal Australian College of Medical Administrators.

Neuroimaging by evaluation nerve renovate and neuroplasticity 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 neurotrophic 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.

Zhenhuan LIU

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

Biography

Zhenhuan Liu professor of pediatrics/Ph.D. tutor. Standing Director of International Association of Neural Restoration. Vice-chairman of Rehabilitation professional committee of Children with cerebral palsy, World Federation of Chinese Medicine Societies. Vice-chairman of Professional committee of child health World Federation of Chinese Medicine Societies. Visiting Profassor of Chinese University of Hong Kong. Professor Liu was included in the Dictionary of World Celebrities of Cambridge University UK. Editorial Board World Journal of Physical Medicine and Rehabilitation.

Zhenhuan Liu professor of pediatrics, Pediatric acupuncturist Ph.D. tutor. Standing Director of International Association of Neural Restoration. Vice-chairman of Rehabilitation professional committe of Children with cerebral palsy, World Federation of Chinese Medicine Societies. Vice-chairman of Professional committee of child health World Federation of Chinese Medicine Societies Visiting Profassor of Chinese University of Hong Kong in recent 10 years. Professor Liu was included in the Dictionary of World Celebrities of Cambridge University UK.

Keywords: Cerebral Palsy, Acupuncture, Nerve Repair, Remodeling, Motor Function.

Work Performance: He has been engaged in pediatric clinical and child rehabilitation for 40 years. Led the rehabilitation team to treat more than 40,000cases of children with intellectual disability, cerebral palsy and autism from China and more than 20 countries including France, the US, Japan, U.K, Germany, etc. More than 26800 children's deformity returned to school and society and became self-sufficient. The rehabilitation effect ranks the international advanced level. He is one of the most famous pediatric neurological and rehabilitation specialists in integrated traditional Chinese and Western medicine in China. He has been influential in pediatric neuroscience, pediatric rehabilitation and traditional medicine throughout the world Scientific research.

Achievements: He presided over 1 National Natural Science Foundation project and participated in 8 major projects of the Ministry of Science and Technology and provincial projects. He has won 6 provincial and ministerial science and technology awards.

Chief monograph: He has edited 10 books, including Early Intervention Training for Children's Brain Development, Rehabilitation Training Atlas for Children with Motor Retardation, Practical Acupuncture and moxibustion Science Atlas for Children (Chinese -English control) and Family Rehabiliation Guide for Children with cerebral palsy. He has published268 papers in international and Chinese medical journals.

SEP

09-11

2nd Edition of Global Conference on

Physical Medicine and Rehabilitation &

2nd Edition of

World Orthopedics Conference

SPEAKERS

A M C J B Abeykoon[1*], K G V Saranga[2]

[1]Department of Trauma and Orthopaedics, Chesterfield Royal Hospital NHS Foundation Trust, Chesterfield, Derbyshire, United Kingdom
[2]Department of Surgery, National Hospital Sri Lanka, Colombo, Sri Lanka

Evaluating the efficacy of intra-articular analgesic cocktail for postoperative pain in total knee replacement: A comparative study across three tertiary care centres

Background: Effective postoperative pain management is crucial in Total Knee Replacement (TKR) surgeries. This observational study explores the impact of an intra-articular analgesic cocktail, introduced three months into the study, on pain reduction and Range of Motion (ROM) post-TKR in three tertiary care centers.

Methods: The study involved 103 patients undergoing primary TKR for primary osteoarthritis across three tertiary care centers. Patients were observed in a comparative setting, with one group receiving a periarticular cocktail injection (intervention group) and the other receiving conventional treatment (control group). The Visual Analog Scale was used to assess postoperative pain at 6 hours, 24 hours, 1 week, and 1 month. ROM was measured at 24 hours, 1 week, and 1 month. Pain score analysis was conducted using the Mann-Whitney U test, while ROM evaluation employed the unpaired Student's t-test.

Results: The sample had a mean age of 63.0±8.79 years, with a male-to-female ratio of 1:5, reflecting a predominantly female cohort. The intervention group exhibited a significant reduction in pain scores at 6 hours post-surgery ($p=0.003$) but no significant differences at 24 hours ($p=0.270$) and 1 week ($p=0.238$). ROM at 24 hours and 1 week showed no significant difference; however, there was a significant improvement in ROM in the intervention group at 1 month ($p=0.015$).

Conclusions: The introduction of an intra-articular analgesic cocktail in TKR surgeries at three tertiary care centers significantly reduced immediate postoperative pain at 6 hours and enhanced ROM at 1 month. These findings underscore the potential of this approach in improving early postoperative outcomes in TKR patients.

Audience Take Away Notes

- **Effectiveness of Intra-Articular Analgesic Cocktails in TKR:** Gain insights into the efficacy of intra-articular analgesic cocktails for managing postoperative pain in total knee replacement surgeries and how it compares with conventional treatments.
- **Improvements in Postoperative Recovery and Patient Care:** Understand how the analgesic cocktail can enhance recovery, particularly in terms of immediate postoperative pain relief and intermediate-term range of motion, offering practical solutions for better patient care.
- **Implications for Future Research and Clinical Practice:** Learn how the findings can guide future research directions in orthopedic surgery and pain management, and how they offer evidence-based practices that surgeons and medical practitioners can incorporate into their clinical protocols.

- **Gender-Specific Considerations in Orthopedic Surgery:** Discover the potential impact of gender on the outcomes of TKR surgeries, based on the study's predominantly female cohort, which could be crucial for personalized patient care.

Biography

Dr. Abeykoon, an alumnus of the University of Peradeniya, Sri Lanka, embarked on his medical journey in 2007, graduating with an MBBS in 2013. His pursuit of excellence in Trauma and Orthopaedics began in 2017, culminating in a Masters in Orthopaedic Surgery (MD) from the University of Colombo in 2021. Throughout his postgraduate training, Dr. Abeykoon honed his skills at premier Sri Lankan centers as a senior registrar, showcasing his commitment and expertise. Currently, he enriches the UK's medical landscape as a Senior Clinical Fellow under the International Surgical Training Programme (ISTP) since 2022, bringing a wealth of knowledge and experience to the Ortho 2024 conference.

Adarsh Amin
Sherwood Forest Hospitals NHS Foundation Trust, United Kingdom

Vitamin D prescription at discharge in patients (aged 18-55) with fractures undergoing operative management

Introduction: Vitamin D deficiency and insufficiency is very prevalent in the UK population. The Government of UK, after conducting a survey, in an official statment in April 2022, stated that 1 in 6 adults and almost 20% of children in the UK have vitamin D levels lower than government recommendations. This quality improvement project found similar findings in the hospital patients and recommended an action plan.

Methods: We in our study, focussed on 88 patients in the age group of 18-55 years that were admitted for fractures and treated with surgical management. Then we checked if they were having vitamin D. Finally we checked how many were tested for Vitamin D levels and how many where prescribed vitamin D.

Results: Nearly 60% of total patients were found to have low Vitamin D levels and only 12% of total patients were given Vitamin D at Discharge without our intervention even after having low Vitamin D levels. About 31% patients that were tested and found to have low Vitamin D levels were prescribed Vitamin D after we intervened and prescribed for each one of them. An alarming number of 58% Patients who were tested were found to have low Vitamin D levels were discharged without prescription.

Conclusion: We can extrapolate from this that vitamin D insufficiency or deficiency is more predominant than adequate levels and very rarely prescribed to fracture patients even after testing and diagnosed to be insufficient. Majority of the General Population are still unaware of the Government recommendations regarding Vitamin D.

Action Plan: Create awareness among colleagues to prescribe Vitamin D on discharge and create awareness among patients and their relatives regarding the government recommendations and importance of continuing to take vitamin D for their bone health.

Biography

Dr. Adarsh Yogesh Amin studied medicine in Mumbai, India and completed his undergraduate training from T.N. Medical College and B.Y.L Nair Hospital and his post graduate training in Orthopaedic Surgery from Sir J.J. group of hospitals, Mumbai. He then secured an additional Diplomate of National board degree in Orthopaedics from NBE, Delhi. He worked as as an Orthopaedic surgeon in both Government and Private Hospitals in India while simultaneously finishing his MRCS (UK) examinations with one of the highest scores. After 3 years, he moved to the UK to work as a Specialty Doctor in Trauma & Orthopaedics at Sherwood Forest Hospitals NHS foundation trust. Dr. Amin has performed and assisted more than 2000 surgeries in India and UK combined and plans to set up his own hospital in India in the near future.

Adarsh Amin

Sherwood Forest Hospitals NHS Foundation Trust, United Kingdom

Surgical repair of proximal hamstring tendon ruptures in middle aged non-athletic patients: A case series

Objective: Proximal Hamstring injuries occur due to eccentric contraction of the Hamstring group of muscles. It can be a Hamstring strain or partial or complete rupture of proximal hamstring origin. The Objective of this paper is to showcase our experience in surgical repair of proximal hamstring tendon ruptures with good clinical outcomes.

Methods: Our study group consisted of 4 patients, 3 of which were managed with surgical repair and 1 was managed conservatively. All patients were assigned a specific physiotherapy protocol to be followed with regular follow up at 6 weeks and 3, 6 and 12 months to assess the healing and rehabilitation of the patients.

Results: At the end of 1 year, 3 patients regained 95 % of the original hamstring muscle strength and 1 patient regained upto 85 % of the muscle strength. All patients returned back to their pre-trauma level of activities.

Conclusion: Proximal tendon ruptures are rare but causes debility and affects the individual's day to day activities and has serious implications in a sportsperson for his future sports activities. Surgical repair allows early rehabilitation and a good functional outcome in these patients and avoids the problem of gluteal sciatica.

Biography

Dr. Adarsh Yogesh Amin studied medicine in Mumbai, India and completed his undergraduate training from T.N. Medical College and B.Y.L Nair Hospital and his post graduate training in Orthopaedic Surgery from Sir J.J. group of hospitals, Mumbai. He then secured an additional Diplomate of National board degree in Orthopaedics from NBE, Delhi. He worked as as an Orthopaedic surgeon in both Government and Private Hospitals in India while simultaneously finishing his MRCS (UK) examinations with one of the highest scores. After 3 years, he moved to the UK to work as a Specialty Doctor in Trauma & Orthopaedics at Sherwood Forest Hospitals NHS foundation trust. Dr. Amin has performed and assisted more than 2000 surgeries in India and UK combined and plans to set up his own hospital in India in the near future.

Ady M. Correa MD

Department of Physical Medicine and Rehabilitation, University of Miami, Miami, Florida, United States

Rehabilitation of breast cancer-related lymphedema

Breast cancer in female patients accounts for almost 25% of all cancer diagnoses worldwide. Lymphedema is one of the most common complications of breast cancer, affecting approximately 3% to 80% of survivors. Lymphedema may be accompanied by different symptoms, including arm heaviness, pain, and limitation in the arm's range of motion, making it difficult for patients to perform their activities of daily living. This presentation will focus on reviewing the pathophysiology of lymphedema, screening measures, workup, and current rehabilitation approaches, including reductive and maintenance phases of the treatment. Throughout the presentation, we will present some of the garments and equipment used in our practice for managing lymphedema.

Identifying patients at risk of lymphedema and promptly referring them to rehabilitation is crucial for managing the disease during its early, clinically reversible stages. This way, as rehabilitation professionals, we can help cancer survivors preserve and enhance their function and quality of life.

Audience Take Away Notes

- The audience could learn and/or review the topic of breast cancer-related lymphedema: screening methods, pathophysiology, evaluation, and treatments
- We will discuss rehabilitation approaches that can be used to treat functional impairments associated to breast cancer-related lymphedema

Biography

Ady Correa is an Assistant Professor in the Department of Physical Medicine and Rehabilitation at the University of Miami, in Miami, Florida, United States. Her interests include cancer rehabilitation.

Ahmed Atwa*, Pradeep Prasad, Adersh Gopinathannair, Brijesh Ayyaswamy, Anoop Anand, Rohit Ravindran Nair

Blackpool Victoria NHS Teaching Hospitals, Blackpool, United Kingdom

Functional outcome & correlation with ultrasound gap size of Achilles tendon rupture treated non-operatively with boot and wedges

Background: There is significant controversy regarding the impact of gap size in Achilles tendon ruptures on treatment decisions. Some studies suggest that a gap size exceeding 1 cm adversely affects the final functional outcome in non-operative management of Achilles tendon injuries, while other studies indicate no such effect.

Objectives: This study aims to evaluate the functional outcomes following non-operative treatment of Achilles tendon ruptures using a boot and wedges. It specifically investigates the correlation between the ultrasound-determined gap size between the torn edges of the tendon and the final functional outcome. The central question is whether the gap size influences the choice of treatment modality.

Study Design & Methods: This study involved 32 patients presenting with acute Achilles tendon rupture between October 2020 and August 2022. Patients were treated non-operatively with a boot and wedges for up to 12 weeks, following a progressive loading program. Ultrasound was used to measure the gap size within two weeks of injury. Patients were followed for 12 months, with assessments including ATRS scores, single heel raise, and calf circumference difference. Pearson correlation coefficient was employed to analyse the relationship between variables.

Results: The mean age of the study group was 48.2 years (range: 28 to 87 years), comprising 25 males and 7 females. The average ATRS scores at 3, 6, and 12 months were 26.89, 53.21, and 76.4, respectively. The mean difference in calf circumference between the affected and unaffected sides was 1 cm. The average difference in single heel raise at 12 months was 1.66 cm. No re-ruptures or DVT incidents were observed. There was only a very weak correlation between gap size and 12-month ATRS scores (r=0.073). Similarly, a very weak negative correlation was noted between heel raise difference and gap size at the 12-month follow-up. The calf circumference difference at 12 months exhibited a weak correlation with gap size (r=0.79).

Conclusions: This study is the first to examine the correlation between gap size and functional outcomes, heel raise difference, and calf circumference difference. The findings suggest that the initial gap size does not significantly influence the final functional or anatomical outcome.

Biography

Ahmed Atwa is a dedicated 1st year Trauma and Orthopedics Doctor currently serving at Blackpool Victoria Hospital NHS Trust. With a deep passion for medicine and a commitment to patient care.

Dr. Akash Ganguly[1]*, J Warnera, H Aniq[2]

[1]Department of Radiology, Warrington & Halton teaching Hospitals NHS FT, Warrington, UK
[2]Department of Radiology, Royal Liverpool University Hospital, Liverpool University Hospitals NHS FT, Liverpool, UK

Central metatarsalgia and walking on pebbles: Beyond Morton neuroma

Objective: Central metatarsalgia relates to abnormalities of the second, third, and fourth metatarsals and their respective metatarsophalangeal joints. A variety of disorders present with central forefoot pain; they range from traumatic lesions (acute or chronic repetitive), inflammatory and infective disorders, nonneoplastic soft-tissue lesions, and benign tumors to malignant lesions. Patients often present with symptoms of localized pain in the forefoot that worsens on weight bearing (walking or running), which can be sharp or dull and often is perceived as a lump felt inside or underneath the foot and described as walking on a marble or pebbles. These patients are labeled as having central metatarsalgia and are further evaluated with ultrasound or MRI to establish a diagnosis.

Conclusion: In this presentation, I will review metatarsal and intermetatarsal lesions of the foot that present with central forefoot pain and a sensation of walking on pebbles, focusing on conditions mimicking Morton neuroma clinically or on imaging. I will also briefly review some other plantar lesions and arthropathy that can present with awareness of lump underneath the foot.

Audience Take Away Notes

- Causes of metatarsalgia–a common complaint in all foot and ankle clinic
- Relevant anatomy of the forefoot with illustrations
- Relevant radiology anatomy–for everyone from Orthopaedic Surgeons in the clinic to Professors in Radiology
- Mimics of Morton neuroma
- Imaging modalities of choice
- Stress fractures
- Tumours including soft tissue sarcomas that can masquerade as something innocent

Biography

Dr. Akash Ganguly, is a Consultant Musculoskeletal Radiologist at Warrington and Halton Teaching Hospitals NHS Foundation Trust since 2011 and Honorary Clinical Lecturer at the University of Liverpool since 2009. He graduated from India and became a Fellow of the Royal College of Radiologists in 2009. He has authored at least twenty-five scientific papers on various aspects of radiology and two books, one of which is a revision guide for FRCR which is on its 2nd Edition. He has more than thirty national and international presentations with abstract publications and is involved in multiple FRCR examination courses and musculoskeletal workshops in India. He is a member of the RSNA, the RCR, BSSR, ESSR and BISS (British Indian Skeletal Society).

Dr. Amr Elmaraghy MD, FRCSC

Department of Surgery, University of Toronto and St Joseph's Health Centre
Toronto, Ontario, Canada

Arthroscopically assisted lower trapezius transfer: Surgical technique and implications for rehabilitation

The prevalence of rotator cuff pathology is high and increasing with our aging populations. Many surgical options have been described to manage the difficult clinical presentation of massive irreparable rotator cuff tears. Recently, Arthroscopic Assisted Lower Trapezius Transfer (aaLTT) has shown great promise and rapidly growing popularity among Orthopaedic Surgeons world-wide. This procedure helps restore the glenohumeral force couple balance, and therefore works best with an intact and/or repairable subscapularis tendon. In addition to addressing associated pathology during initial arthroscopy, this technique affords the benefits of a minimally invasive approach, with less soft tissue dissection and therefore less post operative pain and bleeding.

This presentation will summarize the appropriate clinical triage for patients with symptomatic irreparable rotator cuff tears which have failed non-operative management, and specifically which clinical features make a patient ideal for aaLTT versus the many other surgical alternatives. Using a cognitive task analysis approach, the individual steps of the surgical technique will be reviewed. This step-by-step surgical technique review will incorporate intra-operative images and video to help illustrate the anatomy and pathology, adding to the unique tissue and biomechanical understanding of appropriate rehabilitation protocols after this procedure.

A cooperative relationship between surgeon and physiotherapist is critical to the common goal of improved patient outcomes. The insight gained by observing this complex surgical procedure can inform the best evidence-based approach to rehabilitation protocols development. Surgical technique a surgical technique astute understanding of the surgical procedure will empower the therapist collaboratively modify protocol when required in consultation with the surgeon.

Audience Take Away Notes

- Learn the definition of a massive irrepairable rotator cuff tear
- Understand the clinical indications for an aaLTT surgery
- Unique access "in the OR" to observe the detailed step-by-step surgical technique for the aaLTT procedure, which is becoming increasingly popular
- Appreciate the tissue and biomechanical implications of aaLTT for an appropriate rehabilitation protocol
- Understand how surgeon and physiotherapist can cooperate to provide the best evidence -based protocols for early post operative brace immobilization and subsequent phased surgical rehabilitation

Biography

Dr. Elmaraghy is a graduate of the University of Toronto; Faculty of Medicine in 1994, completing his Orthopaedic Surgery residency in 2000 and his Clinical Fellowship in Upper Extremity, Hand and Trauma Surgery in 2001. He is currently an Associate Professor in the Division of Orthopaedic Surgery. Dr. Elmaraghy has established a subspecialty practice in Upper Extremity Arthroscopy and Reconstructive Surgery and has been extensively published on topics related to upper extremity pathology and surgical techniques. Dr. Elmaraghy operates at St. Joseph's Health Centre, part of Unity Health Toronto, where he has served as the former Head of the Division of Orthopaedic Surgery, and the former Chief of Surgery.

Anahit Voskanyan* PhD, Marc Van Hulle Professor

Laboratory of Neuro-and Psychophysiology, K. U. Leuven, O&N II Herestraat 49-box 1021, 3000 Leuven, Belgium

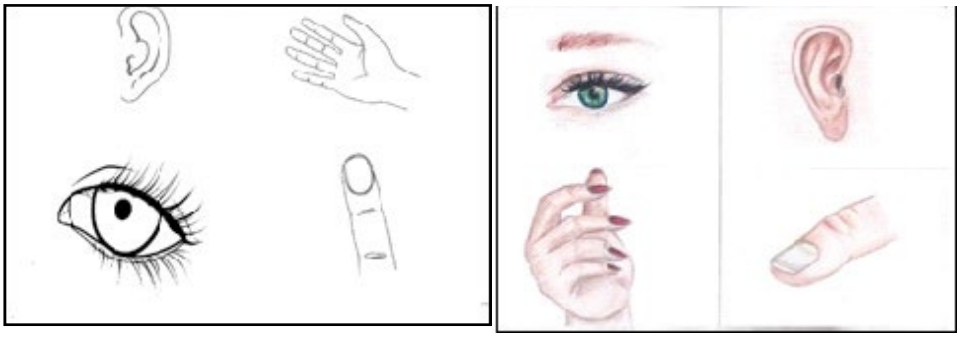
Development of a tablet-based aphasia test in Armenian language

When working as a neurologist in Armenia I realized that, despite my efforts, I lacked the means to efficiently and effectively diagnose aphasia. Aphasia is a language disorder that impairs the expression and understanding of language as well as reading and writing, with a large impact on the patient's quality of life.

The used tests are pencil-and-paper questionnaires translated from Russian and that therefore often ignore important aspects of Armenian language and culture. I aim to develop and clinically validate a computerized Armenian aphasia test as it would signify a tremendous help to clinicians and therapists in Armenia and become an important stride in the treatment of aphasia in Armenia. As the test data will be accessible via internet for later consultation, the progression of patients in rehabilitation centers can be monitored, the efficiency of the proposed therapies evaluated, and the collected data used for clinical research.

The Aachen Aphasia Test (AAT) is a routinely used pencil-and-paper test of language functioning after brain injury [2]. It aims to reliably identify the presence of aphasia, provide a profile of language functioning according to different language modalities (speaking, listening, reading, and writing), using different aspects of linguistic descriptions (phonology, morphology, semantics and syntax), and returns a measure of severity.

I started with the format of AAT as it is also used at UZLeuven, KU Leuven's university hospital. First, I developed a paper-based version that accounts for the cultural and linguistic aspects of the Armenian language. Also, instead of using line drawings, as is currently done in aphasia tests around Europe including AAT, I used enriched color images, which makes them more comprehensible for the targeted patient group.



A tablet-based version of the test enjoys a number of advantages over the paper-based one:

1. The ease and speed of testing patients as the paper-based AAT takes approximately 45-75 minutes to administer and scoring about 30-60 minutes [2]. Using the tablet-based version, I expect to save minimally 30 minutes.

2. All testing results are uploaded on a password-protected secure server, accessible to licensed individuals.
3. The progression of a patient enrolled in a rehabilitation program.
4. The (future) possibility to enable the patient to track his/her own progression in the rehabilitation program.
5. The ability to test patients even in a bedridden condition, which is very important.
6. Psychological advantage: the patient will not see the scoring by the clinician (as in the case with the pencil and paper test), which in turn motivate him/her to fully concentrate on the test.
7. With a tablet it is easier and less expensive to use enriched images, which will render the test more comprehensible.
8. Automatic scoring facility, which is more objective.

Audience Take Away Notes

- The development of a new, computerized aphasia test in Armenian language would be an important stride in the diagnosis and treatment of aphasia in Armenia, especially for rehabilitation medicine as it will enable the therapist to track the progression of the patient and judge the efficacy of the used rehabilitation program
- The Armenian tablet-based version could serve as a prototype for the tablet based versions of aphasia tests in other languages
- The whole process of test adaptation and translation to be published in the article can be helpful for later use

Biography

Dr. Voskanyan studied Medicine at the Yerevan State Medical University after Mkhitar Heratsi (YSMU), Yerevan, Armenia and graduated as MD in 2010. After her residency she graduated as a Neurologist in 2013, YSMU. In 2016 she joined the research group of Prof. Van Hulle at the KU Leuven, Belgium. Currenly, she is a PhD student in the same group. Since 2013 she has been working as a Neurologist at Sirmed MC, of which she is vice-president, and as a Neurologist and Rehabilitation Doctor at Solders Home RC. She has published more than 15 articles.

Prof. (Dr.) Ankit Bhargava[1*], Monika Jain[2], Shreyanshi Rajvanshi[3]

[1]Dean & Professor, Faculty of Physiotherapy & Diagnostics, Jayoti Vidyapeeth Women's University, Jaipur, Rajasthan, India
[2]BPT Final Year, Faculty of Physiotherapy & Diagnostics, Jayoti Vidyapeeth Women's University, Jaipur, Rajasthan, India
[3]MPT Final Year, Department of Physiotherapy, Chandigarh University, Chandigarh, Punjab, India

Effects of lotus method technique in pain and stiffness in patients with mastitis

Introduction: Mastitis is a common and often painful inflammatory condition of the breast tissue, typically caused by an infection. It primarily affects breastfeeding women but can also occur in non-lactating individuals. The condition usually presents with symptoms such as breast tenderness, swelling, warmth, redness, and sometimes fever and flu-like symptoms. Several risk factors increase the likelihood of developing mastitis, including improper breastfeeding latch, infrequent breastfeeding or pumping, poor breast hygiene, cracked nipples, fatigue, stress, and weakened immune system. Lotus Method of Mastitis Soothie Patch was recently developed and applied to the patients with Mastitis.

Methodology: Newly developed Mastitis Soothie Patch's Lotus Method is applied to the breasts in a specific manner on patients with Mastitis post delivery. The Patch kept applied for 2-3 days.

Results: Surprisingly, the results was amazing. It had been seen pain and tenderness was relieved and it also helped in improving the lactation of the mother.

Keywords: Mastitis, Soothie Patch, Lotus Method.

Audience Take Away Notes

- Newly invented non invasive technique for most common problem faced by women's and can easily applied and practiced by medical professionals on their patients. It also gives deep idea of a technique which will be helpful for researchers to study in deep in near future. More and more application gives a clear picture of the effects on a larger population and can leads to comprehensive solution to the women population.

Biography

Dr. Ankit Bhargava is an Indian School of Business, Hyderabad & National University of Singapore alumnus, holding dual doctorate from Singapore & USA. He is the Dean-Faculty of Physiotherapy & Diagnostics at Jayoti Vidyapeeth Women's University, Jaipur, Rajasthan, India and the Founder & Director of ABHIAHS & AB Healthcare, a premier Healthcare organizations. He has been associated with many renowned International and national organizations. He is the only physiotherapist in India who got awarded the Govt. of India, Govt. of Rajasthan awards & Presidential medal for his services in Physiotherapy. He is the only physiotherapist who served in the Himalayas for 50 days at a height of 18000 feet. He is also a TEDx Speaker and also nominated for Padma Awards 2024, India's highest civilian awards by Government of India.

Ann Kuo
Singapore Cancer Society, Singapore

Cancer patients self-reported quality of life after community-based cancer rehabilitation

Background: Cancer is the leading cause of death in Singapore, accounting for 28.4% of all deaths. Over the years, precision medicine has significantly reduced cancer related mortality with 5-year Age-Standardised Relative Survival (ASRS) increased from 19.5% in 1973-1977 to 59.3% in 2017-2021. With improving life expectancy, quality of life is increasingly important to cancer patients after treatments. Cancer patients are exposed to a wide range of cancer or treatments-related physical adversities of varying severities, some with resultant long-term disability. These include chronic persistent chemotherapy neuropathy, swelling of limb (lymphedema), chronic fatigue and musculoskeletal pain symptoms. A one stop cancer rehabilitation centre helps support cancer patients' recovery journey optimising overall Quality Of Life (QOL).

Aim: Improving cancer patients' overall quality of life with a multidimensional cancer rehabilitation program.

Methods: This was a retrospective cohort study of Asian cancer patients who had presented at Singapore Cancer Society Rehabilitation Centre. All cancer patients were referred from primary cancer care team after completion of major cancer treatments in tertiary setting. Multidimensional cancer rehabilitation programs consist of structured 12weeks exercise program couple with individualised dietitian consultation as well as physiotherapy, occupational therapy, and lymphedema management care. Eligible patients were adults aged more than 20years old and enrolled into the rehabilitation program. Patients who are terminally ill were excluded. Primary outcome measure was European Organisation for Research and Treatment of Cancer (EORTC QLQ-C30).

Results: Wilcoxon signed rank test indicated significant observed difference ($p>0.05$) between cancer patients' baseline (self-reported quality of life) and after discharged from Singapore Cancer Society Rehabilitation Centre. The baseline mean EORTC (Global health status/QOL) was 61.85 (19.59), with 154 cancer patients. Post mean EORTC (Global health status/QOL) was 67.91 (18.91), with 154 cancer patients. Cancer profile ranges from breast, prostate, colorectal, lung, uterine, cervical, lymphoma, ovarian, liver and blood cancers.

Conclusion: There were significant portion of cancer patients with impaired QOL presenting at first visit. A multidimensional, one-stop cancer rehabilitation centre provides potential benefits on enhancing cancer patients' health related quality of life.

Biography

Ann Kuo obtained her doctoral degree from the University of Southern California in Los Angeles, USA. She currently works at Singapore Cancer Society Rehabilitation Center as principal occupational therapist, specializing in cancer rehabilitation. Specifically, she develops programs to help cancer survivors manage symptoms associated with cancer and its treatment such as fatigue, sleep, neuropathy, and cognitive issues.

Dr. Arvinder Singh Bhatia

Senior Consultant Orthopaedic & Arthroscopic Surgeon, at Dr. Bhatia's Bone & Joint Care Clinic, #2739,Sector 37 C, Chandigarh, Punjab, INDIA 160036

PRP therapy in OA knee - My experience (a series of 490 cases – 545 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 males 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-1□ (IL-1□), 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. For the last 250 patients augmented with Sodium hyaluronate Injection (30mg /2ml). The patient's progress is assessed after the second injection. First case done 5yrs. Back and last case included 6month back (today-11.05.2024). 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) performing light domestic duties

Results: In the series of 490 cases – 545 KNEES 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 chondral 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- 85to100%, 2) rising from sitting 86 to 100%, 3) walking on flat surface 85 to 95%, 4) performing light domestic duties 70to96%, 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 5yrs 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.

Bilal Khilfeh[1*] BS; Shing Varakitsomboon[2] BS; Apeksha Gupta[2] MPH, MS; Michael Saper[2] DO

[1]University of Washington, School of Medicine, Seattle, WA, United States
[2]Department of Orthopaedics and Sports Medicine, Seattle Children's Hospital, Seattle, WA, United States

Patient reported outcomes and return to sport testing 6 months after pediatric arthroscopic shoulder surgery

Background: Readiness for Return to Sport (RTS) after surgery can be assessed using strength and functional performance testing. Patient-Reported Outcomes Measures (PROMs) may be useful in predicting success in RTS testing. However, data regarding RTS testing and PROMs 6 months after arthroscopic shoulder stabilization in adolescent and young adult patients is limited.

Purpose: The purpose of this study was to observe if the results of strength and functional RTS testing, and 6-month postoperative PROMs associate following arthroscopic stabilization in adolescent and young adult patients with shoulder instability.

Study Design: Retrospective review.

Methods: The medical records of adolescent and young adult patients who underwent arthroscopic shoulder stabilization at a single orthopedic surgery department and subsequent RTS testing at the institution's sports rehabilitation clinic between 2017 and 2024 were reviewed. Patient demographics, operative details, Patient-Reported Outcome Measures (PROMs) (Tegner, ASES, QuickDASH), and RTS testing results were collected. PROMs were obtained at the time of the RTS test. The recovery of muscle strength was defined by a Limb Symmetry Index (LSI) ≥90% and considered a pass. The study examined RTS testing results and PROMs in pass and fail groups, and P-values were determined using Wilcoxon rank sum test. After identifying significant variables in the bivariate analysis, we ran multivariate regression adjusting for age and BMI, and predicted means with P- and model F-values were reported for these tests.

Results: A total of 59 patients were included (64.4% male, mean age 16.1, mean body mass index 25.58). 66.1% of patients underwent surgery on their dominant shoulder. RTS testing was performed at a mean of 6.36 months postoperatively. 98.3% of patients were cleared to RTS at a mean of 6.07 months post operatively. Between pass and fail groups, differences in pain, ASES, and QuickDash scores were identified in upper extremity Y-balance tests (UE Y-bal-comp), dynametric External Rotation (ER) tests, and dynametric Internal Rotation (IR) tests. Between pass and fails groups in UE Y-bal-comp, post-operative ASES scores were higher among pass groups (p=0.005). Similarly, post-operative pain and QuickDash scores decreased in UE Y-bal-comp pass groups (p=0.0449 and p=0.0441, respectively). Post-operative QuickDash scores decreased in the grip strength testing pass group (p=0.0095). ASES score increased in dynametric ER testing pass groups (p=0.0438). QuickDash decreased in dynametric IR testing pass groups (p=0.009). In the multivariate analysis adjusted for age and BMI, the average difference in 6- month ASES between the UE Y-bal-comp pass and fail groups was 9.45 (P=0.0021, F=0.0125). The average difference in 6-month QuickDash between the grip strength pass and fail groups was -7.08 (P=0.002, F=0.0131).

Conclusion: Shoulder strength and stability deficits persisted in the surgical limb of adolescent and young adult patients up to 6 months after arthroscopic stabilization, and in certain tests PROMs were associated with pass and fail. Postoperative QuickDash, ASES, and pain scores were found to be associated with objective shoulder strength and stability measurements.

Audience Take Away Notes

- At 6 months postoperative, functional deficits may be resolved while strength deficits may persist, and PROMs improve significantly following shoulder stabilization surgery. With the current timeframe and RTS protocols in adolescent and young adult patients following arthroscopic shoulder surgery, a large portion of patients will fail some aspect of the RTS testing at the expected readiness date. PROMs may have utility in predicting outcomes of RTS testing.
- Providers may utilize PROMs to associate with specific components of RTS pass or fail outcomes in patients following arthroscopic stabilization in adolescent and young adult patients with shoulder instability.
- By using subjective measures, the surgeon may predict objective findings at 6 months postoperatively.
- Surgeons may use similar research methods in their patient populations to improve generalizability, as well as apply subjective measures from their patients to their own RTS protocols to predict outcomes. One possible route of expansion may be to collect PROMs in the preoperative period and perform analyses on subjective and objective data in the follow up period to associate preoperative PROMs with postoperative outcomes.

Biography

Bilal Khilfeh is a fourth-year medical student at the University of Washington, where he also received his bachelor's degree in physiology. He promotes underrepresented minorities in medicine and is involved in admissions committees and medical associations. He enjoys volunteering at health fairs and community events. He expanded a community health center's adverse childhood experiences protocol in the San Fernando Valley. He published reports on interesting cases, and his current research interests include pediatric sports medicine and orthopedic trauma. In his free time, he performs with SeattleDabke, a Middle Eastern dance troupe that performs at events worldwide.

Dickson Rollef Wak[1*], Jerzy Kuzma[2]

[1]General Surgery Registrar, Surgical Department, Madang Provincial Teaching Hospital, Madang Province, Papua New Guinea
[2]Faculty of Medicine and Health Sciences, Divine Word University, Madang, Papua New Guinea

A randomised control trial to compare topical use of antibiotic versus conventional management of open fractures

Introduction: The evidence is building that adding topical antibiotic to standard systemic antibiotic in management of open fractures is lowering the infection rate and complications, however, there is a scarcity of studies in low resource settings. This study aims to evaluate the effect of topical antibiotic on infection rate in open fractures managed in limited-resource settings.

Methods: This is a prospective randomised controlled trial comparing topical antibiotic (aqueous gentamycin) and non-topical antibiotic groups. A total of 200 patients with open long bone fractures were admitted, of which 120 patients gave consent and were randomly allocated into the study groups. Eighty patients were excluded from the study. The primary outcome measures were acute infection rate while the secondary outcome measures included the length of hospital stay, number of surgical procedures and rate of non-union.

Results: The mean time of injury to the time of first debridement was 6 days and the delays were observed in all stages due to poor access to surgical care. We recorded a significant reduction of infection rate in the 2nd (p=0.015) and 6th (p=0.045) weeks, but non-significant reduction at 6th month (p=0.3) in the topical group compared to the non-topical group. As compared to the non-topical group, for the topical group we recorded a reduced number of procedures (p=0.004), reduced length of hospital stay (p=0.006), the rate of non-unions at 6-month follow-up (p=0.01).

Conclusion: This study shows that in the management of open long bone fractures in low-resource settings, the use of local aqueous gentamycin administration as an adjunct to conventional management is effective in lowering the infection rates, reducing the number of operations, reducing length of hospital stay and non-union rates. Despite some methodological limitations, the authors hope the study contributes to the body of evidence for the use of topical antibiotics in the management of open fractures.

Audience Take Away Notes

- The audience will be able to learn the challenges in managing open fractures in a low-middle income country, and also learn that local aqueous gentamycin can be used as an adjunct to the conventional management of open fractures to lower infection rates
- The main challenge for any orthopedic surgeon managing open fractures is post-operative complications especially osteomyelitis, delay bone union and non-union. The results of this research on the use of topical aqueous gentamycin as an adjunct to the conventional management of open fractures contributes to the body of evidence for the use of topical antibiotics. The study provides practical solutions in managing open fractures in low-middle income countries and with the well outlined limitations, other researchers can reproduce a similar study to add strength on the use of topical antibiotics as an adjunct to the conventional management of open fractures

Biography

Dr. Dickson Rollef Wak studied Bachelor in Medicine and Surgery (MMBS) at the University of Papua New Guinea from 2010 to 2014 and Graduated in 2015.I completed the Resident Medical Officer training in 2016. In 2017, was working as a general practitioner at Hela Province of Papua New Guinea (one of the remotest regions), from there, I developed the interest in Surgery and in 2018, I joined the Surgical Department of Madang Provincial Hospital. In 2019, we commenced the research title "A Randomised Control Trial to Compare Topical Use of Antibiotic Versus Conventional Management of Open Fractures"; And was published on the 27th April 2023 through the EChronicon Orthopedic Journal, UK. I have just passed my exams in Masters in General Surgery at the University of Papua New Guinea.

Florian Forelli
Orthosport Rehab Center, Domont, France
Orthopaedic Surgery Department, Clinic of Domont, Ramsay Healthcare, @ OrthoLab, Domont, France
SFMK Lab, Pierrefite sur seine, France

Quadriceps activation after anterior cruciate ligament reconstruction: The early bird gets the worm!

After Anterior Cruciate Ligament Reconstruction (ACLR), several factors contribute to muscle inhibition, including the surgical procedure and the postoperative phase. Surgery causes neuromuscular alterations. Ligament and tendon structures are altered, which can trigger a protective response from the central nervous system known as reflex inhibition. This phenomenon leads to a reduction in muscle activity.

The postoperative phase is characterized by a reduction in voluntary muscle activity due to pain, inflammation and self-protection (kinesiophobia). These factors combine to produce a reduction in strength, an imbalance in activation and inter- and intramuscular coordination during muscle contractions, which persists over time. The result is morphological changes in the different heads of quadriceps and hamstring muscles.

It is essential to understand this muscle inhibition in the specific context of anterior cruciate ligament injury and reconstruction, as it can compromise rehabilitation and functional recovery. Targeted intervention to alleviate this muscular inhibition becomes crucial to restore muscle strength and promote optimal recovery.

Arthrogenic Muscle Inhibition (AMI) can occur as early as the initial trauma, although it is more frequently described after ACLR. This is why it is crucial to be able to detect and treat it preoperatively, in order to avoid postoperative complications such as joint stiffness. AMI remains a limiting factor in joint rehabilitation, as the inability to activate the muscle significantly impedes recovery. AMI is a sequential and cumulative neurological process that results in complex clinical impairments. Patients experience changes in afferent joint information, resulting from both spinal and cortical muscle inhibition. This results in somatosensory deficits, neuroplastic compensations in higher brain centers and reduced motor control of the muscle interacting with the joint. Other aspects of clinical function, such as muscle structure and psychological reactions to injury, are also altered and influenced by AMI. Eliminating or reducing AMI should be at the heart of rehabilitation programs to optimize recovery from knee injury or surgery.

It therefore seems important to determine whether or not AMI is present. It is crucial to monitor the progression of voluntary muscle activity, mainly of the quadriceps, using therapeutic strategies established by the physiotherapist. Specifically, patients may present deficits in active knee extension due to lack of activation of the vastus medialis, as well as reflex hypertonia of the hamstrings. In addition to the clinical features mentioned above, Norte et al. include pain, intra-articular effusion and inflammation. Lepley and Lepley highlight the importance of immobilization in neuroplastic changes in the motor cortex. It will also be interesting to objectively assess somatosensory deficits by asking the patient to compare the sensation of quadriceps contraction on the opposite side.

Audience Take Away Notes

- **Arthrogenic Muscle Inhibition (AMI) Mechanisms and Impact**: AMI is a reflexive inhibition of musculature surrounding a joint after injury or pathology, affecting neuromuscular control and functional performance.
- After ACL reconstruction, AMI primarily causes a lack of quadriceps activation and strength, complicating rehabilitation and potentially leading to long-term deficits and altered biomechanics.
- **Therapeutic Interventions and Early Management**: Effective management of AMI includes pain reduction, inflammation control, proprioceptive training, and quadriceps activation.
- Techniques such as Neuromuscular Electrical Stimulation (NMES), biofeedback, and early pain modulation (using ice and compression) are essential for overcoming muscle inhibition and promoting strength gains.
- **Rehabilitation Strategies and Quadriceps Activation Levels**: Rehabilitation programs must address different levels of quadriceps activation: minimal, adequate, and fast activation.
- Proper classification and targeted interventions can improve patient outcomes, reduce the risk of reinjury, and support a successful return to sports.
- **Central and Peripheral Nervous System Interventions**: Addressing AMI involves both central (e.g., motor imagery, virtual reality) and peripheral (e.g., NMES, TENS, cryotherapy) interventions to enhance muscle activation and neural drive.
- Emerging techniques like cross-education therapy and vibration training show potential but require further research for conclusive evidence.
- **Comprehensive Multimodal Approach**: An integrated approach targeting muscles, brain, and nerves is crucial for effective AMI management.
- Continuous evaluation and personalized rehabilitation plans are necessary to optimize functional outcomes, improve quality of life, and ensure a timely return to performance levels after ACL reconstruction.

Biography

Florian Forelli is sport physical therapist and researcher specialized in ACL Rehabilitation. He's currently head of department at Orthosport Rehab Center (Sport Medicine and Development) and at Clinic of Domont (OrthoLab). He has published more than 80 articles about ACL or lower limb rehabilitation. He has joined the IFSPT Executive board in 2024 as President of Research Committee. He is currently lecturer in several universities and consultant in Knee Injury through the world for many clubs (soccer, handball, karate).

Dr. Frank Davis*, Dr. Riem Johnson, Dr. Stephen Bendall, Dr. James Gibbs, Professor Benedict Rogers

Trauma and Orthopaedics, University Hospital of Sussex, Brighton, East Sussex

Innovating the surgical care pathway: A prospective study

Introduction: To meet the European Green Deal for Europe to be climate neutral by 2050 healthcare systems must adopt innovate solutions. The integration of digital surgical pathways in orthopaedic practices signifies a pivotal advancement in patient care and environmental stewardship. This transformative approach was examined in a study conducted by University Hospitals Sussex, focusing on lower limb arthroplasty patients.

Methods: All lower limb arthroplasty patients were included in a comprehensive Digital Surgical Care Pathway (DCP) over a six-month period. The emphasis on inclusivity ensured that every eligible patient was enrolled. Through the utilisation of web-based health questionnaires and digital educational materials, patients actively engaged in their pre-operative assessments. Pre-assessment nurses meticulously oversaw this process to uphold data integrity.

Results: The results of the study unveiled profound benefits across various dimensions. Among the 1060 patients enrolled in the DCP, a significant reduction of 6.84 metric tons of CO2 emissions was achieved. This reduction was attributed to minimised travel requirements and decreased paper consumption facilitated by the digital pathway. 63.9% of patients were identified as able to have a telephone POA saving 282 hours of Pre-operative nurse time as well as preventing a patient travelling to hopsital saving them time and expense.

Conclusion: The adoption of digital surgical pathways represents a fundamental transformation in orthopaedic care delivery, driven by a dedication to innovation and sustainability. Beyond enhancing patient engagement and streamlining clinical workflows, this approach aligns with broader environmental objectives, such as those outlined in initiatives like the European Green Deal. As orthopaedic centres continue to pioneer advancements, the integration of digital technologies and environmental consciousness promises to shape a more sustainable and patient-centred healthcare landscape, epitomising the evolution of orthopaedic care in the modern era.

Audience Take Away Notes

- **Innovative Patient Engagement**: The presentation would highlight how the use of digital surgical pathways revolutionizes patient engagement.
- **Environmental Sustainability**: Attendees would gain insights into the significant environmental benefits associated with the adoption of digital pathways.
- **Operational Efficiency**: The presentation would emphasize how digital surgical pathways streamline clinical workflows and administrative processes, leading to enhanced operational efficiency within orthopaedic centers.
- **Alignment with Healthcare Trends**: Attendees would understand how the integration of digital technologies aligns with broader trends in healthcare, such as the European Green Deal's objectives for climate neutrality by 2050.

- **Implications for Future Practice**: The presentation would prompt attendees to consider the implications of these findings for future orthopaedic practice.

Biography

Dr. Frank Davis, a Cardiff University graduate (MBBCh, BsC 2023), joined University Hospital of Sussex as a specialised foundation doctor after ranking 7th out of 8000 graduates. He quickly became a research fellow in addition to this in Trauma and Orthopaedics. With a passion for healthcare innovation, he enrolled in the NHS Clinical Entrepreneur Programme and founded IGNAZ Technology, securing £75,000 in grants. Now focusing on Orthopaedics, his recent work integrates digital pre-operative pathways, sustainability, and machine learning for outcome prediction. Dr. Davis embodies a commitment to advancing healthcare through innovative solutions.

Dr. Frank Davis*, Dr. Belal Ahmad, Mr Gareth Chan, Professor Benedict Rogers
Trauma and Orthopaedics, University Hospital of Sussex, Brighton, East Sussex

10-year outcome of a dedicated hip fracture unit embedded within a level 1 major trauma centre

Introduction: Dedicated Hip Fracture Units (HFUs) within Major Trauma Centres (MTCs) have been shown to reduce variances in length of stay and trends to reduce time to theatre in short-term studies.

This 10-year study aims to assess the sustained impact of a HFU on patient flow and mortality in a MTC setting.

Methods: A dedicated HFU was established at the study centre on 1st July 2015, our study period extended from 5-years prior to 5-years after its formation; "pre-HFU" and "post-HFU" respectively (bed spaces and theatre capacity remained constant).

Pre-HFU fragility hip fractures were managed concurrently to general and major trauma patients, post-HFU hip fractures were managed in a ring-fenced unit with co-located MDT support including operating theatres.

Time-To-Theatre (TTT), patient outcomes (length of stay (LoS), 30-day, 120-day and 1-year mortality) were ascertained from a retrospective interrogation of a prospectively collected database, cross referenced against the trust's NHFD dataset.

Results: There were 5346 fragility hip fractures, sustained by 4998 patients, during the study period. There were 2533 cases in the pre-HFU period and 2813 in the post-HFU period, with no significant differences in outcome risk factors between the patient cohorts: age, gender, type of fracture, ASA grade and treatment type ($p>0.05$).

TTT, LoS, 30-day and 1-year mortality all showed significant improvements ($p<0.001$) post-HFU introduction when compared to the pre-HFU cohort.

Conclusions: To our knowledge, this is the largest non-registry study on the clinical efficacy of a HFU. In comparison to previous delivery models, the results demonstrate sustained improvements in the timing of surgical treatment, LoS and mortality rates.

Audience Take Away Notes

- The benefits of specialized care units, such as dedicated Hip Fracture Units (HFUs), in improving patient outcomes
- The importance of Multidisciplinary Team (MDT) collaboration in managing fragility hip fractures, including access to operating theatres
- The impact of a HFU on key metrics such as Time-To-Theatre (TTT), Length of Stay (LoS), and mortality rates
- The sustained effectiveness of a HFU over a 10-year period, highlighting the long-term benefits of this care model

- The potential for implementing similar HFUs in other healthcare settings to improve care for patients with fragility hip fractures

Biography

Dr. Frank Davis, a Cardiff University graduate (MBBCh, BsC 2023), joined University Hospital of Sussex as a specialised foundation doctor after ranking 7th out of 8000 graduates. He quickly became a research fellow in addition to this in Trauma and Orthopaedics. With a passion for healthcare innovation, he enrolled in the NHS Clinical Entrepreneur Programme and founded IGNAZ Technology, securing £75,000 in grants. Now focusing on Orthopaedics, his recent work integrates digital pre-operative pathways, sustainability, and machine learning for outcome prediction. Dr. Davis embodies a commitment to advancing healthcare through innovative solutions.

García Ruiz Michelle Guadalupe[1*], García Ruiz María 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 sport injuries in dancers

Introduction: Dance requires a lot of strength and flexibility. Dancers perform repetitive movements for several hours a day. Hours of training, rehearsals and performances can be very demanding on a dancer's body, especially lower body muscles and joints. Many dancers get little time to recover between the sessions and have no offseason. Restrictive diets and unhealthy body weights may also contribute to dance injuries.

Purpose: To analyze the epidemiology of sport injuries in dancers in a metropolitan city.

Methods: Descriptive, prospective, and comparative study. 35 dancers were studied with a mean age of 27 years, who were in a large university program. The measurement was performed through an online self-administered questionnaire.

Results: 35 dancers were studied, both sexes with a mean aged of 27, 65% were woman, 35% were man. All suffered an injury. 40% were ankle injuries (ankle sprains, ankle impingement) 30% knee injuries (patellofemoral pain syndrome) 20 % were stress fractures (metatarsal stress fractures) 6% were hip injuries and 4% were wrist injuries.

Conclusion: There are different factors that cause injuries in dancing. The injuries more frequently seen were ankle and knee injuries. Dancers and medical staff need to know about the most common injuries to prevent them and seek rehabilitation.

Audience Take Away Notes

- Analyze the epidemiology of sport injuries in dancers
- Emphasizes early physical activity during recovery for optimal outcomes
- Demonstrate the importance of seek medical advice to treat injuries
- This research could be used to expand the research in other faculties
- It could provide information to diagnose the most common injuries, and how to prevent them

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.

Mr Jabez Gnany[1]*, Mr M Ehsan Nazeer[2], Mr Nidhin Koshy[1], Mr Vinayak Venugopal[3], Dr Rohit Nair[4]

[1]Specialty Registrar, North Cumbria Integrated care NHS Foundation Trust, Carlisle
[2]Teaching Fellow, North Cumbria Integrated Care NHS Foundation Trust, Carlisle
[3]Specialty Registrar, Great Western Hospital, Swindon
[4]SHO, North Cumbria Integrated care NHS Foundation Trust, Carlisle

Ganglion cyst of the elbow - A rare presentation, current concepts in treatment

Introduction: Ganglion cysts are benign soft tissue swellings commonly found in the wrist. The presence of these cysts in the elbow is uncommon, and few case reports have been reported for this condition at this location. These lesions can compress on the neighbouring structures or cause restriction of the joint movement. The awareness of this entity is a must, to arrive at an early diagnosis and prompt treatment.

Materials and Method: We report a patient with swelling in the anteromedial aspect of the elbow which has been causing intermittent pain and paraesthesia along the ulnar border of the forearm for the last 13 months. The MRI revealed a multilobulated complex cystic lesion along ulnar aspect of distal arm.

Results: The lesion was excised in toto, using anteromedial approach for the elbow, and sent for histopathological examination which confirmed the diagnosis of a ganglion cyst.

Conclusion: Thus, due to the infrequent presentation, an awareness of this condition is necessary to prevent a delay in diagnosis and its subsequent management thereby preventing catastrophic complications.

Keywords: Ganglion, Ulnar nerve, Cystic lesion.

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.

Mr Nidhin Koshy[1], Mr M Ehsan Nazeer[2], Mr Jabez Gnany[1]*, Dr Deepak Pinto[3], Dr Premjit Sujir[3]

[1]Specialty Registrar T&O, North Cumbria Integrated Care NHS Foundation Trust, Carlisle

[2]Teaching Fellow, North Cumbria Integrated Care NHS Foundation Trust, Carlisle

[3]Associate Professor T&O, KMC, Mangalore

Effect of alendronate on the healing time of distal radial fractures treated conservatively: An observational study

Although fragility fractures of distal radius are common, osteoporosis treatment requires exploration as attempts to improve post-fracture investigations have been only partially successful. Bisphosphonates may help minimize risk of secondary fractures but being a potent antiresorptive agent, it raises concerns about adverse effects on the healing process.

Objective: This observational study examined the effect of bisphosphonate (alendronate) on the healing of distal radius fractures treated in casts.

Methods: 66 patients aged >45 years admitted to two tertiary care hospitals in Mangalore from May 2014 to September 2016 were the study group. The methodology consisted of purposive sampling from two groups: Control group comprised of 33 patients not on alendronate therapy and Case group comprised 33 patients who were on alendronate therapy as part of prophylaxis for osteoporosis prior to fracture occurrence. After cast removal, radiographs of the fracture were taken at two-week intervals starting from the 6th week, till fracture union was seen. At each visit, cortical bridging and range of active movement of the wrist taken using a goniometer. Data was analysed using (SPSS) 17.0 for t-values, p-values and correlations and results were presented in the form of graphs and tables.

Results: No significant differences were observed in the groups (as per p-values) w.r.t. gender (0.804), age (0.835), time to healing (1.000), dorsiflexion (0.956), palmar flexion (0.670), ulnar deviation (0.441), radial deviation (1.000), supination (0.132) or pronation (0.302). Quick Disabilities of the Arm, Shoulder and Hand (QuickDASH) score did not differ >95% between the groups over the analysis period.

Conclusion: It was observed that alendronate administration in distal radius fractures did not appear to delay fracture healing time, radiologically or clinically outcome.

Keywords: Fragility fracture, Osteoporosis, Distal radius, Bisphosphonate, Alendronate

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.

A Edward Allen B.A.[1,2,3], Jason Corban M.D.[2,3*], Sarav S. Shah M.D.[2,3]

[1]Tufts University School of Medicine, Boston, MA, United States
[2]New England Shoulder and Elbow Center, Boston, MA, United States
[3]Department of Orthopedic Surgery, New England Baptist Hospital, Boston, MA, United States

Identifying variations in cost of care for knotted versus knotless bankart repair using Time-Driven Activity-Based Costing (TDABC)

Purpose: To use Time-Driven Activity-Based Costing (TDABC) methodology to assess variations in cost between knotted, knotless, and hybrid arthroscopic Bankart repair.

Methods: A retrospective analysis of cost data for all arthroscopic Bankart repairs (CPT code 29806) performed from January 2021—May 2023 using TDABC methodology. Concomitant procedures, SLAP and RCR (CPT 29807 and 29827), and remplissage were taken into consideration when evaluating the procedures. Patients who underwent additional procedures not related to shoulder stabilization were excluded. Cost accounting data and patient demographics were collected by a third-party organization (Avant-garde health). Total cost was indexed and broken down into supply (implant, consumables, and medication) and personnel costs for analyses. Operative notes were reviewed to determine Bankart repair technique including type of anchor, number of anchors used, remplissage, and patient positioning. Surgeon experience was inferred from years of practice, number of fellowships, and whether a sports medicine fellowship was completed. Cohorts were grouped by surgical technique: knotted versus knotless versus hybrid repair. Chi squared and ANOVA tests were performed to test relationships where appropriate. Linear regression modeling tested for associations with indexed total cost.

Results: 130 patients and 9 surgeons were identified that met the inclusion criteria. Of these, 61 patients underwent isolated Bankart repair. Univariate analysis showed no significant difference in total cost between knotless, knot-tying, and hybrid repairs (1.48±0.23 vs 1.41±0.22 vs 1.46±0.17; p=0.577). Knotless repairs had the lowest total OR time (108.37±17.68 vs 125.13±23.73 vs 127.72 ±22.50; p=0.007), incision to closure time (63.47±20.64 vs 81.46±21.12 vs 79.33±17.20; p=0.011), total personnel cost (1.49±0.16 vs 1.68±0.22 vs 1.68 ± 0.19; p=0.013), and surgical personnel cost (1.81±0.30 vs 2.08±0.37 vs 2.11±0.34; p=0.013) when compared to knot-tying and hybrid Bankart repairs, respectively. Knotless repairs had the highest total supply cost (2.22±0.52 vs 1.80±0.39 vs 1.93 ± 0.30; p=0.006) and implant cost (3.31±1.04 vs 2.49±0.84 vs 2.74±0.62; p=0.010) comparatively. Multivariate linear regression modelling indicated use of knotless anchors (β=0.200; p<0.001), increasing number of anchors used (β=0.072; p=0.010), and increasing incision to closure time (β=0.007; p<0.001) were independent predictors of increased total cost. Surgeon experience (β=-0.122; p=0.007) was predictive of decreasing total cost. When accounting for concomitant procedures, knotless repairs were associated with higher total cost than knotless and hybrid repairs (1.81±0.38 vs 1.48±0.23 vs 1.66±0.25; p<0.001).

Conclusion: There were no significant differences in total cost for isolated Bankart repairs between the three repair techniques. However, there were significant differences between cost parameters. Knotless repairs had faster, more time efficient repairs, which may have led to reduced OR times and personnel costs, thus balancing out the higher cost of these implants. When combined with other concomitant procedures, knotless repairs were associated with a significantly higher cost. Further studies are needed to correlate clinical outcomes.

Level of Evidence: Level IV, Economic Analysis.

Audience Take Away Notes

- While using Time-Driven Activity-Based Costing (TDABC) to assess cost at a granular level, this study found no significant difference in total cost for isolated Bankart repairs between knotless, knot-tying, and hybrid repair techniques.
- Repairs utilizing knotless anchors had shorter OR times and lower personnel costs, while simultaneously having higher supply and implant costs.
- Utilization of knotless anchors allowed for faster, more time efficient repairs, which may have led to reduced OR times and personnel costs, thus balancing out the higher cost of the implants.
- When examining repairs with concomitant stabilization procedures (SLAP, RCR, remplissage), knotless repairs were associated with higher costs.
- Given the increased scrutiny of healthcare costs, it is important to establish methodology to better estimate and understand drivers of surgical cost of Bankart repair. Future studies linking TDABC costs to patient outcomes following arthroscopic Bankart repair are necessary to determine cost-effectiveness and maximize patient value.

Biography

Dr. Jason Corban completed his medical degree and orthopaedic surgery residency at McGill University in Montreal, Canada. He subsequently went on to complete subspecialty training in Orthopaedic Sports Medicine at the University of Southern California (USC) is Los Angeles and Shoulder and Elbow Surgery at the New England Baptist Hospital (NEBH) in Boston. He has an active interest in value-based health care models, social disparities in health and technological innovation in orthopaedic surgery and sports medicine.

Jason Corban* MD; Darren Nin PhD; David Chang PhD, MPH, MBA; Ya-Wen Chen MD, MPH; Yutung Lan MD, MPH; Eric Smith MD; Sarav Shah MD

New England Baptist Hospital, United States

High healthcare utilization and associated costs in the year prior to both primary anatomic and reverse shoulder arthroplasty: A study of 2,393 patients from a private insurance database

Background: The volume of total shoulder arthroplasty has increased exponentially over the last few decades. Recently, due to broadening applications, Reverse Shoulder Arthroplasty (rTSA) has surpassed Anatomic Shoulder Arthroplasty (aTSA) in the primary setting. With the trend toward value-based models of health care delivery, the quantification of the costs associated with non-operative management preceding both procedures is important for optimizing the utilization of limited health care resources. The purpose of this investigation was to quantify the cost of non-operative interventions in the year prior to both aTSA and rTSA.

Methods: An observational cohort study was conducted using the IBM Watson Health MarketScan databases. Patients with shoulder arthritis (including osteoarthritis, rotator cuff arthropathy, rheumatoid arthritis and 'other' arthropathies) who underwent unilateral, isolated primary aTSA or rTSA from January 1, 2018, to December 31, 2019, were included. The main outcome was the cost of payments for identified non-operative procedures in the 1-year period before surgery. Nonoperative procedures examined were (1) Physical Therapy (PT); (2) bracing; (3) intra-articular injections: professional fee, Hyaluronic Acid (IA-HA), and Corticosteroids (IA-CS); (4) medication: Nonsteroidal Anti-Inflammatory Drugs (NSAIDs), opioids, and acetaminophen; and (5) shoulder specific imaging.

Results: The study population included 2,393 patients undergoing aTSA and rTSA. The mean age for patients undergoing aTSA was 60.4±81 years and 65.6±9.1 years for rTSA ($p<0.001$). The average cost of non-operative management in the year preceding shoulder arthroplasty was $1,416±2,271 (1,092±1,827 for aTSA and 1,624±2,492, $p<0.001$), for a total of nearly $2.6 million (USD). When comparing expenditures between aTSA and rTSA, significantly more was spent for PT ($547±1,584 vs $198±1,292; $p<0.001$) and MRI ($454±790 vs $242±503, $p<0.001$). The total cost of non-operative procedures was significantly higher for women compared to men ($1,552±2,268 vs $1,323±2,270, $p<0,001$). Although there were no geographic differences in spending patterns, the average number of opioid prescriptions were higher in the western United States (1.6±3.6, $p=0.002$).

Conclusion: In the year preceding total shoulder arthroplasty a considerable amount is spent on a wide variety of non-operative procedures and treatment modalities. Compared to aTSA, rTSA is associated with significantly higher pre-operative costs, which can be attributed to increased use of PT and MRI. Women are also at risk of spending more on treatment in the year prior to surgery. As the number of shoulder arthroplasties increases, with an ever-increasing bias towards rTSA, it is important that the use patterns and efficacy of non-operative modalities be critically appraised to provide value-based care. Finally, the variations in opioid prescribing patterns highlighted in this study demonstrate the need for continued efforts from the orthopaedic community to promote narcotic stewardship.

Audience Take Away Notes

- The cost associated with non-operative procedures for patients in the 1 year period leading up to primary total (aTSA) or Reverse Shoulder Arthroplasty (rTSA)
- Differences in cost for non-operative interventions when comparing aTSA and rTSA
- Valuable information to assist with resource allocation for patients with shoulder arthritis who are candidates for shoulder arthroplasty
- Sex related differences in spending patterns for these conditions
- Geographic differences in opioid prescribing patterns for shoulder arthritis, which may highlight a need for further education regarding narcotic stewardship in this patient population

Biography

Dr. Jason Corban completed his medical degree and orthopaedic surgery residency at McGill University in Montreal, Canada. He subsequently went on to complete subspecialty training in Orthopaedic Sports Medicine at the University of Southern California (USC) is Los Angeles and Shoulder and Elbow Surgery at the New England Baptist Hospital (NEBH) in Boston. He has an active interest in value-based health care models, social disparities in health and technological innovation in orthopaedic surgery and sports medicine.

Jonathan Courtney MD

Vice-Chief Orthopaedic Surgery, Boca Raton Regional Hospital, Boca Raton, FL USA

Short-term clinical outcomes on a new dual-taper wedge femoral stem in total hip replacement

The use of dual-tapered stems in total hip arthroplasty is not a new concept, and its popularity in the direct-anterior total hip approach has increased. This study analyzed the early clinical and radiological results of the Everglade stem (Signature Orthopedics NSW, Australia). A total of 100 patients (41 men and 59 women) were retrospectively studied and received 100 stems. The mean patient age was 68 years (interquartile range 62-76) at the time of surgery. The median follow-up was 161.5 days (interquartile range (43-187). The HOOS-Jr score improved from a mean 57.07 pre-operatively to a mean 86.03 at the 6-week visit and to 92.7 at the latest follow-up. At the 6-week X-ray assessment, we observed no incidence of stem subsidence, peri-prosthetic fracture, or radiolucencies. There were no cases of osteolysis and no stems were revised. According to our results, this short, dual-tapered stem shows a good short-term outcome. Prospective studies with longer follow-up are needed to assess the long-term survivorship of this stem fully.

Audience Take Away Notes

- The Everglade stem is safe for total hip replacements
- The Everglade stem helped achieve excellent post-operative functional scores
- In today's environment of cost-savings and efficiency, the Everglade stem is an excellent option to use as a primary stem in hip replacement

Biography

Dr. Courtney is board-certified by the American Board of Orthopaedic Surgeons. He is a Clinical Affiliate Assistant Professor of Surgery at Florida Atlantic University and a partner in Orthopedic Surgery Associates. He is in his 12th year of orthopaedic surgical practice with a subspecialty in adult reconstruction. Dr. Courtney performs roughly 350 direct anterior hip replacements every year. He is an owner/partner in two Ambulatory Surgery Centers where he performs the majority of his surgeries.

Julian Aquilina*, Emma Bennett
Department of Surgery, St Marys Hospital Isle of Wight NHS Trust, UK

Cauda equina syndrome - Can we get it right first time? An audit of orthopaedic and emergency departments in St Marys hospital, Isle of wight

The cauda equina is a collection of nerves and nerve roots distal to the terminal end of the spinal cord, the conus medullaris, typically stemming from L1 to L5. Cauda Equina Syndrome (CES) often occurs due to compression of these nerve roots. It is rare but potentially devastating, and can cause severe symptoms, such as bilateral sensory and motor deficits, and urinary, bowel and sexual dysfunction. A detailed history is essential to identify red flag symptoms in patients suspected of having cauda equina syndrome, and should include back pain, bowel or bladder changes and bilateral sciatica. Decreased anal tone, saddle anaesthesia, and bilateral weakness and sensory deficit to the lower limbs.

The Getting It Right First Time (GIRFT) team created a national CES pathway (February 23) to support teams making diagnosis and treating the condition without delay as per best practice guidelines for referral, imaging, surgical techniques, pain control and post-operative support.

We are presenting an audit of 40 patients presenting to St Marys Isle of Wight Hospital orthopaedic and emergency departments, and whether their history, examination and documentation adhered to the GIRFT pathway.

Of 40 patients audited identified from the orthopaedic take list- 13 had no available data. 18 patients were asked about sudden onset bilateral radicular pain or unilateral radicular leg pain that has progressed to bilateral. 22 patients were asked about severe lower back pain. 15 patients were asked about altered perianal, perineal or genital sensation S2-S5 dermatomes. 24 patients were asked about difficulty initiating micturition or impaired sensation of urinary flow (urinary incontinence). 12 patients were asked regarding severe or progressive neurological deficit of both legs, such as major motor weakness with knee extension, ankle eversion, or foot dorsiflexion. No patients asked about sexual dysfunction. Only 5 out of 25 patients had documentation of post-void bladder scan, and only 1 patient had a documented catheter tug. Only 17/25 patients had sensory examinations documented, with minimal dermatomal distribution.

We conclude that the documentation of patients referred with CES is poor. Key areas identified for improvement are the sensory examination and bladder scan. We have designed a proforma to aid documentation of history taking and examination. We plan to reaudit this once the proforma enters circulation at St Marys Hospital, Isle of Wight.

Audience Take Away Notes

- The importance of diagnosing Cauda Equina with detailed history and well documented examination findings
- The Getting it Right First Time Pathway

- Improve the accuracy of history taking in patients with query Cauda Equina in emergency settings
- More research is needed to further aid the diagnosis of Cauda Equina

Biography

Dr. Julian Aquilina studied at University College London, UK and graduated as MBBS BSc (Hons) in 2023, after achieving First Class Honours in his Surgical Sciences intercalated BSc. He joined the Isle of Wight NHS trust for his foundation training. He has published more than 8 research articles in Pub-Med indexed journals.

Kaija-Liisa Koovit

Department of History in the Faculty of Humanities and Social Sciences, University of Strathclyde, Glasgow, Scotland

Gatekeepers and medical devices: How success measures can make patients worse off

An orthopaedic medical device's success is measured using clinical testing, Patient-Reported Outcome Measures (PROMs), and Quality-Adjusted Life Years (QALYs). However, the most significant influence has been the Cumulative Revision Rates (CPR) reported annually by national arthroplasty registries. CPR measures the success of a prosthesis by calculating the total number of revisions that the joint requires during the entire operational use of that device. The influence of registries has ascertained that surgeons use CPR as the primary measure when picking a prosthesis in countries with national health insurance. Unfortunately, these registries compare Total Knee devices (TKAs) revision rates to UKAs; the latter is always worse off. However, this is due to a technicality: UKA revisions are quicker and generally easier, restoring a patient's quality of life with minimal intervention, while TKAs are more challenging or even impossible to revise and, therefore, not done unless necessary. In 1995, the Swedish Knee Arthroplasty Register (SKAR), the most respected and influential registry for knee replacement, published a damming paper on the Oxford Knee™ revision rate, stating that the device should only be used within a clinical trial. The review contrasted with surgeons' and patients' experience with the device, leading the Oxford Knee team to collect data and analyse whether the revision rates can be considered the measure of success in all cases of prosthetic surgery. In addition, archival evidence showed communication between SKAR and the Oxford Knee team in 1993, where concerns were raised about the different quantities used to measure the validity of the revision rate. Despite the 1995 SKAR review, the Oxford Knee thrived and continues to receive a high rating in both PROMs and QALYs, but high in revision–so does it count as a success or failure?

Audience Take Away Notes

- Arthroplasty registries history of data collection and completion rate
- History of the comparison between partial and total knee replacement
- Revision rate influence of medical device selection for surgeons

Biography

Dr. Kaija-Liisa Koovit is a historian of medicine. She has taught the history of medicine to medical students and dentists at the Institute of Family Medicine and Public Health at the University of Tartu and was curator of the medical collection at the University of Tartu Museum. In 2023, she received her PhD from the University of Leeds; her thesis looked at the development of the partial knee arthroplasty industry through the lens of the Oxford Knee™ device. In 2023, she was awarded the 2024 MHCUK Fellowship at the University of Strathclyde.

Kamala Bozan

National Scientific Practical Institute of Sport Medicine and Rehabilitation, Azerbaijan

Sports injuries cause early osteoarthritis of the knee in professional athletes

Objectives: To evaluate the effects of H/A intraatticular injection & homeopath injection on symptoms and joint stucture with mild -moderate radiographic medial-lateral knee O.A.

Introduction: Sports injuries occur at all levels of sports activity. These injuries may cause life long disability or problems for future sport Currently the treatment of these injuries is of major importance to the sport society seen from the quality of life perspective, but also from the economical point of view. Decisions about treatment must be evidence-based.

Audience Take Away Notes

- To minimize repetitive injuries
- To protect athletes from disability
- To restore joint function in short time
- To rapid rehabilitation
- Problem statement Knowledge about study design and methodology is crucial in order to detect misleading studies or reviews that unfortunately sometimes are published in this field (Gelberman et al. 2010). Knowledge of study designs and the potential weaknesses of study designs are necessary to obtain the best treatment to athletes with sports injuries. knowledge about how to plan, perform and evaluate studies in sports medicine

Biography

Kamala Bozan pursued her specialization in Physical Medicine at the Azerbaijan State Advanced Training Institute for Doctors from 1999 to 2000. Prior to that, she completed her internship at the Azerbaijan Medical University from 1993 to 1994. She holds an MD degree from the Azerbaijan Medical University, which she obtained from 1987 to 1994. In 2015, she further enhanced her expertise by attending a program on modern aspects of sport and Physical Medicine at the Azerbaijan State Advanced Training Institute for Doctors. Additionally, in 2014 to 2015, she completed a course on Physical Therapy and Rehabilitation at the David Tatishvili Medical Center in Tbilisi, Georgia.

Dr. Lilian Bin Alshaikh[1,2]*, Dr. Papa'a Kadafa[2,3], Dr. Aoife Murray[3], Dr. Jacinta McElligott[3]*

[1]National Rehabilitation Hospital, Ireland 2Higher Specialist Training Programme, Rehabilitation Medicine, Royal College of Physicians Ireland

[2]Brain Injury Programme, National Rehabilitation Hospital, Co Dublin, Ireland

A patient's journey following severe TBI: I fell once, but I keep falling…

Introduction: 10,000 people are hospitalized with Traumatic Brain Injuries (TBI) yearly in Ireland. Many factors determine the care a patient receives including, geographical location, advocacy, and access to specialists. It is important to analyse complex cases and patient journeys through the healthcare system to improve care. The Major Trauma Audit collects data points for the acute phase, however there is limited data available for the post-acute phase.

Case Description: 43-year-old gentleman who was brought in by ambulance following a fall down a flight of stairs, with a severe head injury. He had a GCS of 3/15 on initial presentation. Imaging showed multicompartmental intracranial haemorrhages, oedema, midline shift, and herniation. In addition, there were multiple skull fractures. He required transfer to a tertiary centre for decompressive bifrontal craniectomy. He had significant functional impairments; however, he was discharged to a nursing home able to walk with a RZF and assistance of 1. Unfortunately, he encountered some delays in accessing rehabilitation, which resulted in bilateral upper and lower limb contractures impacting his function. Ultimately, he required surgical correction for his lower limb contractures. He remains awaiting a cranioplasty, 3 years later.

Discussion: Patients under 65, with severe TBI are a vulnerable population and require ongoing advocacy to access care tailored to their needs. Sometimes, delays in accessing post-acute surgical, medical and rehabilitation interventions occur due to circumstances beyond the control of the treating physicians. The resultant outcome can be costly to both patients and the state. Therefore, we hope to highlight the challenges encountered by this patient in his health journey and how quality improvement initiatives within the newly developed trauma system of care can prevent such suboptimal outcomes.

Audience Take Away Notes

- Discuss the current risk of Nursing Homes as transitional placement
  - Inappropriate setting for <65 years old
  - Lack of coordinated inter-disciplinary team input and monitoring for complications of TBI
- Discuss the benefits of timely cranioplasty
  - May enhance the chances of neurological recovery
  - Avoids/treats syndrome of trephined
  - Common presenting features include motor weakness (61%), cognitive deficits (44%), language deficits (30%), altered consciousness (28%), and headaches (20%) with an average of 5 months from craniectomy to symptoms
  - Improved craniofacial cosmesis
- Discuss the need for coordinated case management with safety nets throughout TBI journey and how

Ireland is working to achieve this

- Vulnerable population with communication challenges
- Current dependence on family members as advocates
- Limited access to interpreters
- Ireland's Trauma Network strategy
- Advanced Decision Making Act

- Discuss prevention and management of fixed deformities after TBI
  - Appropriate positioning and seating
  - Maintenance of joint range of motion
  - Management of tone (splinting, stretching, toxin, and surgical)


- We hope that through this presentation that physicians and rehabilitation teams in other networks can identify challenges and strengths within their own trauma networks and how they best serve patients with severe traumatic brain injuries

Biography

Dr. Lilian Bin Alshaikh graduated from Royal College of Surgeons in Ireland in 2022 with honours. She completed her internship in West/NW Network in Ireland in 2023, where she conducted quality improvement projects within the local hospitals she was training in at the time. She is currently working as a senior house officer in the National Rehabilitation Hospital, Ireland's only tertiary specialist centre for complex rehabilitation. Specific rehabilitation programs she worked in include brain injury and spinal cord injury.

Lunemo Sakafu[1]* MD, Jimmy Olomi[2] MD

[1]Department of Orthopedic and Trauma, Mbeya Zonal Hospital, Mbeya Tanzania
[2]Department of Orthopedic, Mbeya University College of Heath and Allied Science, Mbeya, Tanzania

Knee functional outcome after retrograde femoral nailing with sign nail at Mbeya zonal referral hospital, Tanzania

Introduction: Retrograde approach on management of femoral shaft fractures has been gaining popularity among orthopedic surgeon around the world, this is because of short operation time and easy way to position patients. Some questions are still there especially on knee pain after operation and general knee function.

Methods: Retrospective review of patients with femur fracture who were operated with retrograde SIGN nail standard or fin design have been followed up for 18 months between 2018-2022. Data collected from SIGN surgical database and hospital patient register. Patients were interviewed through phone calls and some in person those who managed to attend. Oxford Knee Score, squat and smile criteria, radiological and clinical were used assess and grade functional outcome. Data were analyzed with Stata method.

Results: We studied 78 patients, with 53 males making 68% of participants, mean age 37.6 (16 years to 80 years), majority have been involved in motorway crush 83% and presented with closed femur fracture 81%. Six (7%) patients reported to have pain before surgery compared to sixteen (21%) after surgery. Older patients had significantly more pain post operation (p value=0.002), those operated with standard nail complained more of pain compared to fin nail (p value=0.003). Oxford Knee Score shows 78.2% of patients scoring >30 which is good to excellent. We observed arthritic changes in 15.5% affecting elderly (p value=0.002), pain on squatting was not significant (p value=0.296).

Conclusion: Retrograde nailing on management of femur fracture is mostly done when there is femoral neck or acetabular fracture, easy position for polytrauma patients in need of other surgeries. Knee function assessed with OKS, Squat and smile were excellent in young patients and inferior among elderly patients. We recommend retrograde approach on management of femur fracture using SIGN nails as they do not compromise knee function and impair quality of life.

Relevance of Study:

- SIGN nails can safely be used on retrograde approach without impairing knee function
- Retrograde approach allows for easier surgery especially in settings with no fracture table or traction table
- Without the use of guide wire and image intensifier in the operating room retrograde approach can be done with SIGN nails percutaneously
- Rehabilitation program after surgery helps patients to regain superior functional outcome and should be started early

Biography

Dr. Lunemo Sakafu is an Orthopedic Surgeon working in Tanzania. He graduated at Muhimbili University of Dar es salaam 2008 and worked as a general practioner on two different government hospital. He joined the residency course for Orthopedic and Trauma at Muhimbili University in 2013 and graduated in 2016, since then he has been working as an Orthopedic and Trauma surgeon at Mbeya Zonal hospital of Tanzania. He did fellowship on Joint Replacement in Germany in 2017 and trained under Prof. Stefan Sell. At the moment he also works as a clinical lecturer at Mbeya University College of Health Sciences.

Lunemo Sakafu[1*] MD, Jimmy Olomi[2] MD

[1]Department of Orthopedic and Trauma, Mbeya Zonal Hospital, Mbeya Tanzania
[2]Department of Orthopedic, Mbeya University College of Heath and Allied Science, Mbeya, Tanzania

Intramedullary nailing of humeral shaft fracture with sign fin nails at Mbeya zonal hospital, Tanzania

Background: Humeral shaft fractures have been treated with pates and screws for decades. Intramedullary nailing with humerus nails is evolving as another good choice for fixation of humerus fractures. Intramedullary nails offer less soft tissue dissection, less chance of radial nerve injury as minimal incision is enough and early range of motion. We studied union and functional outcome of humerus shaft fractures managed with fin nails manufactured by SIGN which are meant for femur because we do not have humeral nails in Tanzania.

Methodology: We conducted a retrospective study of 48 patients that have been followed for 12 months or more. We included patients of 16 years and above with closed humerus fractures, excluded all with pathological and delayed fractures. We operated them supine without image intensifier, reaming was done manually, nail inserted and locked with two screws proximally.

Results: Mean time for surgery was 35 minutes, union was achieved in all but 3(6.25%) patients at mean time of 4 months. We had nonunion among old patients with large humeral canals. No case of infection or radial nerve palsy was reported. The mean clinical outcome scores that we studied in this study included American Shoulder and Elbow Society (ASES): 87.2, Constant-Murley Score: 85.1 and Penn Shoulder Score: 82.7.

Conclusion: Intramedullary nailing of humeral shaft fractures with fin nails give good results terms of healing and function. Surgery time is short which reduced morbidity and hence patients start physiotherapy early with less demands to analgesics.

Audience Take Away Notes

- SIGN fin nail can safely be used in management of Humeral shaft fractures with good results, in Sub Saharan Africa humerus nails are not available and SIGN fin nail gives a better alternative
- Nailing humerus allows for shorter surgical time which reduced blood loss and chances of infection
- Intramedullary nailing can be done in supine position without image machine and guide wire, minimal incision for manipulation to get reduction is enough, anterolateral incision

Biography

Dr. Lunemo Sakafu is an Orthopedic Surgeon working in Tanzania. He graduated at Muhimbili University of Dar es salaam 2008 and worked as a general practitioner on two different government hospital. He joined the residency course for Orthopedic and Trauma at Muhimbili University in 2013 and graduated in 2016, since then he has been working as an Orthopedic and Trauma surgeon at Mbeya Zonal hospital of Tanzania. He did fellowship on Joint Replacement in Germany in 2017 and trained under Prof. Stefan Sell. At the moment he also works as a clinical lecturer at Mbeya University College of Health Sciences.

Maria Lindblad
Linkoping University, Sweden

Perthes' disease – Environmental riskfactors and genetics

Background: The incidence of perthes' disease as reported in the literature varies widely. The etiology of the disease is still unknown. Both environmental and genetic factors have been suggested to play a part in either causing the disease or increasing the susceptibility of an individual. The purpose of this presentation is to utilize big data to study risk factors related to pregnancy, childbirth, socioeconomic status, the possibility of comorbidity between perthes' disease and collagen synthesis disorders and the genetic profile of Swedish patients with perthes' disease.

Methods: For the risk factor and comorbidity studies, six Swedish population-based registers were used, together covering all children born in Sweden from 1973-1993, in total 2.1 million children. All children without Perthes' disease diagnosis were used as controls. DNA from 10 individuals with Perthes' disease were recruited for the genetic study. The DNA was compared with archived reference material on healthy Swedish patients. The samples were analysed using Whole Exome Sequencing (WES).

Results: The incidence of perthes' disease in Sweden was 9.3 per 100,000 subjects. The ratio between boys and girls was 3.1:1. Risk factors identified were lower parental educational level, lower paternal income, both parents of Nordic origin, breech position at birth, acute cesarean section and suboptimal birth characteristics. Out of 3488 children only five children had both perthes' disease and a collagen synthesis disorder.

Conclusions: Our studies present a low number of children with perthes and confirms an association between the incidence of perthes' disease and the socioeconomic status of the parents. There is a correlation between breech birth or acute cesarean section, suboptimal birth characteristics and the development of perthes' disease. The distinct lack of overlap in the presentation of perthes' disease and collagen synthesis disorders vigorously question a possible correlation. The genetic analysis is ongoing now and the results will be presented at the conference.

Biography

Ms Lindblad studied medicin at Linköping University, Sweden and graduated as MD in 2021. She is currently a resident at the Emergency Clinic at Vrinnevi Hospital, Norrköping, Sweden. Ms Lindblad has been part of Dr. Johanssons research group at Linköping University since 2013. She has been registered as a graduate student since 2019, and has published 3 articles on Perthes' disease.

Mauro D'Alessandro*, Christiane Heinisch, Floriana Bonzini
FisioBenessere Sagl, Caslano, Switzerland

Effects of fascial manipulative treatment on bone tissue

The article explores the intricate relationship between manipulative treatment, bone tissue elasticity, and its consequential impact on athletic performance. The comprehensive study begins by elucidating the composition of bone tissue, highlighting its vascularized and innervated nature, and the role played by specialized cells such as osteoblasts, osteoclasts, and osteocytes. Emphasis is placed on the mechanical properties of bones, with a particular focus on stiffness, strength, and strain distribution. The article delves into the general architecture of the lower limb, considering curvatures and their influence on space between bones in extreme flexion.

A pivotal aspect of the research investigates whether bone tissue can be considered part of the fascial continuum. Drawing on recent perspectives, the authors propose a broader definition of the fascial system, incorporating bone tissue as a vital component. This re-evaluation considers the microscopic anatomical continuity, embryological origins, and meccano-metabolic responses of bone and fascial tissues.

Hence, the research introduces a manipulative treatment approach applied to the lower limb bones, aiming to enhance bone elasticity and subsequently improve jumping performance. A detailed methodology section outlines the sample selection, including a randomized double-blind division into supervised and treated groups. The standing long jump serves as the primary athletic test to evaluate performance changes.

Results demonstrate a significant improvement in the standing long jump distance in the treated group (3.67% increase), while the control group exhibited a decrease (1.119%). The discussion section contextualizes these findings within the realm of sports medicine, suggesting new avenues for improving athletic performance and preventing injuries. The authors acknowledge limitations, such as the relatively small sample size and the focus on a single type of athletic test, calling for future research to validate and extend these results.

In conclusion, this research offers a nuanced exploration of the manipulative treatment's effects on bone tissue and its potential implications for enhancing athletic performance. The findings provide valuable insights for sports medicine, opening avenues for further investigation and application in diverse athletic contexts.

Audience Take Away Notes

- The audience will learn about the importance and complexity of the skeletal system, often overlooked. Physiotherapist attendees will gain new treatment insights, while physicians will enhance their knowledge by learning about additional possible approaches
- This research could be used by other faculty to expand their own research or teachin
- Certainly, physiotherapist and osteopath colleagues can achieve better work-related outcomes

- Other benefits.
    - New assessment insights
    - New treatment insights
    - Greater understanding of bone physiology
    - Improved work for colleagues working in sports organizations

Biography

Dr. Mauro D'Alessandro studied physiotherapy at the University of Bari, graduating in 2011. In 2013, he embarked on the path of osteopathy, and while pursuing osteopathy, in 2017, he also studied animal osteopathy. He completed his bachelor's degree in animal osteopathy in 2019 and his master's degree in human osteopathy in 2021. Thereafter, he obtained a master's degree in ultrasound. He has served as a lecturer in various osteopathy schools, presented at several international conferences, and currently has 2 scientific publications, with a new study set to be published soon.

Dr. Mervat Sheta

Lecturer of physical medicine and rehabilitation, Faculty of medicine Alexandria university, Egypt

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.

Mudit Shah[1], Isaac Rhee[2], Seung Kyu Lee[3], Mohammed Salman Alhassan[4*], Hyun Woo Kim[1]

[1]Division of Pediatric Orthopaedic Surgery, Severance Children's Hospital, Yonsei University College of Medicine, 50-1 Yonsei-ro, Seodaemun-gu, Seoul 03722, Korea

[2]Melbourne Medical School, Ground Floor, Medical Building, Cnr Grattan Street & Royal Parade, University of Melbourne, Melbourne, VIC 3010, Australia

[3]Department of Orthopaedic Surgery, Severance Hospital, Yonsei University College of Medicine, 50-1 Yonsei-ro, Seodaemun-gu, Seoul 03722, Korea

[4]Department of Orthopaedic Surgery, King Fahad Hospital Hofuf, Al Sulimaniyah 4th, Al Hofuf 36441, Saudi Arabia

Concomitant talocalcaneal coalition as a risk factor for early relapse following ponseti treatment of idiopathic clubfoot

Concomitant Talocalcaneal Coalition (TCC) in idiopathic clubfeet is not well documented in the literature. The purpose of this study was to describe our experience with very early relapsing idiopathic clubfeet associated with TCC. Although cases have been successfully treated with the Ponseti casting method, all recurred within 2 months of removing the final cast. A single-centre cohort of twelve feet in eight patients treated by a single surgeon between 2006 and 2020 was investigated retrospectively. Recurred cavus with variable degrees of equinus was the earliest findings noted. TCC was incidentally detected during the open reduction of the earliest three feet in our series. Afterwards, ultrasonography was advised as a screening tool for detecting an associated anomaly; however, only the use of Magnetic Resonance Imaging (MRI) was 100% accurate in diagnosing concurrent TCC. All coalitions were cartilaginous and the posterior facet was most commonly involved facet. The average age was 18 months for the coalition resection and open reduction of a dislocated talonavicular joint, and the average duration of follow-up was 52 months. None of the patients showed clinical signs of relapse at the latest follow-up. We recommend that an associated TCC should be considered in very early relapsing idiopathic clubfoot cases.

Keywords: Talocalcaneal Coalition, Risk Factor, Early Relapse, Ponseti Treatment, Idiopathic Clubfoot.

Biography

Dr. Alhassan studied medical school in king Faisal university in eastern region of Saudi Arabia where graduated as MBBS on 2013. In same years, he joint Saudi orthopedic program under Saudi Commission for Health Specialties. He worked under pediatric orthopedic and truama in King Fahad Hufuf Hospital orthopedic department for 2 years before joining Severance hospital of Yonsei university in South Korea for his fellowship degree in pediatric orthopedic, deformity correction and pediatric sport medicine. Currently working as head of department of pediatric orthopedic in E2 cluster of Saudi Arabia and initiator of pediatric service in our region after intermittent pause.

Muhammed Ehsan Nazeer[1]*, Jabez Gnany[1], Nidhin Koshy[1], Rohit Manikandannair[1], Kiyana Mirza[2]

[1]North Cumbria Integrated Care Trust, Cumberland Infirmary, Carlisle UK
[2]Norfolk and Norwich University Hospital, Norwich UK

A study on functional recovery: Medial parapatellar versus midvastus approaches in knee arthroplasty

Total Knee Arthroplasty (TKA) is widely regarded as a highly successful joint replacement procedure, with many patients experiencing significant functional improvement post-surgery. The parapatellar approach is most commonly employed, although the midvastus approach is recognized as a viable alternative. However, it remains unclear which technique offers superior patient outcomes.

This study employed a double-blind, prospective, observational, and comparative methodology to assess the differences between these two surgical approaches. The findings revealed that the Midvastus Approach (MV) offers several advantages over the Medial Parapatellar Approach (MPP) during the early postoperative period. Specifically, patients in the midvastus group were able to perform straight leg raises sooner and exhibited less extensor lag compared to those in the medial parapatellar group. Furthermore, the Knee Society Knee Score and functional scores were notably higher in the midvastus group immediately after surgery.

In conclusion, the midvastus approach, which minimizes disruption to the extensor mechanism and the peripatellar plexus of vessels, appears to alleviate pain and enhance range of motion during the initial rehabilitation phase following TKA.

Audience Take Away Notes

- Advantages and disadvantages of different approaches to total knee replacement. Earlier discharge from hospital with midvastus approach

Biography

Mr Nazeer finished his MBBS degree from India and further pursued Ms Orthopaedics in Kasturba medical college, Mangalore. Currently working as a registrar in trauma and orthopaedics in Cumberland infirmary Carlisle, he wishes to further his training in trauma with special interest in knee arthroplasty

Muhammed Ehsan Nazeer[1]*, Jabez Gnany[1], Nidhin Koshy[1], Rohit Manikandannair[1], Kiyana Mirza[2]

[1]North Cumbria Integrated Care Trust, Cumberland Infirmary, Carlisle UK
[2]Norfolk and Norwich University Hospital, Norwich UK

Skinted - A series of rare post operative complication post total knee replacement

Background: Traumatic eczematous dermatitis, a neuropathic dermatitis specific to Total Knee Arthroplasty (TKA), occurs around the healed surgical scar area due to injury to the infrapatellar branch of the saphenous nerve. This rare skin complication is scarcely documented in orthopedic literature. Here, we present a series of cases and estimate the incidence of this condition at our institute.

Methods: From January 2018 to December 2018, we identified patients who had undergone TKA and subsequently developed skin lesions near the surgical site. Detailed histories were taken, and comprehensive clinical examinations were performed for all reported cases.

Results: We identified a total of 9 lesions in 8 patients out of 203 consecutive TKAs performed during the study period, resulting in an estimated incidence of 4.4%. The mean age of affected patients was 64 years (ranging from 58 to 78 years). The average time from surgery to diagnosis was 4 months, with a range of 3 to 6 months.

Conclusions: Dermatitis caused by surgical transection of the infrapatellar branch of the saphenous nerve during TKA is a rare cutaneous complication, with an estimated incidence of 4.4% in this study. Lesions typically appear lateral to the operative scar within an area of hypoesthesia. In all patients, the lesions improved after topical steroid therapy, with no recurrences noted upon further follow-up. It is essential for arthroplasty surgeons to recognize this benign complication to prevent unnecessary additional workup and alleviate patient anxiety.

Audience Take Away Notes

- This study highlights the importance of recognizing traumatic eczematous dermatitis as a rare but benign complication of total knee arthroplasty. Understanding its incidence and effective treatment with topical steroids can help surgeons reassure patients and avoid unnecessary diagnostic procedures

Biography

Mr Nazeer finished his MBBS degree from India and further pursued Ms Orthopaedics in Kasturba medical college, Mangalore. Currently working as a registrar in trauma and orthopaedics in Cumberland infirmary Carlisle, he wishes to further his training in trauma with special interest in knee arthroplasty

Natasha Wilch

Founder of Symphony Brain Performance & Concussion Nerds Clinical Mentorship Program Nanaimo, British Columbia

How physiotherapists can set the standard for leading concussion rehabilitation

Session Content: This session is designed for practicing physiotherapists to address the increasing prevalence of concussions. It aims to equip professionals in orthopedics, neurology, and sports sectors with essential knowledge for identifying, supporting, treating, and referring individuals with concussions, enhancing their proficiency and ensuring optimal outcomes for clients.

Relevance: Physical therapists, as leaders in concussion management, possess valuable knowledge. Their direct access allows swift engagement for recovery, surpassing the conventional route through general practitioners, which may lack optimal support. With expertise, physical therapists strategically provide effective and immediate guidance throughout the recovery process.

Description of Supporting Evidence: A PubMed search from 2000 to 2013 yielded 3,119 concussion-related articles, 110 of which focused on Physical Therapy. Since 2014, articles on concussion have surged to over 11,000, with 1,000 integrating Physical Therapy. The 6th International Conference on Concussion in Sport, held this year, emphasizes early physical activity during recovery for optimal outcomes. It also provides insights into vestibular and cervical rehabilitation, along with guidelines for resuming learning activities and school attendance.

It is noteworthy that the current body of evidence concerning validated assessments and treatments for concussion aligns seamlessly within our physiotherapy scope of practice.

Conclusions & Implications: The increasing incidence of concussions raises concerns for both the Canadian population and the healthcare system. Emergency room visits for concussions have notably risen. It's important to recognize that many cases may go unreported, leading to an underestimated prevalence. Despite this societal challenge, Physical Therapy plays a crucial role in concussion management, positioning the profession at the forefront.

Audience Take Away Notes

- Comprehend the pivotal role of physiotherapists as primary clinicians in concussion rehabilitation
- Explore diverse concussion profiles and their implications for rehabilitation
- Gain proficiency in acute management pathways and acquire comprehensive knowledge of multi-disciplinary concussion management

Biography

Natasha Wilch is a Registered Physical Therapist with over a decade of experience, Natasha has emerged as a leader in concussion management. The founder of Symphony Brain Performance, her clinic has become a destination for clients from across North America. Honored to win awards in entrepreneurship and leadership she seamlessly blends entrepreneurship with a deep community connection and education. Natasha has been honored to speak at conferences recognizing her expertise in both neuroscience and business. What sets her apart is her holistic approach, merging science with spirit. She's not just a mentor; she's your unwavering support. Join her on a transformative journey as we reshape the global conversation on concussion, leaving an indelible mark on the world.

Neville Mamoowala[1*], Nick Johnson[2], JJ Dias[2]

[1]Wirral University Hospitals, Liverpool, UK
[2]Leicester University Hospitals, UK

Trends in paediatric distal radius fractures

Distal radius fractures in children are common and several studies suggest incidence is increasing. The study investigated if incidence of distal radius fractures in children is rising and if fracture type and rate of surgical intervention has changed. All paediatric patients (n=6529) who sustained a distal radius fracture over an 8-year period (2007-2014) were identified. Poisson regression modelling was used to identify change in trends. There was no change in incidence, rate of surgical intervention ($p=0.36$) or fracture type ($p=0.70$). Overall incidence was 337 fractures per 100,000pt/years. Highest fracture incidence was seen in older school boys (708 per 100,000pt/years). Overall fracture rate was lower in winter ($p<0.005$). Fracture rate in our unit is comparable to other studies and not increasing. Incidence is highest in summer, and the main variation is related to season. This data can help accurately predict number of children presenting to ED with wrist fractures per time of year.

Audience Take Away Notes

- This piece of work will help understand the incidence and trends of distal radius fractures in the paediatric population. We describe the nature of this injury in terms of incidence, seasonality, days of the week, age and location over an 8-year period.
- In this large study of UK paediatric distal radius fracture epidemiology we have investigated trends which provide helpful new evidence for healthcare planning and injury prevention. This data can help accurately predict the likely number of children presenting to emergency departments with wrist fractures at a particular time of year. This helps to plan and utilise healthcare resources more efficiently and target preventative strategies effectively.

Biography

Dr. Neville Mamoowala studied medicine at the University of Leicester, UK and graduated in 2016. He then did his Foundation Training in Leicester and subsequently did Core Surgical Training in Manchester. He is now a Specialist Registrar in Trauma in Orthopaedics in the Mersey Deanery. He has a keen interest in lower limb arthroplasty surgery but is still very engaged with paediatric orthopaedics and its development.

Nikolaos Kiapekos[1,2*] MD; Eva Broström[1,2] PT, PhD; Gunnar Hägglund[3] MD, PhD; Per Åstrand[1,2] MD, PhD

[1]Department of Women's and Children's Health, Karolinska Institutet, Karolinska University Hospital, Stockholm, Sweden
[2]Department of Highly Specialized Pediatric Orthopedics and Medicine, Astrid Lindgren's Children Hospital, Karolinska University Hospital, Stockholm, Sweden
[3]Department of Clinical Sciences, Lund, Orthopedics, Lund University, Sweden

A five-year population-based study on the radiological outcomes of hip surgery in non-ambulatory children with cerebral palsy: Proximal femoral varus osteotomy versus combined femoral-pelvic osteotomy

Objectives: This study aimed to detail the radiological 5-year follow-up after reconstructive hip surgery in children with Cerebral Palsy (CP,) Gross Motor Function Classification System (GMFCS) levels III-V.

Methods: This study included 66 children at GMFCS levels III-V, followed by the national CP-surveillance program CPUP from the Skåne and Stockholm regions, who underwent reconstructive hip surgeries between 2001 and 2018. They all had proximal Femoral varus Osteotomies (FO), performed with or without concurrent Pelvic Osteotomy (FPO) as treatment for hip subluxation. They were followed for 5 years studying the radiographic parameters Migration Percentage (MP), Acetabular Index (AI), and Head Shaft Angle (HSA).

Results: During 2001–2018, 66 children (44 boys) underwent 86 femoral and/or pelvic osteotomies (38 FO, 10 bilaterally; 48 FPO, 8 bilaterally) and had a 5-year radiological follow-up; 26 and 40 children had ▫1 FO or FPO as the primary skeletal surgery, respectively. The mean preoperative MP (50%±18% for FO and 62%±17% for FPO, P=0.001) and age at surgery (6.2±2.5 years for FO and 7.3±2.8 years for FPO, P=0.014) differed between procedures. After 5 years, the mean MP was 26% for the FO group (26 children, 38 hips) and 25% for the FPO group (40 children, 48 hips). The 5-year radiological results for AI and HSA were also similar with a mean AI of 22 and 19 degrees for FO and FPO, respectively, and mean HSA of 152 and 149 degrees, respectively.

Conclusions: Despite more severe hip subluxation in the FPO group, the radiological results after FO and FPO were similar 5 years after surgery.

Biography

Dr. Kiapekos studied Medicine at Padova University, Italy, and graduated as an MD in 2001. He specialized in Orthopedic Surgery in Sweden and 2011 joined the Pediatric Orthopedic department at Karolinska University Hospital in Stockholm. He is a Doctoral student at the Karolinska Institutet and he is planning his dissertation in November 2024. He has published 3 research articles in orthopedic journals.

Noor Mohammad*, Sandeep Krishan Nayar, Nikki Shah, Saeef Ali Haque, Georgios Mazis

Barking, Havering and Redbridge University Hospitals NHS Trust, UK

Predicting the drop of haemoglobin in hip fracture surgery

Background: Hip fractures are becoming increasingly prevalent secondary to ageing populations, with a large burden on healthcare systems globally. Hip fracture surgery is associated with significant blood loss and concomitant risk of post-operative anaemia. To date, the expected drop in Haemoglobin (Hb) secondary to hip fracture surgery is yet to be determined. The aims of this study were to assess the Hb drop in patients undergoing hip fracture surgery and to identify any independent factors that influence this.

Methods: A retrospective analysis was carried out of all patients who underwent hip fracture surgery at a UK trauma unit over a 9-month period. Data collected included patient demographics, use of anticoagulants or antiplatelets, time from injury to surgery, fracture subtype, operation, operative time, and pre-and post-operative Hb. Change in Hb was analysed using the student's-test. Ordinary one-way ANOVA and Turkey's multiple comparisons test were used to analyse the change in Hb between multiple variables.

Results: 415 patients were identified (mean age 81.6 years), with an average time from injury to surgery of 1.9 days. Mean pre-operative Hb was 119g/L and mean day 1 post-operative Hb was 100g/L, indicating a drop of 19g/L (16%) across all patients. There was a significant drop in Hb with hemiarthroplasty (18g/L, 14.5%), total hip arthroplasty (23g/L, 18.4%), dynamic hip screw fixation (23g/L, 19.7%) and intramedullary nail fixation (23g/L, 20.5%) ($p<0.0001$). A nonsignificant reduction ($p=0.0585$) in Hb was seen with cannulated screw fixation (9g/L, 7.3%) ($p=0.0585$). There was a trend towards a lower drop in Hb with shorter operative time, however this was not statistically significant ($p=0.109$). There was no significant difference in Hb drop if patients were on anticoagulants or antiplatelets ($p=0.433$).

Conclusion: Hip fracture surgery is associated with a significant drop in Hb regardless of procedure, except for cannulated screw fixation. A trend towards a lower drop in Hb is seen with shorter operative time. Anticoagulants or antiplatelets are not independent risk factors for increased peri-operative blood loss. This study provides an average drop in Hb that can be expected with hip fracture surgery and therefore aids in predicting which patients may require pre-operative transfusion to optimise recovery.

Audience Take Away Notes

- **Expected Haemoglobin Drop**: Hip fracture surgery typically results in a significant drop in haemoglobin levels, with an average decrease of 19g/L (16%) across all procedures, except for cannulated screw fixation.
- **Procedure-Specific Variations**: The extent of the haemoglobin drop varies by surgical procedure, being most significant in total hip arthroplasty, dynamic hip screw fixation, and intramedullary nail fixation.
- **Factors Influencing Hb Drop**: Shorter operative times may be associated with a smaller Hb drop, although not statistically significant. The use of anticoagulants or antiplatelets does not independently increase the risk of peri-operative blood loss.

Biography

Dr. Mohammad earned his MBBS degree from the Armed Forces Medical College in Bangladesh in 2011. He achieved his MRCS certification from the Royal College of Surgeons of England in 2018. Relocating to the United Kingdom in 2019, he served in various surgical specialities as a Senior House Officer and was subsequently promoted to Specialty Registrar in Trauma and Orthopedics at Barking, Havering and Redbridge University Hospital NHS Trust. He is presently a registrar at a Major Trauma Centre (MTC) in London, actively pursuing a career in Trauma and Orthopedics and participating in academic activities.

Shubhendu Chakraborty, Noor Mohammad*, Abdelfatah M. Elsenosy, Irfan Sheikh, Makarahalli Prabhakar, Sridhar Sampalli, Ivor Vanhegan

[1]Trauma and Orthopaedics, Salisbury District Hospital, Salisbury, GBR
[2]Trauma & Orthopaedics, Royal London Hospital, London, GBR
[3]Trauma and Orthopaedics, University Hospital Dorset, Poole, GBR
[4]Trauma and Orthopaedics, Sunderland Royal Hospital, Sunderland, GBR

Safety and efficacy of day case total hip arthroplasty - A literature review

Introduction: Osteoarthritis is one of the leading causes of disability worldwide, with the prevalence of hip osteoarthritis rising due to increased lifespan and obesity in the global population. Hip arthroplasty is among the most common elective orthopaedic procedures performed. This study aims to review the literature to assess the safety and efficacy of day-case total hip arthroplasties.

Methods: A search strategy was implemented in PubMed using the keywords ((total hip replacement) OR (total hip arthroplasty)) AND ((day case) OR (outpatient)). Relevant papers on the topic were analyzed for the literature review. Articles written in English and published between January 2014 and February 2024 were selected for further analysis. Studies addressing trauma-related arthroplasties, costs of operations, surgical approaches, and anaesthetic choices were excluded from the review.

Results: Eight articles meeting the inclusion and exclusion criteria, as identified through the PRISMA 2020 flow chart, were reviewed. All studies concluded that day-case total hip arthroplasties are safe and effective, highlighting the importance of appropriate patient selection and preoperative optimization. The reviewed articles emphasized that patients need to be carefully chosen and thoroughly prepared to ensure successful outcomes and avoid complications.

Conclusion: The literature review indicates that day-case total hip arthroplasty, when coupled with proper patient selection and preparation, does not result in significant complications. Therefore, a motivated approach and structured protocols are necessary to achieve optimal results. This review suggests that daycase THA can be a viable and safe option for patients under the right conditions.

Categories: Orthopaedics.

Keywords: Adult-onset, safety and efficacy, day-case surgery, Total Hip Arthroplasty (THA), Total Hip Replacement (THR)

Audience Take Away Notes

- **Patient Selection and Preparation:** The success of day-case total hip arthroplasty largely depends on careful patient selection and thorough preoperative optimization to minimize complications.
- **Safety and Efficacy:** Current literature supports that day-case total hip arthroplasty is both safe and effective when protocols for patient selection and preparation are strictly followed.
- **Motivated and Structured Approach**: Implementing a structured approach and ensuring patient motivation is crucial for the successful outcome of day-case total hip arthroplasties.

Biography

Dr. Mohammad earned his MBBS degree from the Armed Forces Medical College in Bangladesh in 2011. He achieved his MRCS certification from the Royal College of Surgeons of England in 2018. Relocating to the United Kingdom in 2019, he served in various surgical specialties as a Senior House Officer and was subsequently promoted to Specialty Registrar in Trauma and Orthopedics at Barking, Havering and Redbridge University Hospital NHS Trust. He is presently a registrar at a Major Trauma Centre (MTC) in London, actively pursuing a career in Trauma and Orthopedics and participating in academic activities.

Olivia Dunseath[1]*, Charalambos Charalambides[2]

[1]University College London, United Kingdom
[2]Whittington Health NHS Trust, London, United Kingdom

Audit and re-audit of operation note documentation compliance with the royal college of surgeons and British orthopaedic association guidelines for trauma patients at a North London district general hospital

Aim: This audit aims to improve the documentation of the operation notes at a District General Hospital (DGH) in North London.

Methods: We carried out a closed-loop retrospective audit on trauma operative notes completed at our DGH in North London. The electronic operation notes of 216 trauma patients (1st September–31st December 2020) were analysed for compliance with the Royal College of Surgeons (RCS) and British Orthopaedic Association (BOA) guidelines. The findings were presented at a Clinical Governance meeting with the hospital's Trauma and Orthopaedic team, and a checklist was posted in the surgeons' room. Subsequently, the operation notes of 210 trauma patients (1st September–31st December 2021) were re-reviewed to assess documentation compliance improvements.

Results: The re-audit showed improvements in the documentation of incision (85.6% to 97.6%), closure technique (92.1% to 98.6%), antibiotic prophylaxis (57.9% to 86.7%), and postoperative care instructions (92.1% to 99.0%). Documentation of prosthesis used (serial numbers or sizes) improved from 28.2% to 68.1% but remains suboptimal due to nurses recording details in the patient's paper notes instead of the electronic operation note. Documentation of tourniquet time (46.7%) and anticipated blood loss (6.7%) remains low.

Conclusion: Accurate documentation of operation findings and postoperative plans is essential for continuity of care and medicolegally. This audit shows that simple interventions to raise awareness of the RCS and BOA guidelines can improve documentation. To address the remaining gaps, prompts have been added to the electronic operation note proforma at the hospital. A re-audit will be conducted to assess further improvements.

Audience Take Away Notes

- Our audit underscores the importance of thorough documentation in the operation note, providing education on its importance and what is required of the physicians writing these
- This audit reveals that documentation often falls short, with crucial RCS and BOA requirements being overlooked as the attention is often shifted to procedures and findings. Our audit also serves as a tool for trusts to reflect on their own practices, allowing them to make necessary improvements.
- Our closed-loop audit highlights how simple interventions, like education and visual prompts, can improve operation note documentation. Other trusts can easily adopt these methods to improve their own standards and patient care.

Biography

Dr. Olivia Dunseath is a dedicated medical professional who graduated from University College London with a First Class Honours BSc in Medical Sciences with Paediatrics and Child Health, and an MBBS degree. She completed her Foundation Year 1 at the Barking, Havering, and Redbridge NHS University Trust with rotations in Paediatrics, Acute Internal Medicine, and General Surgery. Currently, Dr. Dunseath is a Foundation Year 2 trainee in the Emergency Department at Newham Hospital. Dr. Dunseath has published in the Journal of Experimental Orthopaedics and presented at national and international conferences.

Omid Liaghat[1*], Zohre Shabbooie[2]

[1]Shafa Yahyaian Hospital, Orthopedic Center, Iran University of Medical Sciences, Tehran, Iran
[2]Department of Medical Journalism, Shiraz University of Medical Sciences, Room 25, 2nd Floor, Building No 1, Paramedical School, Shiraz, Iran

Ectopic banking and implantation of an amputated hand

Ectopic banking includes techniques and indications used to bank amputated body parts for later replantation when a body part is amputated in its entirety. Immediate replantation is sometimes impossible due to hemodynamic instability, soft tissue loss, and extensive contamination of the amputated part. In the other hand, unique plan should be in mind to gain the best future functional results in every replantation surgery from the very beginning of the procedure. We discuss the planning and report successful clinical results for banking the amputated upper extremity over the leg.

Audience Take Away Notes

- Having experience in over 40 large upper extremity replantation cases, we discuss our planning for immediate tendon transfers in a severely crushed hand to gain maximum functional outcome
- This is a new site for amputated limb banking which it's functional results and benefits have not been reported before
- Knowing about the technique potentially will help surgeons save many amputated limbs previously thought to be not salvageable

Biography

Dr. Omid Liaghat graduated as Medical Doctor in 1998 from Shiraz University of Medical Sciences. He completed Orthopedic surgery residency in 2004 from Shafa-Yahyaian Hospital, Iran University Orthopedic center and joined the Iranian Orthopedic Board at the same year. He joined Iranian Board of Hand Surgeons in 2010 after completing Hand Fellowship course in Tehran University of Medical Sciences. For 2 years he was working as microsurgical lab supervisor in Shafa Yahyaian center. Then he found a private hand and microsurgery clinic and till now has achieved more than 40 successful functional large upper extremity replantation cases and over 350 finger replantation cases who was referred from all over Iran. He has 3 SCI articles.

Dr. Pradeep Deshpande
Hull University Teaching Hospitals, Hull UK

Use of botulinum toxin in improving mobility in chronic stroke in older adults

Improving mobility after more than one year after stroke using botulinum toxin in older adults. The impact of rehabilitation on post-stroke motor recovery and its dependency on the patient's chronicity remain unclear. The field has widely accepted the notion of a proportional recovery rule with a "critical window for recovery" within the first 3–6 mo poststroke. This hypothesis justifies the general cessation of physical therapy at chronic stages. However, the limits of this critical window have, so far, been poorly defined. We have in our clinic treated older patients with chronic stroke who have spasticity affecting both upper and lower limb to improve their function, mainly walking.

There is a long-lasting critical period of enhanced neuroplasticity post-stroke that enables improvement in body function and structure even at late chronic stages. This is the first time that such an extended critical period of recovery is reported.

An observation study of 20 adults patients age 56-89 years mean age 67, using botulinum toxin in treating spasticity resulted in improvement in mobility.

15 had right hemispheric stroke, 16/20 were males and average duration of stroke was 4 years and 8 months.

Audience Take Away Notes

- Mobility can improve in chronic stroke even after one or more years
- Older adults do well if there is botulinum toxin usage with physiotherapy
- Use of toxin late in chronic stroke is justified even after as improvement in function can occur particularly in mobility

Biography

Pradeep Deshpande has worked as a consultant over 20 years in UK, has published papers in International Conferences and written articles in journals. He has experience of working as specialist in management of post stroke spasticity.

Elmaraghy Amr[1], Quan-Velanoski Kinny[2*]

[1]Orthopaedic Service, Unity Health Toronto: St. Joseph's Health Centre, Toronto, Ontario, Canada

[2]Out-Patient Rehabilitation Services, Unity Health Toronto: St. Joseph's Health Centre, Toronto, Ontario, Canada

Arthroscopic assisted lower trapezius tendon transfer: Evidence-based rehabilitative approach

Massive irreparable posterior-superior rotator cuff tears present with challenges to definitive management in younger and more active patients who require not only pain relief but improved strength and durability of shoulder function. Arthroscopic-assisted Lower Trapezius Tendon Transfer (aa-LTT) has gained consideration in recent years as a viable and increasingly popular surgical option.

This presentation will discuss the potential advantages of this surgical procedure compared to other surgical options. Biomechanical studies show that the lower fibres of trapezius has a better moment arm for external rotation as its line of pull is similar to the infraspinatus muscle. When restoration of force coupling between anterior and posterior rotator cuff is achieved, elevation of the extremity is re-established, allowing improved functional abilities.

When a new surgical approach gains popularity, collaborative efforts between surgeon and physiotherapist allows for development of a protocol which respects the need for tissue healing and integrates the latest rehabilitation strategies for each phase of post-operative recovery. A systematic literature review strategy was employed to create a rehabilitation protocol that integrates best available evidence. The goals of each phase of aa-LTT rehabilitation will be discussed and a variety of exercises will be reviewed.

Audience Take Away Notes

- The indications for Arthroscopically Assisted Lower Trapezius Transfer (aa-LTT) and how it differs from other procedures performed for irreparable rotator cuff tears will be reviewed
- An evidence based approach to shoulder rehabilitation development based upon the science of neuromuscular rehabilitation will be presented
- Strategies to optimize goals attainment for each phase of recovery will be discussed

Biography

Kinny is a graduate of Physiotherapy at University of Toronto, Canada. She holds a status appointment with the University of Toronto where she is active with the Masters of Physiotherapy Program in roles of lecturer, small group facilitator and clinical instructor. She has been working in Orthopedics Rehabilitation at St. Joseph's Health Centre since 1993. Since 2009 she has had the privilege of working with Dr. Amr Elmaraghy, Upper Extremity Specialist in Orthopedic Surgery. In collaboration with Dr. Elmaraghy, she helped in the development of a catalogue of evidence-based rehabilitation protocols to guide patients with their upper extremity post-operative rehabilitation.

Mr Raheel Shakoor Siddiqui[1,2*], Dr. Saif Ahmed[1], Mr Abdul Muhaymin Khan[2], Mr Abdus Samee Wasim[2], Mr Muhammed Mansoor[1]

[1]Department of Trauma & Orthopaedic Surgery, Birmingham Heartlands Hospital, University Hospitals Birmingham NHS Trust, Birmingham, United Kingdom
[2]Department of Trauma & Orthopaedic Surgery, Russell's Hall Hospital, Dudley Group NHS Foundation Trust, West Midlands, United Kingdom

Outcomes of open reduction and internal fixation versus conservative management in posterior malleolus ankle fractures: A retrospective comparative study

Background: The posterior malleolus may be referred to as Volkmann's triangle or the posterior tibial plafond and approximately 50% of ankle fractures may have involvement of this area. Posterior Malleolus Ankle Fractures (PMFs) may be associated with unfavourable long-term outcomes for patients involving pain, stiffness and post-traumatic osteoarthritis of the ankle. The optimal treatment approach for ankle fractures involving the Posterior Malleolus (PM) continues to be a controversial topic in orthopaedic surgery.

Aims: This study aims to compare outcomes of healing, complications and return to pre-morbid mobility in open reduction, internal fixation versus conservative management in posterior malleolus ankle fractures.

Materials and Methods: A single-centre retrospective comparative study was conducted on 166 patients with posterior malleolus ankle fractures using non-probability, consecutive sampling. Inclusion criteria entailed, complete digital records of patients between the ages of 16 and 60 with an acute, unilateral, closed fracture. Exclusion criteria entailed, patients with incomplete records, pre-existing ankle joint disease, Parkinson's disease, poliomyelitis, tumour, immunodeficiency, blood disease, posterior Pilon fractures and multiple or bilateral fractures. Study duration was one year from December 2021 to December 2022. De-identified data such as age, gender, management approach, surgical approach, Haraguchi fracture type, non-weight bearing duration, follow-up time and healing outcome was extracted from records. Statistical analysis for comparison between conservative and open reduction and internal fixation management was conducted with a chi-square test. Haraguchi fracture type, non-weight bearing duration and follow-up time were significant factors in determining conservative or surgical management for posterior malleolus ankle fractures.

Results: The mean age of patients was 43.93±15.72 years. The majority of patients (72.29%) were managed with open reduction and internal fixation in an ambulatory trauma and orthopaedic surgery list using a posterolateral surgical approach (39.76%) and plate fixation (45.78%). The overall most common identified Haraguchi fracture type was type I (39.76%). Plain film x-ray follow-up outcomes showed that the majority of patients healed with return to pre-morbid mobility in surgical and conservative management groups (92.17%). Healing outcomes were superior in the open reduction group with 91.67% achieving pre-morbid mobility compared to 76.09% in the conservative group. Non-union was more frequent in the conservative group (17.39% vs 4.17%). These differences were statistically significant with a p-value of 0.01. The conservative group had a significantly higher proportion (p-value 0.002) of patients with a four-week non-weight bearing duration. The open reduction and internal fixation group had significantly higher proportion of patients with a 6-week non-weight bearing duration (p-value 0.002).

Conclusion: The open reduction and internal fixation group resulted in superior healing outcomes with higher return to pre-morbid mobility compared to conservative management, which was statistically significant. Non-union incidence was higher in the conservative group. Pain frequency was similar in both groups.

Audience Take Away Notes

- Optimal treatment of posterior malleolar ankle fractures is a controversial topic in orthopaedic surgery
- Posterior malleolar fractures may be classified according to Haraguchi et al.
- Traditionally, unstable fractures are treated with open, reduction and internal fixation
- Open, reduction and internal fixation may result in superior healing outcomes with an earlier return to function

Biography

Mr. Raheel Shakoor 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. Mr. Siddiqui has achieved a higher level degree; MSc in Orthopaedic Trauma Science with Barts & The London School of Medicine and Dentistry, Queen Mary University of London and is a member of the Royal College of Surgeons of Edinburgh. He is currently an orthopaedic themed core surgical trainee within the West Midlands deanery, United Kingdom and is aiming towards national selection for trauma and orthopaedic surgery higher training.

Mr Raheel Shakoor Siddiqui[1,2*], Mr Abdus Samee Wasim[1], Mr Abdul Muhaymin Khan[1], Mr Shahbaz Malik[3], Mr Livio DiMascio[2,4]

[1]Department of Trauma & Orthopaedic Surgery, Russell's Hall Hospital, Dudley Group NHS Foundation Trust, West Midlands, United Kingdom
[2]Queen Mary University of London, Barts & The London School of Medicine & Dentistry, London, United Kingdom
[3]Department of Trauma and Orthopaedic Surgery, Worcestershire Royal Hospital, Worcestershire Acute Hospitals NHS Trust, Worcester, United Kingdom
[4]Department of Trauma and Orthopaedic Surgery, the Royal London Hospital, Barts Health NHS Trust, London, United Kingdom

Effect of perioperative multimodal analgesia on postoperative opioid consumption and complications in elderly traumatic hip fracture patients: A systematic review of randomised controlled trials

Background: Elderly traumatic hip fracture patients frequently present to trauma services globally. Rising low energy falls amongst an osteoporotic aging population is the commonest cause for injury. Hip fractures in this population are a major cause for severe pain, morbidity and mortality. The term hip fracture is interchangeable with neck of femur fracture, fractured neck of femur or proximal femur fracture. Hip fracture pain management protocols and guidelines suggest conventional analgesia, nerve block and opioid based treatment as rescue analgesia. There is a current global opioid crisis with overuse, abuse and dependence. Adverse opioid related complications in vulnerable elderly patients further adds to morbidity and mortality. Systematic reviews in literature have evidenced superiority of multimodal analgesia in osteoarthritic primary joint replacements compared to opioids however, this has not yet been conducted for elderly traumatic hip fracture patients.

Aims: The primary aim of this systematic review is to provide standardised evidence following Cochrane and PRISMA guidance in determining advantages of perioperative multimodal analgesia over conventional opioid based treatments in elderly traumatic hip fractures.

Methods: 5 databases were searched from January 2000-2023 which identified 8 randomised controlled trials and 446 total participants. These trials met defined PICOS eligibility criteria of patient mean age ≥ 65 years presenting with a unilateral traumatic fractured neck of femur for operative intervention. Analgesic intervention with perioperative multimodal analgesia has been compared to conventional opioid based analgesia. Outcomes of interest include, primarily, the change in postoperative opioid consumption within a 0-30 postoperative period and secondarily, the change in postoperative adverse events and complications. A qualitative synthesis has been performed due to clinical heterogenicity and variance amongst trials.

Results: GRADE evidence of moderate quality supports perioperative multimodal analgesia leads to a reduction in postoperative opioid consumption however, low quality evidence supports a reduction of adverse effects and complications.

Conclusion: Perioperative multimodal analgesia whether used preoperative, intraoperative and/or postoperative leads to a reduction in postoperative opioid consumption for elderly traumatic hip fracture patients. This review recommends the use of perioperative multimodal analgesia as part of hip fracture pain protocols however, caution and clinical judgement should be used as the risk of adverse effects may not be lower.

Audience Take Away Notes

- Systematic reporting of randomized controlled trials of elderly traumatic hip fracture patients' pain management with perioperative multimodal analgesia
- Combination and timing of perioperative multimodal analgesia used in trials
- Measurement of postoperative pain scores and opioid consumption
- GRADE analysis of outcomes and recommendations

Biography

Mr. Raheel Shakoor 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. Mr. Siddiqui has achieved a higher level degree; MSc in Orthopaedic Trauma Science with Barts & The London School of Medicine and Dentistry, Queen Mary University of London and is a member of the Royal College of Surgeons of Edinburgh. He is currently an orthopaedic themed core surgical trainee within the West Midlands deanery, United Kingdom and is aiming towards national selection for trauma and orthopaedic surgery higher training.

Roger H. Coletti MD

Interventional Health, PA, Lewes, DE, USA

Emg guided chemodenervation for post-laminectomy syndrome and rotator cuff repair

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. An additional use of the CMECD® procedure is presurgical such as in the case of rotator cuff injury with retraction of the muscle. A case report will be described where the retracted muscle was treated with the CMECD® procedure allowing the surgeon to perform a more successful repair than would have been possible without the pretreatment. 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 a Delaware pharmacy and shipped to nearly all states within the United States. Phenoxybenzamine can also be obtained from a US manufacturing source and shipped worldwide.

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 in individuals with post laminectomy syndrome 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 successfully treat post laminectomy syndrome will improve the overall success of their surgical procedures.
- Use of the CMECD® procedure prior to a rotator cuff repair will be discussed.
- The findings relating to the precipitating factors that are responsible for chronic muscle spasm should provide additional area of research into pre-treatment and post-surgical treatment.

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.

Roger H. Coletti MD

Interventional Health, PA, Lewes, DE, USA

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.

Roger H. Coletti MD, FACC, FASNC, FSCAI
Medical Director of Interventional Health, PA, USA

Independent research – Possibilities remain

In the world of medicine, now bowing down to guideline directed medical therapy protocols, is there still room for the independent researcher who does not fall in line with generally accepted although not always proven concepts and treatment. This presentation details how one researcher challenged to accepted theory and practice of treatment of chronic muscle spasm and resultant chronic muscle spasm. New concepts of the etiology of chronic muscle spasm emerged and a successful treatment of chronic pain resulting from chronic muscles spasm was developed without the use of opioid medications. Data demonstrating the successful outcomes of a procedure trademarked as CMECD is presented. Additional findings that the length of time a muscle is in spasm does not affect the success of the CMECD® procedure are included. Details in the pathophysiology of chronic muscle spasm are explained and the procedure and the EMG findings of normal muscle and muscle in chronic spasm are demonstrated. EMG findings on normal muscle, muscle with increased insertional activity and muscle is chronic spasm are shown. References to articles and a book on this topic by this author are given. The entire procedure is visualized in a video presentation. Requirements for the use of medications in an off label use according to FDA requirements are presented. Discussion regarding a proposed theory of the etiology of tendinopathy and as a vascular event are presented. The phenomenon described as the Hierarchy of Pain is presented and explained. Comparison to cardiac and skeletal states of hibernation are discussed.

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

Roger Howard Coletti MD, FACC, FASNC, FSCAI was born in 1945 in New York City, New York. He graduated from Georgetown University College of Arts and Sciences. He received a Master of Arts in Natural Sciences from Hofstra University. He did one year of bench research on drug metabolism when enrolled in a PhD program in Pharmacology at New York University Medical School. He transferred to State University of New York at Downstate where he completed the four-year curriculum for his MD. Dr. Coletti's 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 and then transferred to Westchester County Medical Center where he completed one year of Interventional Cardiology fellowship. He has done clinical research and publication in the field of alternative treatment of chronic pain secondary to chronic muscle spasm.

Mr Rohit Ravindran Nair*, Mr Brijesh Ayyaswamy, Dr. Pradeepsyam Prasad, Mr Anoop Anand, Mr Nithin Babu, Dr. Adersh Gopinathannair

Department of Trauma and Orthopaedics, Blackpool Teaching Hospitals NHS Foundation Trust, Blackpool, Lancashire, United Kingdom

Limb salvage in moderately to severely infected diabetic foot ulcer with wound debridement and intraosseous antibiotic application

Introduction: Diabetic foot ulcers are one of the most common morbid consequences of poorly controlled diabetes. 20 percentage of moderate to severe diabetic foot infections results in major lower limb amputations.

Aim: To analyse whether adding intraosseous local antibiotics reduces the rate of major lower limb amputations in diabetic foot osteomyelitis.

Methodology: 42 patients admitted with diabetic foot osteomyelitis were treated with debridement and local intraosseous antibiotic application. There were four infected hindfoot Charcot, six infected midfoot Charcot, five heel ulcer, five midfoot ulcer and 22 forefoot osteomyelitis cases. All these patients had diabetic foot Multidisciplinary Team (MDT) assessment.

Results: There were 32 males and 10 females. The mean age was 61.2 years (42-87 years). 10 staged Charcot foot reconstructions, five partial calcanectomy, five transmetatarsal amputations and 22 forefoot debridement/amputations were performed. Eight forefoot and two heel wound patients needed resurgery. Two of them were below knee amputations, three were transmetatarsal amputations and the rest were further bone shortenings. Four patients in this group needed vascular procedures. The wound took 2-8 months to heal fully with a mean time of 5 months. Two patients were found to be deceased on long term follow-up. Major amputation was prevented in 95% of moderate to severe diabetic foot infections. Our reoperation rate after primary surgery was only 19%.

Conclusion: Our study shows that local intraosseous antibiotic application can reduce major amputation rates in moderately to severely infected diabetic foot and give a functional limb to the patient.

Keywords: diabetic foot, intraosseous antibiotic, amputation

Audience Take Away Notes

- Amputation rates associated with moderate to severe diabetic foot infections
- How local intraosseous antibiotic application could help reduce major amputation rates in moderately to severely infected diabetic foot cases
- Role of diabetic foot MDT in managing diabetic foot infections
- Foot and ankle surgeons could benefit from the knowledge gained from the results of this study and use it in the management of severe diabetic foot infections

Biography

Mr Rohit Ravindran Nair completed his MBBS and graduated from Kasturba Medical College, Mangalore, India in 2016. He then went on to pursue postgraduation in Orthopaedics in JSS Medical College, Mysuru, India from 2017 to 2020. He received the degree of MS (Orthopaedics) in November 2020. Subsequently he obtained the degree of MRCS from the Royal College of Surgeons of England in 2022. Currently, he is working as a Trust Doctor ST1/2 in Orthopaedics at Blackpool Teaching Hospitals NHS Foundation Trust.

Vijay Chandru, Santhosh M.S, Sujana Theja J.S, Rohit Ravindran Nair*

Department of Orthopaedics, Jagadguru Sri Shivarathreeshwara Hospital, Jagadguru Sri Shivarathreeshwara Academy of Higher Education and Research, Mysuru, Karnataka, India

Comparison of fixed- and variable-loop button fixation in arthroscopic anterior cruciate ligament reconstruction

Introduction: Graft fixation and incorporation into bony tunnels are of utmost importance for stability of the reconstructed knee. With the advent of fixed loop and variable loop suspensory fixation devices, maximum amount of graft can be placed within the femoral tunnel. Although several biomechanical studies have been conducted comparing these two devices, there are very few comparative clinical studies.

Aims & Objectives: The primary objective of this study was to compare the functional outcomes of arthroscopic ACL reconstruction with fixed and variable loop devices by determining their effect on graft laxity, assessed clinically, and patient-reported outcome scores. The secondary objective was to evaluate the demographic distribution, mode and MRI grading of ACL injuries and assess the pattern of associated injuries.

Methodology: Out of 32 patients (27 males and 5 females) who underwent primary ACL reconstruction using doubled or tripled hamstring autograft, fixed and variable loop devices were used for 13 and 19 patients, respectively. 13 patients in each group were evaluated at 2 weeks, 4 weeks, 6 weeks, 3 months, 6 months and 1 year follow-up post-operatively using Lysholm knee score. 6 patients in the variable loop group had only 6 months follow-up. Anterior drawer and Lachman tests for ligament laxity were performed at 6 months and 1 year follow-up.

Results: Mean ages of patients in the fixed and variable loop groups were 34.5+11 and 34.1+9.1 years, respectively. Lysholm knee score at 6 weeks was fair in 7.7% of the patients in the fixed loop group as compared to 52.6% of those in the variable loop group ($p<0.05$). All the other parameters were comparable between the two groups. 1 patient in each group had ligament laxity at 6 months and 1 year follow-up.

Conclusion: This study showed no statistically significant difference in graft laxity or functional outcomes of arthroscopic ACL reconstruction with fixed and variable loop devices, except for a better patient-reported outcome score in the variable loop group at 6 weeks follow-up. Hence, there is a need for more comparative studies in this direction.

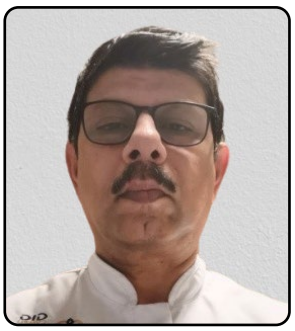
Keywords: Arthroscopic ACL Reconstruction, Fixed Loop Device, Variable Loop Device.

Audience Take Away Notes

- How fixed-loop compares with variable-loop button fixation in arthroscopic ACL reconstruction in terms of graft laxity, assessed clinically, and patient-reported outcome scores
- The demographic distribution, mode and MRI grading of ACL injuries and pattern of associated injuries
- This research would help orthopaedic surgeons make an informed decision about the kind of fixation device that they could use in ACL reconstruction
- More studies could be performed in this direction to obtain more information on whether one fixation device is clearly superior to the other one

Biography

Mr Rohit Ravindran Nair completed his MBBS and graduated from Kasturba Medical College, Mangalore, India in 2016. He then went on to pursue postgraduation in Orthopaedics in JSS Medical College, Mysuru, India from 2017 to 2020. He received the degree of MS (Orthopaedics) in November 2020. Subsequently he obtained the degree of MRCS from the Royal College of Surgeons of England in 2022. Currently, he is working as a Trust Doctor ST1/2 in Orthopaedics at Blackpool Teaching Hospitals NHS Foundation Trust.



Salim Hirani, Chief Clinical Physiologist (Neurophysiology)
Neurophysiology Department, Ysbyty Gwynedd Hospital, Bangor, North Wales, UK. LL57 2PW

Neurophysiological grading tool of ulnar nerve entrapment across wrist and across elbow with case presentation

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:

- To create a clinically appropriate ulnar nerve entrapment grading tool to covers both area of entrapment in one research paper.
- 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.
- To identify the lesion below and across wrist as well as across elbow in order to support the Clinical Physiologist (CP) to grade them properly and also help the consultant in deciding to treat with conservative or surgical treatment.
- 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 will be of interest for those who are involved in recording the neurophysiology of the ulnar nerve as well to the surgeons who are involved in hand surgery
- This will give them the information that they need to decide on a conservative or surgical approach to treatment.
- My presentation will also help those that are new or are considering joining the neurophysiological or surgical field
- My proposed grading will give them precise information of nerve entrapment in a simple and easy to use method

Biography

Salim Hirani has worked in Neurophysiology for more than 30 years. He did is Neurophysiology course from United Kingdom. He has worked in several different countries and can speak 4-5 languages. His three papers on this research: Refined Grading of Carpal Tunnel syndrome in BMC journal in 2019, Neurophysiological Grading tools of ulnar nerve entrapment across elbow in Journal of Neurology, Neurological Science and Disorders in 2023 and Neurophysiological Study for Ulnar Entrapment at Wrist (meddocsonline.org) in Journal of Psychiatry and Behavioural Sciences in June 2023 have already been published.

Lambert T. Li[1] MD, Andrew R. Ames[2] DO, Stephen Le Breton[2] BS, Bryan Jenkin[2] BS, Albert Mousad[2] BS, Katharine Ives[2] BS, Janine Molino[2] PhD, Glen Ross[2] MD, Sarav S. Shah[2*] MD

[1]University Hospitals Cleveland Medical Center, Department of Orthopaedic Surgery, Cleveland, OH
[2]New England Baptist Hospital, Department of Orthopaedic Surgery, Boston, MA

Cost effectiveness analysis based on real world constructs, tear size, and implant cost for rotator cuff repair at 1, 5 and 10 years

Purpose: To evaluate the cost-effectiveness of RCR by utilizing a real-world cost analysis and real-world possibilities of commercial surgical constructs for arthroscopic rotator cuff repair sorted by tear size.

Methods: Real-world cost data and previously published data on both anchor failure strengths and retear rates by tear size & construct were input into a Markov model with time points of one, five, and ten years. Cost effectiveness was assessed in terms of cost per quality adjusted life year. Health states included intact repair, asymptomatic or symptomatic retear, revision RCR, and cuff tear arthropathy. Knotted and knotless Single Row (SR) and Double Row (DR) constructs using anchors from Smith & Nephew, Arthrex, and Stryker were included.

Results: For small tears, the optimal 10-year strategy was Corkscrew Biocomposite/Swivelock Biocomposite DR knotted (Arthrex, Naples FL), and had an Incremental Cost Effectiveness Ratio (ICER) of $12,562/QALY over nonoperative treatment while adding 0.54 QALY. For medium tears, the optimal strategy was Corkscrew Biocomposite/Swivelock Biocomposite DR knotted (Arthrex, Naples FL), and had an ICER of $16,678/QALY and added 0.51 QALY. For large and massive tears, Swivelock Biocomposite DR knotless (Arthrex, Naples FL) and Healicoil PEEK/Footprint Ultra PEEK DR knotless (Smith & Nephew, Andover, MA) respectively were preferred. These added up to 0.53 QALY (large) and 0.46 QALY (massive) over nonoperative treatment.

Conclusion: We uniquely used real-world suture anchors and construct configurations individually for multiple commercially available systems & every tear size in short- and long-term cost effectiveness. Surgeons and healthcare providers may use the results of this study to help with anchor and construct selection when performing arthroscopic rotator cuff repairs for optimum value-based care.

Audience Take Away Notes

- The cost effectiveness of rotator cuff repair is affected by both the construct used and the suture anchors used
- For small tears, the optimal 10-year strategy was Corkscrew Biocomposite/Swivelock Biocomposite DR knotted
- For medium tears, the optimal strategy was Corkscrew Biocomposite/Swivelock Biocomposite DR knotted
- For large and massive tears, Swivelock Biocomposite DR knotless and Healicoil PEEK/Footprint Ultra PEEK DR knotless respectively, were preferred

Biography

Dr. Shah graduated from Drexel University College of Medicine and completed his orthopedic surgery residency at Hofstra Northwell School of Medicine in New Hyde Park, NY. He completed his orthopedic sports medicine fellowship at New England Baptist Hospital, and his fellowship in shoulder/elbow arthroscopic and reconstructive surgery at Hospital for Special Surgery in New York, NY. He is a double board-certified Orthopaedic Surgeon and currently serves as chief of the division of Sports Medicine & Program director of the NEBH Sports Medicine Fellowship. He has authored more than 50 scientific peer-reviewed publications, chapters, review articles and books.

Krishna Mandalia[1,3] B.S; Stephen Le Breton[1,3] B.S; Christopher Roche M.S.E, M.B.A[4]; Sarav Shah[2*] M.D

[1]Tufts University School of Medicine, Boston MA, USA
[2]New England Baptist Hospital, Boston MA, USA
[3]New England Shoulder and Elbow Center, Boston MA, USA
[4]Exactech Inc. Gainesville FL, USA

Clinical outcomes validate RAND/UCLA appropriateness criteria algorithm for anatomic TSA to streamline the clinical decision-making process

Background: A recent study used the RAND/UCLA method to develop Anatomic TSA (aTSA) appropriateness criteria. The purpose of our study was to determine how Patient-Reported Outcome Measures (PROMs) vary based on appropriateness.

Methods: Clinical data from a multicenter database identified patients who underwent primary aTSA. Patients were classified as "appropriate," "inconclusive," or "inappropriate," using a modified version of an appropriateness algorithm, which accounted for age, rotator cuff status, mobility, symptomatology, and Walch classification. Multiple pre- and postoperative scores were analyzed using Pearson-Chi-Square and one-way ANOVA. Postoperative complications were also analyzed.

Results: 390 patients (follow-up 48.1 months) were included. 97 (24.9%) were classified as appropriate, 218 (55.9%) inconclusive, and 75 (19.2%) inappropriate. All groups achieved significant improvement in mean PROM scores postoperatively. "Appropriate" patients experienced significantly greater improvement in VAS and ASES compared to "inconclusive" and "inappropriate". The appropriate group had a significantly greater proportion of patients who achieved MCID (95.8%) and SCB (92.6%). Overall, 13 patients had postoperative complications. No significant differences in postoperative complications among classifications were found.

Conclusions: Our data clinically validates an aTSA appropriateness criteria algorithm, allowing for more rapid and reliable determination of aTSA candidacy. "Appropriate" patients were more likely to achieve MCID and SCB for ASES scores compared to "inappropriate" patients. Among "appropriate" patients who did not achieve SCB, 50% of them had a postoperative complication. This was a significantly higher proportion of postoperative complications among those that did not achieve SCB across all three groups. Only 7.1% of patients who did not achieve SCB in the inappropriate group had a postoperative complication. Thus, it can be inferred that the failure to reach SCB in the appropriate group was likely due to a postoperative complication, whereas for patients deemed "inappropriate," failure to reach SCB may be secondary to factors accounted for within our algorithm.

Level of Evidence: III, retrospective cohort study.

Keywords: Primary Anatomic Total Shoulder Arthroplasty, RAND/UCLA Appropriateness Criteria, Patient-reported Outcome Measures.

Audience Take Away Notes

- Indications for TSA have become unclear given the rapid increase in utilization of RSA in recent years
- We validated an algorithm designed via the RAND/UCLA method to determine TSA candidacy and appropriateness
- Our study aims to present a means by which orthopaedic providers can streamline the clinical decision-making process with regards to TSA candidacy

Biography

Dr. Sarav Shah graduated from Drexel University College of Medicine and completed his orthopedic surgery residency at Hofstra Northwell School of Medicine in New Hyde Park, NY. He completed his orthopedic sports medicine fellowship at New England Baptist Hospital, and his fellowship in shoulder/elbow arthroscopic and reconstructive surgery at Hospital for Special Surgery in New York, NY. He is a double board-certified Orthopaedic Surgeon and currently serves as chief of the division of Sports Medicine & Program director of the NEBH Sports Medicine Fellowship. He has authored more than 50 scientific peer-reviewed publications, chapters, review articles and books.

Hüma Bölük Şenlikci[1], Sevgi İkbali Afşar[2], Sacide Nur Coşar[3], Ali Niyazi Kurtcebe[4], Selin Özen[2*], Oya Ümit Yemişçi[3]

[1]Ankara Bilkent City Hospital, Physical Medicine and Rehabilitation Hospital, Ankara, Turkey
[2]Başkent University Faculty of Medicine, Department of Physical Medicine and Rehabilitation, Ankara, Turkey
[3]Abdurrahman Yurtaslan Onkoloji Training and Research Hospital, Department of Physical Medicine and Rehabilitation, Ankara, Turkey
[4]T.R. Ankara Province Health Directorate

Effectiveness of single dose corticosteroid vs. platelet rich plasma injection in mild-to-moderate carpal tunnel syndrome: A prospective, randomized, double blind study

Carpal Tunnel Syndrome (CTS) is the most commonly occuring entrapment neuropathy abd results in nocturnal paresthesia, numbness, and weakness of the hands in the distribution of the median nerve. Many different treatment options are available in the treatment of CTS including physical therapy, exercises and injections. Steroid injections into the wrist can be a practical solution to the problem but may cause side effects such as weakening of the tendons. Platelet rich plasma's nerve fiber regenerating properties have been shown in animal studes. However, to date there is no concrete evidence for either of these treatments and their superiority over one another.

The aim of the study is to reveal the efficacy of single dose Platelet Rich Plasma injection (PRP) vs. Corticosteorid (CS) injection to carpal tunnel in the treatment of CTS.

A total of 59 female patients (78 wrists) with a diagnosis of mild to moderate CTS were included in the study and blindly randomized into two treatment groups; one group received single dose PRP and the second group single dose CS injections administered into the carpal tunnel by the same physician. Baseline, first and 6th month evaluations were conducted by a second physician blind to the treatment received. Boston Carpal Tunnel Questionnaire (BTCQ), grip strength, CTS symptom provocation tests and electrophysiological parameters were used to evaluate patients.

There was a significant improvement in BTCQ in both treatment groups ($p<0.001$) with no between group difference. No significant improvement in physical examination findings was seen in either treatment group. Within group comparisons of baseline – 6 month electrophysiological parameters showed significant improvement in sensory nerve conduction studies in both treatment groups ($p<0.001$) with no between-group difference. All motor nerve conduction study parameters significantly improved in the CS group.

Audience Take Away Notes

- The results of our study suggest that CS is more effective in treating signs and symptoms of CTS when compared to PRP. The findings of this study will help guide physiatrists management plan when considering use of injections in the treatment of CTS. Injection of choice may also be guided by the exact aim of the treatment, for example in severe CTS in which all eletrophysiological parameters are affected, CS maybe the preferred treatment of choice.
- This research will help guide further studies in the area; long term effects of CTS and PRP in the treatment of CTS and comparison of the effects of repeated CS and PRP injections are areas for future studies.

Biography

Dr. Selin Ozen is a physiatrist who graduated from a London medical school in 2007 who went onto train both in the U.K and Ankara, Turkey. Dr. Selin Ozen has her expertise in musculoskeletal and neurological rehabilitation with a special interest in degenerative joint disease, and rehabilitation following stroke and spinal cord injury. She is a senior clinician in the physical medicine and rehabilitation department of Baskent University Hospital based in Ankara, Turkey. She is a member of the European and Turkish Board of PRM. To date, Dr. Ozen has over 35 published research articles in the field of PRM.

Myoungsuk Kim[1], Seunghee Ho[2]*, Hayeon Kim[2], Jaemin Park[2]

[1]Korea University Graduate School Department of Public Health, Department of Healthcare and Public Health Research, National Rehabilitation Center, Seoul, Korea
[2]Department of Healthcare and Public Health Research, National Rehabilitation Center, Seoul, Korea

Factors affecting life satisfaction among people with physical disabilities during COVID-19: Observational evidence from a Korean cohort study

Background: COVID-19 has reduced life satisfaction among people with disabilities more so than among the general population. To address this disparity, there is a need to identify the factors influencing life satisfaction among people with physical disabilities and provide the support they require. No prior studies have investigated the determinants of life satisfaction among people with physical disabilities during the COVID-19 pandemic.

Objective: We aimed to determine the factors influencing the life satisfaction of people with physical disabilities during the COVID-19 pandemic, considering demographics, disability-related characteristics, health behaviors, and psychosocial characteristics.

Methods: We used cross-sectional data from 301 respondents of the 2021/2022 survey of the Korean Health Cohort Study for People with Physical Disabilities. Descriptive statistics were used to analyze the characteristics of the research subjects, and chi-square tests and multiple logistic regression were used to identify the determinants of life satisfaction.

Results: Among sociodemographic variables, occupation had a strong association with life satisfaction. Significant health behavior variables included daily regular meals, weight control effort, and chronic pain. All psychosocial characteristics (perceived stress, depression, suicidal ideation, cognitive function assessment, subjective health status, family satisfaction, income satisfaction) were strongly associated with life satisfaction. Results of analysis of factors affecting life, unemployment, lack of regular exercise, elevated stress, suicidal thoughts, and dissatisfaction with family contributed to increased life dissatisfaction.

Conclusions: strengthen economic support that considers the specific characteristics of people with disabilities and social access through community integration services that encourage participation in social activities should be prioritized.

Keywords: COVID-19, People with Physical Disability, Life Satisfaction, Korea.

Audience Take Away Notes

- This study is the first of its kind to investigate the factors affecting the life satisfaction of people with physical disabilities in Korea against the backdrop of COVID-19. The association with life satisfaction and the influencing factors affecting life satisfaction were examined in detail by sociodemographic characteristics, disability characteristics, health behavior, and psychosocial characteristics of people with physical disabilities, using a total of 36 variables.

- This study's significance lies in providing evidence to support innovative, sustainable mental health interventions, encompassing socioeconomic determinants, to enhance the life satisfaction of people with physical disabilities. Targeted support strategies were suggested based on the findings.

- The results of our analysis of the factors affecting life satisfaction provide evidence that being unemployed, not exercising regularly, perceiving increased stress, having suicidal ideation, and being dissatisfied with family increase life dissatisfaction. By contrast, factors related to personal characteristics, such as gender, education level, and marital status, had no significant association with life satisfaction, supporting the findings of previous research.

- Since loneliness and social isolation are highly prevalent in people with disabilities and are risk factors for reduced well-being and depression, the positive effects of rewarding work can reduce feelings of isolation and loneliness and lead to income satisfaction, ultimately improving the life satisfaction of people with physical disabilities

- Our results suggest that interventions supporting the quality of life of people with disabilities and that of their families should be integrated rather than treated separately. Moreover, it is necessary to conduct proactive interventions before a crisis occurs; these can include providing psycho-emotional support counseling or community linkage services through regular quality-of-life checks for the vulnerable families of people with disabilities.

Biography

Seung Hee Ho, Ph.D., is Chair of the Department of Healthcare and Public Health Research, National Rehabilitation Research Institute (NRRI). Her research interests at NRRI include the development of rehabilitation programs, health promotion interventions for people with disabilities, and development of functional assessment tools & patient classification systems. She is a member of the health committee, of Rehabilitation International (RI) Korea. Until 2008, she was a research assistant professor, at the department of health informatics, Graduate School of Public Health, Yonsei University, Rep of Korea, researching the knowledge-based system, datamining application in healthcare.

Shayan Amiri[1*], Alireza Mirahmadi[2], Ava Parvandi[2], Mana Zaker Moshfegh[2], Seyedeh Pardis Hashemi Abatari[2], Mehrdad Farrokhi[3], Seyyed Mehdi Hoseini[2], Seyed Morteza Kazemi[2], Kaveh Momenzadeh[4], Jim S. Wu[5], Ara Nazarian[4]

[1]Shohadaye Haftom-e-Tir Hospital, Department of Orthopedic, School of Medicine, Iran University of Medical Sciences, Tehran, Iran
[2]Bone, Joint and Related Tissue Research Center, Akhtar Orthopedic Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran

[3]Student Research Committee, Department of Epidemiology, School of Public Health and Safety, Shahid Beheshti University of Medical Sciences, Tehran, Iran
[4]Department of Orthopaedic Surgery, Boston Children's Hospital and Harvard Medical School, Boston, the Musculoskeletal Translational Innovation Initiative, Boston, Massachusetts, USA
[5]Department of Radiology, Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, Massachusetts, USA

Excellent accuracy of magnetic resonance imaging for diagnosis of discoid meniscus tears: A systematic review and meta-analysis

Purpose: The Discoid Meniscus (DM) is distinguished by its thickened, disc-shaped formation, which extends over the tibial plateau. The likelihood of developing osteoarthritis escalates if a DM tear remains undiagnosed and untreated. While DM tears can be diagnosed through arthroscopy, the high cost, invasive nature and limited availability of this procedure highlight the need for a better diagnostic modality. This study aims to determine the accuracy of Magnetic Resonance Imaging (MRI) in diagnosing DM tears.

Methods: A systematic review was conducted to gather articles with at least 10 cases on the comparison of MRI and arthroscopy as the gold standard for DM tear diagnosis. Stata and MetaDisc were used to conduct the statistical analysis. The quality of the included studies was evaluated using the Quality Assessment of Diagnostic Accuracy Studies-2 tool.

Results: Five diagnostic performance studies, derived from four original research papers involving 305 patients, were evaluated. Based on the pooled data, the sensitivity, specificity, diagnostic odds ratio, positive limit of detection and negative limit of detection were found to be 0.87 (95% confidence interval [CI], 0.82–0.91) and 0.84 (95% CI, 0.75–0.90), 32.88 (95% CI, 5.81–186.02), 5.22 (95% CI, 1.71–15.92) and 0.18 (95% CI, 0.09–0.38), respectively. A hierarchical summary receiver operating characteristic curve with an area under the curve of 0.92 was generated.

Conclusion: This meta-analysis demonstrates that MRI has excellent sensitivity and specificity for diagnosing DM tears. Despite its lower accuracy compared to arthroscopy, MRI can be used in symptomatic patients as a viable alternative to arthroscopy due to its inherent advantages.

Level of Evidence: Level IV.

Keywords: Diagnostic Imaging, Discoid Meniscus, Discoid Meniscus Tear, Magnetic Resonance Imaging, Meta-Analysis, Sensitivity and Specificity.

Biography

Dr. Shayan Amiri studied Medicine in Shahid Beheshty University of Medical Sciences and graduated in 2017. He then started residency program of orthopaedic surgery in Iran University of medical sciences and graduated in 2022. He is an assistant professor of orthopaedics surgery in Iran University of medical sciences and work as an orthopaedics surgeon in Haftom-e-tir trauma center hospital. He has published more than 25 research article in international journals.

Shayan Amiri*, Mehdi Moghtadaei, Noshad Peyravian
Department of Orthopedics Surgery, Iran University of Medical Sciences, Tehran, Iran

Designing and synthesis of injectable hydrogel based on carboxymethyl cellulose/carboxymethyl chitosan containing QK peptide for femoral head osteonecrosis healing

The aim of this lecture is to present a recently published article about: Femoral head necrosis is a debilitating disorder that typically caused by impaired blood supply to the hip joint. In this study, a novel injectable hydrogel based on Oxidized Carboxymethyl Cellulose (OCMC)-Carboxymethyl Chitosan (CMCS) polymers containing an angiogenesis stimulator peptide (QK) with a non-toxic crosslinking interaction (Schiff based reaction) was synthesized to enhance angiogenesis following femoral head necrosis in an animal model. The physicochemical features of fabricated injectable hydrogel were analyzed by FTIR, swelling and degradation rate, rheometry, and peptide release. Also, the safety and efficacy were evaluated following an in vitro hydrogel injection study and an Avascular Necrosis (AVN) animal model. According to the results, the hydrogel exhibited an appropriate swelling ratio and water uptake (>90%, 24 h) as well as a suitable degradation rate over 21 days accompanied by a continuous peptide release. Also, data showed that hydrogels containing QK peptide boosted the proliferation, differentiation, angiogenesis, and osteogenic potential of both Bone Marrow mesenchymal Stem Cells (BM-MSCs) and Human Umbilical Vein Endothelial Cells (HUVECs) (****p<0.0001 and ***p < 0.001, respectively). Furthermore, molecular and histological evaluations significantly demonstrated the overexpression of Runx2, Osteocalcin, Collagen I, VEGF and CD34 genes (**p<0.01 and ***p< 0.001, respectively), and also femoral head necrosis was effectively prohibited, and more blood vessels were detected in defect area by OCMC-CMCS hydrogel containing QK peptide (bone trabeculae >9000, ***p< 0.001). In conclusion, the findings demonstrate that OCMC-CMCS-QK injectable hydrogel could be considered as an impressive therapeutic construct for femoral head AVN healing.

Audience Take Away Notes

- Presenting about femoral head necrosis pathogenesis
- New drug using for AVN of femoral head in Rat
- The audience will find the last updates and findings of femoral head necrosis pathogenesis and treatment

Biography

Dr. Shayan Amiri studied Medicine in Shahid Beheshty University of Medical Sciences and graduated in 2017. He then started residency program of orthopaedic surgery in Iran University of medical sciences and graduated in 2022. He is an assistant professor of orthopaedics surgery in Iran University of medical sciences and work as an orthopaedics surgeon in Haftom-e-tir trauma center hospital. He has published more than 25 research article in international journals.

Songlin Zhu
Western University, Canada

Development of a clinically useful multi-segment kinetic foot model

Traditionally, gait analysis studies record the foot as a single rigid segment, leaving movements and loads within the foot undetected. In addition, very few data of multi-segment foot kinetics have been represented in the literature due to measurement and equipment limitations. As a result, this study aims to develop a novel multi-segment kinetic foot model that is clinically feasible and enables both kinematic and kinetic analysis of large patient groups.

The multi-segment foot model divides the foot into four functional segments: the hindfoot, midfoot, forefoot and hallux. An X-Z-Y-Cardan angle rotation convention was used to determine intersegmental dorsi/plantar flexion, inversion/eversion, and internal/external rotation. Joint moments, joint powers and Medio-Longitudinal Arch (MLA) height/length ratio were also measured. Ten healthy adults and four HTO patients were tested with an optical motion capture system as they walked barefoot in their self-selected speeds. Repeatability of joint motions was calculated using coefficients of multiple correlation. Outcome measures were compared with other multi-segment foot models found in the biomechanics literature to assess validity.

This novel multi-segment foot model showed strong test-retest and within-subject reliability (R>0.7) for most joint motions (24/27) in healthy adults. The model was sensitive enough to detect abnormal foot motions, including lower MLA, increased hallux abduction, in patient gait compared to the normal cohort. This novel model has been shown to be a clinically useful tool for research and assessment on clinical populations. This model is currently being used on knee OA patients before and after HTO to explore how foot dynamics may change in response to knee alignment correction.

Biography

Songlin Zhu is a PhD student in Kinesiology at Western University, Canada. Originally from China, she came to Canada on her own for undergraduate study in 2016 and continued on to a research journey in Wolf Orthopaedic Biomechanics Lab (WOBL) for her Master's studies with Dr. Thomas Jenkyn, focusing on foot and ankle biomechanics. Now she switched gears a bit towards transdisciplinary Osteoarthritis (OA) research. Supervised by Dr. Trevor Birmingham and Dr. Tom Appleton at both WOBL and Synovial Translational Biology Lab, she uses gait analysis and medical imaging as main approaches to study synovitis mechanisms in OA and explores how foot dynamics change after OA patients receive orthopaedic surgeries.

Stephanie Reischl[1*], Joy MacDermid[2], Ana Luisa Trejos[3], Siobhan Schabrun[4], Ruby Grewal[5]

[1]Department of Health and Rehabilitation Sciences, Western University, London, ON, Canada
[2]School of Physical Therapy, Western University, London, ON, Canada
[3]Department of Electrical and Computer Engineering, London, ON, Canada
[4]The Gray Centre for Mobility & Activity, Parkwood Institute, London, ON, Canada
[5]Hand and Upper Limb Centre, St Joseph's Healthcare, London, ON, Canada

Early intervention strategies during immobilization of distal radius fractures

Neuromuscular Electrical Stimulation (NMES) and Mirror Therapy (MT) cost effective interventions that could be applied at home and don't require physical movement of the affected extremity. Distal Radius Fractures (DRFs) require immobilization for six weeks. NMES and MT could be applied during casting for DRFs as a preventative strategy to mitigate the resulting impairments from disuse (i.e. pain, reduced function, strength, and range of motion). The aim of this mixed methods study is to determine the feasibility of in home NMES, MT and NMES+MT interventions during immobilization for DRF. Participants were randomly assigned to the NMES, MT, NMES+MT, or control group. The interventions were 10-minute sessions, three times a day, five days a week for the last three weeks of immobilization. Secondary outcomes include pain, range of motion, function (Patient-Rated Wrist Evaluation; PWRE), and grip strength.

The recruitment rate was 59% with 85% adherence to interventions and 92% attendance to follow up visits. Six themes identified from the transcripts include it's a win win situation, setting expectations and building confidence, shock and awe, accommodations for an easy commitment, time is limited, and roadblocks to engagement. Facilitators for these interventions are participants that are advocates for research, had flexible schedules, and all the intervention equipment was provided. The main barriers discussed were transportation for on-site visits and the time commitment. Participants reported the time commitment to the interventions during the immobilization period appeared to reduce the time commitment to rehabilitation after the cast was removed, improve outcomes, and timelines to return to activities. At 8-weeks post-DRF, the relative grip strength was 56% for MT, 56% for NMES, 51% for MT+NMES and 31% for the control group. At 8-weeks post-DRF, the PRWE scores were 42 for MT, 58 for NMES, 35 for MT+NMES and 63 for the control group.

Participants reported engaging in the interventions during the immobilization period appeared to reduce the time commitment for rehabilitation after their cast was removed, improve outcomes, and timelines to return to activities. Participants recommend that these interventions become more widely available and that all DRF patients should do it if they can. The 8-week values for the early intervention groups are comparable to previous reports for PRWE and grip strength at three months and one year, respectively. In home NMES, MT and NMES+MT interventions are feasible during the last three weeks of the immobilization period for conservatively managed distal radius fractures. Participants recommend that these interventions become more widely available and that all DRF patients should do it if they can.

Audience Take Away Notes

- In-home MT, NMES, MT+NMES protocols to be applied during the casting period for DRF
- The feasibility of MT, NMES, MT+NMES interventions for DRF during casting
- Patient perspectives of the MT, NMES, MT+NMES interventions

- This will help the audience in considering a preventative treatment option that has promising preliminary evidence that these early interventions are feasible, effective at mitigating immobilization induced impairments from casting a DRF and facilitate recovery timelines. These inventions may be able to get DRF patients back to work and recreational activities faster

Biography

Stephanie Reischl is a PhD candidate scheduled to defend her thesis in August 2024. She is conducting her CIHR funded clinical research out of the Roth McFarlane Hand and Upper Limb Centre (HULC) in London, Ontario, Canada. She is also a registered physical therapist working in an outpatient clinic in London.

Dr. Subramanya Adiga
Middlemore hospital (Counties Manukau), Te Whatu Ora, Auckland, New Zealand

Peripheral denervation interventions for expansion of intact sensory-motor territories in proximal neuraxial lesion cases – hypotheses and literature review

Background: Following complete peripheral nerve injury, insensate area shrinks due to territory expansion of the surrounding nerves, through collateral sprouting. This kind of take-over of insensate territories is not observed in proximal lesions such as stroke & complete spinal cord injuries or in pre-ganglionic injuries such as complete Cauda equina syndrome or pre-ganglionic brachial plexus injuries. In these cases, the continuity of the sensory nerve from the cell body of the first-order sensory neurone in the dorsal root ganglion till the end organs in the skin & mucosae is preserved. Therefore, it is hypothesised that in proximal neuraxial lesions, the preserved distal continuity of the first-order sensory neurone opposes any attempt at territory take-over by the adjacent nerves; by sectioning the peripheral nerve distal to the dorsal root ganglion, thus disconnecting the first-order sensory neurone cell body from the sensory end organs, territory take-over by adjacent intact nerves with sensate territories is facilitated through collateral sprouting, thus facilitating expansion of sensate skin territories. Similar motor system interventions in paralysed territories may be feasible in selected cases; these will include lower motor neurone lesioning & fasciectomies, to expand the voluntary motor control territories of the adjacent nerves, through collateral sprouting.

Primary Objective: To determine whether such hypotheses have been postulated previously and applications consequent to these hypotheses have been conceived and tested.

Secondary Objective: To examine the peripheral nerve injury literature for any corroborative evidence suggesting the viability of these hypotheses.

Literature Review: Literature search was conducted on Medline & Embase databases, looking for a combination three categories of terms – those relating to proximal neuraxial lesions, those concerned with peripheral nerve or muscle interventions and those referring to nerve regeneration or collateral sprouting. The yield from this search was then studied further through abstract screening, with an intention to perform full-text review with cross-reference checking on the final selection.

Results: This search yielded 861 results, reducing to 835 after removing the duplicates. 749 of these articles had English language abstracts and were selected for the next stage. On abstract screening, none of these were suitable for full-text review, as they were unrelated to the postulated hypotheses. Further unstructured searches of peripheral nerve injury literature yielded publications (varying degree of relevance), related to sensory or motor recovery through collateral sprouting, following peripheral nerve lesions; a few pertinent ones are cited in the article.

Conclusion: The hypotheses postulated and the consequent applications to facilitate reduction of neurological deficits, have not been previously described However, there are observations & clues in both animal & human literature on peripheral nerve lesions that indicate that these hypotheses are based on sound rationale and the interventions based on these are likely to succeed. Therefore, these are worth investigating further, with a view to reduce deficits & disability in cases of proximal neuraxial lesions with sensory-motor deficits.

Keywords/Phrases: Nerve Regeneration, Dorsal Root Ganglion, Stroke, Spinal Cord Injuries, Cauda Equina Syndrome.

Biography

Dr. Adiga studied Medicine at Karnatak 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 orthopaedic & PN pathology principles in day-to-day rehab processes.

Subramanya Adiga
Middlemore Hospital, New Zealand

Anatomy, biomechanics, trigonometry & psychology of prosthetic hip instability

In contrast to Native Hip Dislocations (NHD), Prosthetic Hip Dislocations (PHD) can be multi-directional & recurrent, often following minimal trauma or occurring spontaneously. Also, PHD prevention advice following anterior approaches (to avoid flexion, adduction & internal rotation) is counter-intuitive, being opposite of the advice following anterior NHD.

Known causes for PHD (versus NHD) include shallower acetabular cup, smaller femoral head, unrepaired or excised anterior capsule and partial abductor paralysis.

There are other less-known factors though. Firstly, anterior approaches disrupt the posterior capsule as it attaches half-way along the femoral neck, resulting in a posterior capsular defect. Still, the postero-superior myo-capsular tether (ischeo-femoral ligament, adjacent small muscles), is intact, opposing posterior or supero-lateral PHD tendency. If this is sacrificed for the ease of femoral reaming, femur becomes hyper-mobile multi-directionally, predisposing for PHD over a wide arc supero-laterally & posteriorly.

Also, femur & acetabulum are both anteverted naturally, allowing a good range of flexion & external rotation. By inadequately reproducing anteversion of these components in anterior approaches, (because of anterior PHD concerns), the propensity towards posterior PHD increases. Attempts towards neutral position implantation often results in slight retroversion of components, further increasing the posterior PHD tendency on flexion &/or internal rotation.

These factors – anatomy of the posterior capsule, version issues, approach choice logistics and surgeon's psychology – are not well-understood and appreciated; if these re well-publicised, then surgeons are likely to take appropriate preventive steps such as using the posterior approach where possible, preserving the postero-superior tether (if using anterior approaches) and implanting components in adequate anteversion.

Keywords/Phrases: Anteversion, Posterior Capsule, Prosthetic Hip Dislocation, Anterolateral Approach, Acetabular Cup, Femoral Stem.

Biography

Dr. Adiga studied Medicine at Karnatak 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 orthopaedic & PN pathology principles in day-to-day rehab processes.

Dr. Tathagath Tiwary[1*], Dr. Vijay Anand[2]

[1]Post Graduate-3 Year, Department Of Orthopaedics, SRM MCH&RC, Chennai, Tamil Nadu, India
[2]HOD and Professor, Department Of Orthopaedics, SRM MCH &RC, Chennai, Tamil Nadu, India

Study of functional outcome of radial head fractures treated with primary replacement

Introduction: Radial head fractures occur for around 1 -4 percent of all fractures in adults and make upto 20-30% of all elbow fractures. 85% occur between the age group of 30 -60. Fall on an outstretched hand during trauma is the usual culprit in younger people, but osteopenia and osteoporosis make even a little fall dangerous for the elderly. In comminuted and displaced fractures, operative treatment is beneficial.

Aim and Objective: This study aims to assess the functional outcome of fractures of the radial head treated with a primary replacement.

Materials and Methods: This study is prospectively done at SRM medical college and research centre between December 2021 To September 2023. In this study, 21 patients with radial head fractures fulfilling the inclusion criteria were treated using Kocher's approach with a radial head prosthesis and evaluated functionally. In addition, functional outcome was assessed with a mayo and oxford elbow scores.

Results: We had excellent results in 14 (66.7%) patients, and 7 (33.33%) had good results. It was observed that postoperative pain was the major complication. There was a significant improvement in the functional scores and outcomes within 6 months of the postoperative period.

Conclusion: Radial head replacement with radial head prosthesis has given excellent results and can be the implant of choice for most of radial head fractures. Advantages include reduced risk of malunion, union associated with open reduction and plating, shorter immobilisation times, quicker rehabilitation, and fewer hardware issues with the prosthesis in comminuted fractures.

Audience Take Away Notes

- Management of radial head fractures
- The efficacy of radial head replacement in cases of radial head fractures due to acute trauma
- Advantages of radial head plasty over radial head excision
- The surgical approach to utilize

Biography

Dr. Tathagath Tiwary is currently a 3rd Year Resident in the Dept. of Orthopaedics in India. He Graduated in MBBS from Kasturba Medical College, Manipal University in 2019. He was worked in Emergency and Trauma care in Medanta-Medicity. And he Joined Post Graduate Programme in the Department of Orthopaedics in the year 2022. He interested in complex trauma and deformity correction.

Dr. Tathagath Tiwary[1*], Dr. R. Aravinthan[2], Dr. Vijay Anand[3]

[1]PG-3rd Year Department of Orthopaedics, SRM Medical College Hospital & Research Centre, Chennai, Tamil Nadu, India
[2]Senior Resident, Department of Orthopaedics, SRM Medical College Hospital and Research Centre, Tamil Nadu, India
[3]HOD and Unit Chief, Department of Orthopaedics, SRM Medical College Hospital & Research Centre, Chennai, Tamil Nadu, India

Preoperative planning and outcome of periarticular fractures around the knee joint using 3D printed models

Introduction: Complex orthopaedic surgeries can be difficult to manage. Multiple surgical approaches are required for their management. Hence thorough pre-operative planning is crucial for the management of such cases. With appropriate pre-operative planning various parameters like surgical time, intra-operative blood loss, and fluoroscopy short can be minimized and reduce morbidities. In our study, we have utilized 3D printing technology for the management of complex periarticular structures around the knee.3D printing is a newer modality of treatment The purpose of the study is to compare the outcome of surgery being performed in the knee joint between patients who have undergone surgery with only 3d images and patients whose fractures have been recreated using 3D images.

Methodology: 20 patients were considered for the study. They were divided into 2 groups. Group A underwent surgery using 3D image reconstruction models and the other group underwent surgery with 3D imaging.

The following parameters were compared:

- Intra-operative blood loss
- Surgical time
- Fluoroscopic exposure
- Functional outcome between the two groups using Rasmussen score.
- Regular follow-ups were done at 1m, 3m, and 6m.

Results: We found that between the two groups Group A had statistically significantly less blood loss, surgical time, and fluoroscopic exposure. There was not much statistical difference between the two when it came to surgical exposure, articular exposure functional outcome.

Conclusion: To conclude 3D printed models help us understand the fracture pattern better specially in complex trauma especially when articular surfaces are involved. It reduces the surgical time and blood loss of the surgery. It also reduces the fluoroscopic exposure. Hence it proves to be beneficial for both, the patient and the surgeon. Using 3D printed models to select implants during planning and practice may improve evaluation in pre-operative planning. There is definitely a learning curve to it and in certain cases, we would have to assess the cost-benefit ratio. However for complex trauma whenever feasible we urge surgeons to use 3D reconstructed models.

Audience Take Away Notes

- Newer modality of management of complex trauma
- Application of 3D printing in complex trauma
- Advantages of using 3D printed models over 3D printed images

- Laying the foundation for other surgeons to use this technology and building up further research on it

Biography

Dr. Tathagath Tiwary is currently a 3rd Year Resident in the Dept. of Orthopaedics in India. He Graduated in MBBS from Kasturba Medical College, Manipal University in 2019. He was worked in Emergency and Trauma care in Medanta-Medicity. And he Joined Post Graduate Programme in the Department of Orthopaedics in the year 2022. He interested in complex trauma and deformity correction.

Ulla S[1], Nicholas PRM[1,2], Sinclair E[1], Bell S[1]

[1]Department of Trauma & Orthopaedic surgery, Queen Elizabeth University Hospital, Glasgow, UK
[2]College of Medicine, Veterinary and Life sciences, University of Glasgow

Investigating patient and surgical factors affecting same day discharge after unicompartmental knee replacement

Introduction: Prolonged bed stay post-operatively can lead to increased morbidity and complications. This study aims to identify patient and surgical factors affecting same-day discharge following unicompartmental knee replacement.

Methods: A total of 38 patients who underwent unicompartmental knee replacement at a single elective surgical centre by 8 different surgeons was prospectively evaluated over 5 months. Data was extracted from clinical software. Data on whether same day discharge was achieved post-operatively is compared with patient and surgical factors. These factors include: gender, age, post-operative haemoglobin, tourniquet use, surgical time, intra-operative blood loss, mobilisation status post-operatively (>3 metres of walking), Tranexamic Acid use (TXA), cemented or uncemented, discharge pain score and same day discharge.

Results: The mean age was 66 years old. There were 16 female patients. Post-operative haemoglobin was recorded for 12 patients, the mean was 136. A tourniquet was used for all patients. Surgical time was recorded for 36 patients, the mean was 66 minutes. Blood loss was recorded for 35 operations, all were minimal. 26 patients were mobilised on the same day. TXA use was recorded for 30 patients. 16 patients received both intra-articular and intravenous (IV) TXA and 14 patients received only IV TXA. 31 patients had uncemented implants. The mean discharge pain score was 2.2 for patients with same day discharge and 3.3 for patients that failed same day discharge. 20 patients achieved same day discharge.

Multivariate regression was performed. This model explains approximately 73% variance in same day discharge. Mobilisation status post-operatively is the only statistically significant variable (coefficient 0.7855, $p<0.05$).

Conclusions: Mobilisation status on the day of surgery may have the greatest influence on same day discharge. We advocate for prompt physiotherapy and adequate post-operative analgesia to allow for earlier mobilisation and discharge home. We will perform further prospective data collection to increase cohort numbers.

Ms Xin Yin Choo*, Ms Niak Puei Koh, Mr Grzegorz Sianos

Department of Trauma and Orthopaedics, Glasgow Royal Infirmary, NHS Greater Glasgow and Clyde, Scotland, UK

Emerging role of point of care ultrasound in orthopaedics

Background and Aim: Point of Care Ultrasound (PoCUS) are used in multiple settings including bedside, clinic. It is also known to contribute to various specialties such as accidents and emergencies as well as obstetrics and gynaecology. We investigate the effectiveness of PoCUS in our centre and completed a closed loop audit on this subject. We also aim to describe the importance of PoCUS in the diagnosis of carpal tunnel syndrome.

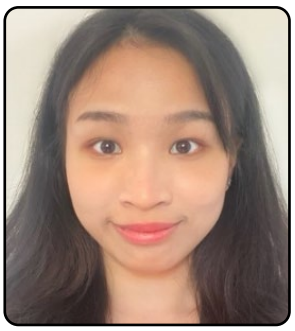
Method: PoCUS scans done by a single surgeon between January to December in the year 2022 and 2023 were collected. Data collected include patient demographic, setting of scans, pathology, body part scanned, and management. Managements were described as procedure done at first consultation, listed for surgery and/or requiring further investigations.

Results: In comparing both years, we note that a higher percentage of patients (32% from 23%) had a procedure done during first consultation. This can include an aspiration or a joint injection. Patients requiring further investigations, in particular, nerve conduction studies were similar both years. However, the overall average time to imaging had reduced from 112 days to 102 days. Even though up to one third of patients were listed for an operation, which is similar for both years, the average wait time for a hand operation had reduced from 170 days to 137 days. For carpal tunnel syndrome diagnosis focused results in 2023, PoCUS can conclude a diagnosis at first assessment and have a local injection done. Up to 31% had treatment at first consultation, a further 47% were listed for an operation as required.

Conclusion: PoCUS has demonstrated its effectiveness in supporting a diagnosis at first consultation and allow for treatment, especially for patients with carpal tunnel syndrome. It indirectly reduces waitlist for other imaging as it provides a conclusive results and comparison for pre-operation. Patients were only referred on for NCS if there were ambiguity in the diagnosis. This also help ensure patients were only listed for necessary operations and thus, increases theatre space for other cases. We highly support orthopaedic trainee opportunities to conduct PoCUS in their orthopaedic unit.

Audience Take Away Notes

- Importance of bedside PoCUS in an orthopaedic setting. Consider expansion in other joint clinics
- Discussion of role of PoCUS and the benefits in patients with carpal tunnel syndrome
- Recommendation for training opportunities for orthopaedic trainees to fully utilize PoCUS



Yan Lynn Ng*, Sankar Sripada

Department of Trauma & Orthopaedic, Ninewells Hospital and Medical School, NHS Tayside, Scotland, UK

VTE prophylaxis in trauma & orthopaedic patients

Background: Venous Thromboembolism (VTE) is a common complication of Trauma and Orthopaedic (T&O) surgery. Pulmonary embolism and deep vein thrombosis in T&O patients have been estimated at 0.93% and 1.16% respectively, accounting for the considerable burden of disease looking at the annual cases averaging about 700,000 orthopaedic procedures in the UK. Fatal yet potentially preventable, VTE prevention remains priority worldwide. This project looked at the accuracy of VTE prophylaxis prescription in T&O patients according to local clinical guidance and aimed to improve its prescription and documentation.

Methods: Plan-Do-Study-Act (PDSA) quality improvement methodology was implied to identify ways to improve VTE prescription and documentation. Current policies, guidelines and practise were reviewed. Included in this standard is that all T&O patients should be under VTE prophylaxis unless specific reasons which should be clearly documented. Only orthopaedic patients in T&O wards were included, and information were gathered through assessing patient electronic systems and paper notes in the ward. Pre-intervention there were insufficient documentation, and one patient confirmed pulmonary embolism. A local guideline and risk assessment tool was created to provide guidance, identify patients, and serve as a self-audit tool affirming adherence to current guidelines. Additional interventions included education (departmental teaching delivery, posters in-hand, and email communication) for the multidisciplinary team in T&O department.

Results: Compliance rate improved to 100% in a 4-month period post-intervention. Only one patient was found not on VTE prophylaxis without appropriate documentation.

Discussion: VTE is a significant complication in T&O patients and has contributed to post-operative morbidity and mortality. Simple interventions have showed benefit in improvement of VTE prophylaxis prescribing and documentation. The engagement and awareness of the multidisciplinary team is the key to success in this intervention.

Audience Take Away Notes

- Understanding that Venous Thromboembolism (VTE) poses considerable risk to trauma and orthopaedic (T&O) patients, with significant implications for post-operative morbidity and mortality
- The application of the Plan-Do-Study-Act (PDSA) cycle demonstrated a systematic approach to identifying and implementing improvements in clinical practice
- Implementing local clinical guidelines and risk assessment tools vital in standardising VTE prophylaxis
- Achieving a 99% compliance rate post-intervention demonstrates the effectiveness of rigorous assessments and precise documentation which can lead to enhanced patient safety and reduced post-operative complications

Biography

Dr Yan Lynn Ng graduated from University of Dundee MBChB in 2023. She started as a Foundation Doctor in Ninewells Hospital NHS Tayside, UK and worked in Trauma & Orthopaedic department.

SEP

09-11

2nd Edition of Global Conference on

Physical Medicine and Rehabilitation &

2nd Edition of

World Orthopedics Conference

POSTERS

Barbara Mera* M.S, Arash Rezaei M.D, John Moon M.D, Asher Lichtig M.D, Brett Drake, Apurva CHoubey MD, Farid Amirouche PhD

Department of Orthopedic Surgery, University of Illinois College of Medicine, Chicago, IL, USA

Novel algorithmic pie-crusting technique for soft tissue balancing during total knee arthroplasty

There is no consensus on optimal soft tissue release techniques for correcting varus and valgus deformities during Total Knee Arthroplasty (TKA). We assessed the e□cacy of a novel grid pie-crusting technique of the MCL and LCL on soft tissue release. Cadaver knees were dissected, leaving only the femur and tibia connected by an isolated MCL or the femur and fibula connected by an isolated LCL. Mechanical testing was performed using an MTS machine. A 3D-printed 12-hole grid was placed directly over the MCL and LCL. Using an 18-gauge needle, horizontal in-out perforations were made 3mm apart. Deformation and sti□ness of the ligaments were collected after every 2 perforations. Means were calculated, and regression analyses were performed. A total of 7 MCL and 6 LCL knees were included in our analysis. The mean medial femorotibial (MFT) space increased from 6.018 ± 1.4 mm to 7.078 ± 1.414 mm following 12 perforations. The mean MCL sti□ness decreased from 32.15 N/mm to 26.57 N/mm. For the LCL group, the mean gap between the femur and fibula increased from 4.287 mm to 4.550 mm. The mean LCL sti□ness decreased from 29.955 N/mm to 25.851 N/mm. Our results suggest that using this novel grid for pie-crusting of the MCL and LCL allows for gradual lengthening of the ligaments without sacrificing their structural integrity.

Audience Take Away Notes

- Currently, there is no consensus regarding how much tissue release and elongation is achieved when using the pie-crusting technique for medial and lateral knee balancing during Total Knee Arthroplasty (TKA). This is based mostly on the experience of the surgeon, but is very subjective. With this novel technique, surgeons can learn how to best optimize this grid and use it to be able to achieve the desired elongation and tissue release needed for a particular patient. This will allow for more precise surgical outcomes, and better functionality of the knee joint, with accurate balancing of medial and lateral side. Although this is still a very new technique, the use of this algorithmic grid can be further explored and perfected to make a very precise grid, and allow surgeons to be able to quantify how tissue release they need. This study demonstrates the safety and efficacy of our algorithmic pie-crusting technique employing a customized grid. The technique avoids specific complications such as over-release or mechanical instability. Prior instances of medial release using pie-crusting encountered issues of over-release, a notable concern. We attribute these complications to blade pie-crusting and imprecise punctures. In contrast, our approach mitigates both concerns by utilizing an 18-gauge needle and a pre-formed grid. The inherent safety, simplicity, and high success rate of the needle pie-crusting technique validate its routine application for addressing varus and valgus deformities. Ultimately, future studies should examine the effects of an increased number of holes through this pie-crusting technique to evaluate the number needed for optimal soft tissue release.

Biography

Barbara Mera is a third year medical student at the University of Illinois College of Medicine. She earned her Bachelor's Degree in Biology from Florida International University in 2017. She then pursued graduate studies at the University of Miami, and earned a Masters in Biomedical Sciences in 2020. She worked as a Research Associate in a Breast Cancer lab and later as a Clinical Research Coordinator at the Schi□ Liver Center and the Sylvester Comprehensive Cancer Center at the University of Miami. In August 2022, she began medical studies where she is currently pursuing a joint MD/MPH degree.

Barbara Mera[1*] MS, Lucas Paladino[2] MD, Brett Drakeb[2], BS, Apurva S. Choubey[2], MD, Mark H. Gonzalez[2], MD, PhD

[1]University of Illinois College of Medicine, Chicago, IL 1853 W Polk St Chicago, IL 60612

[2]Department of Orthopaedics, University of Illinois at Chicago, Chicago, IL 835 S Wolcott Ave Suite E270 Chicago, IL 60612

Examining socioeconomic factors in physical and occupational therapy distribution: Insights for total joint arthroplasty

Physical and Occupational Therapy (PT/OT) are critical for optimizing outcomes and reducing complications following orthopaedic surgery. Lower Socioeconomic Status (SES) is associated with reduced access to healthcare and increased rates of surgical complications. The purpose of our study is to establish the relationship between SES and access to PT/OT. We compiled county-level population, land area, and business data from 2020 United States (US) Census Bureau Reports. SES data was collected from the 2020 Centers for Disease Control Social Vulnerability Index (SVI) and Area Deprivation Index (ADI). PT/OT businesses were identified using the North American Industry Classification System code 621340. Density of business by county population and land area were calculated and regression analyses performed to determine a correlation between SES and these measures. Counties with greater density of PT/OT tended to be on the East Coast while those with lower density were located in the Western US. There was a strong inverse relationship between county-level ADI and PT/OT density (R2= 0.97 and 0.94). Overall SVI displayed a variable relationship with PT/OT density. The Household Characteristics and SES domains of the SVI demonstrated an inverse relationship with PT/OT density (R2= 0. 68, 0.49 and R2= 0.59, 0.28, respectively). Race and ethnicity displayed an inverse parabolic relationship with PT/OT density based on population alone (R2= 0.83 and 0.57). However, there was a mild positive correlation between race and ethnicity when considering population and land area (R2= 0.39 and 0.22). PT/OT are important for post-operative care, however significant barriers to access exist. There is an inverse correlation between the density of PT/OT services and SES measures, particularly ADI. This may impact post-operative recovery and complication rates in orthopaedic patients.

Audience Take Away Notes

- **Geographic Disparities**: The study reveals geographic disparities in the distribution of physical and occupational therapy services across the United States, with higher densities observed on the East Coast compared to the Western US.
- **Socioeconomic Status and Access**: Lower Socioeconomic Status (SES), as measured by the Area Deprivation Index (ADI), is strongly correlated with reduced access to physical and occupational therapy services. This suggests that individuals in more deprived areas may face significant barriers to accessing essential post-operative care.
- **Social Vulnerability Index (SVI) Variability**: While overall SVI displayed a variable relationship with PT/OT density, specific domains such as Household Characteristics and SES showed a clear inverse relationship. This highlights the nuanced nature of socioeconomic factors influencing access to therapy services.
- **Race and Ethnicity Factors**: There is an inverse parabolic relationship between race and ethnicity and PT/OT density based solely on population demographics. However, when considering both population and land area, there is a mild positive correlation, suggesting that geographical factors may influence the distribution of therapy services among different racial and ethnic groups.

- **Implications for Orthopaedic Patients**: The findings underscore the significance of access to physical and occupational therapy for post-operative care in orthopaedic patients. The observed inverse correlation between therapy density and SES measures, particularly ADI, implies potential impacts on post-operative recovery and complication rates, indicating a need for targeted interventions to address disparities in access to care.
- **International Implications**: The results of this study can offer valuable insights and potential strategies for improving access to physical and occupational therapy services in other countries, especially those facing similar challenges related to socioeconomic disparities and healthcare access. Overall, the findings of this study provide valuable insights and methodological approaches that can be adapted and applied by other countries to improve access to physical and occupational therapy services, particularly for vulnerable populations. By addressing socioeconomic barriers and geographic disparities, countries can work towards achieving more equitable healthcare systems and better outcomes for orthopaedic patients

Biography

Barbara Mera is a third year medical student at the University of Illinois College of Medicine. She earned her Bachelor's Degree in Biology from Florida International University in 2017. She then pursued graduate studies at the University of Miami, and earned a Masters in Biomedical Sciences in 2020. She worked as a Research Associate in a Breast Cancer lab and later as a Clinical Research Coordinator at the Schi□ Liver Center and the Sylvester Comprehensive Cancer Center at the University of Miami. In August 2022, she began medical studies where she is currently pursuing a joint MD/MPH degree.

Desheng Wu
Bishan Hospital of Chongqing Medical University, Bishan Hospital of Chongqing

Biomechanical characteristics analysis of Sanders type II and III calcaneal fractures fixed by open reduction and internal fixation and percutaneous minimally invasive fixation

Background: This study explored the biomechanical variances between open reduction and internal fixation (ORIF) and percutaneous minimally invasive fixation (PMIF) in addressing Sanders type II and III calcaneal fractures. These differences were examined utilizing finite element analysis, providing insights into the mechanical performance of each surgical approach.

Methods: Utilizing computed tomography (CT) images of the human foot and ankle, key anatomical landmarks—the sustentaculum tali, anterior process, and calcaneal tuberosity—were identified and stabilized in accordance with the three-point fixation principle. Based on these landmarks, three-dimensional finite element models were constructed to represent Sanders type II and III calcaneal fractures, treated with both open reduction and internal fixation (ORIF) and percutaneous minimally invasive fixation (PMIF). To mimic balanced standing, constraints were applied to the proximal surfaces of the tibia, fibula, and surrounding soft tissues. Additionally, loads representing ground reaction force and Achilles tendon force were incorporated into the model.

Results: The finite element analysis revealed maximum stress values of 81.23 MPa, 199.29 MPa, and 113.88 MPa on the calcaneus, screws, and plates, respectively, in the ORIF group. In comparison, the PMIF group exhibited maximum stresses of 70.02 MPa and 209.46 MPa on the calcaneus and screws, respectively. Regarding displacement, the ORIF group displayed maximums of 0.21 mm, 0.22 mm, and 0.14 mm on the calcaneus, screws, and plates, while the PMIF group showed 0.20 mm and 0.14 mm on the calcaneus and screws, respectively. Notably, all these values remained within the allowable stress and elastic deformation limits of the materials used, indicating no substantial stress concentration. When repairing Sanders type II and III calcaneal fractures, both the maximum stress and displacement were marginally lower in the PMIF group compared to the ORIF group.

Conclusions: This study offers valuable insights that can guide the refinement of implant designs, the creation of tailored preoperative strategies, and the selection of optimal surgical techniques.

Keywords: Calcaneal fracture, Biomechanics, Sander classification, Internal fixation, Finite element analysis

Enhui Lu
Dongnan hospital, Chongqing

A prospective study on the effect of different bone cement volumes in preventing vertebral collapse

Objective: To explore the impact of varying volumes of bone cement injected during Percutaneous Vertebroplasty (PVP) on preventing vertebral collapse following Osteoporotic Vertebral Compression Fractures (OVCF).

Methods: A prospective study included 90 OVCF patients treated at our hospital from January 2020 to December 2022. Patients were randomly divided into three groups of 30 each according to a random number table method: Group A received less than 4ml of bone cement, Group B received 4-6ml, and Group C more than 6ml. The Visual Analog Scale (VAS), Anterior Vertebral Height (AVH), posterior vertebral height (PVH), and Segmental Kyphotic Angle (SKA) were recorded preoperatively, postoperatively, at six months and 12 months postoperatively. All patients were followed up at least 12 months.

Results: There were no significant differences among the three groups regarding gender, age, Body Mass Index (BMI), disease duration, surgical segment, AVH, PVH, and VAS ($P>0.05$). Comparisons of AVH, PVH, SKA, and VAS postoperatively and six months postoperatively also showed no significant statistical differences among the three groups ($P>0.05$). At 12 months postoperatively, there were no significant differences in VAS among the three groups ($P>0.05$). However, Group B's AVH was significantly higher (17.5±2.6mm) compared to Group A (16.6±2.2mm) and Group C (16.8±2.1mm) ($P<0.05$). Group B's PVH was also significantly higher (19.7±2.4mm) compared to Group A (18.3±2.2mm) and Group C (18.6±2.1mm) ($P<0.05$). Additionally, Group B's SKA (8.8±1.5°) was significantly smaller than that of Group A (9.9±1.9°) and Group C (9.7±1.7°) ($P<0.05$).

Conclusion: For patients with OVCF, injecting 4-6 ml of bone cement into the vertebrae during PVP significantly prevents postoperative vertebral collapse.

Keywords: Percutaneous Vertebroplasty, Osteoporotic Vertebral Compression Fractures, Bone Cement Volumes.

Hong Liu
Chongqing University Three Gorges Hospital

Intra-articular injection of kartogenin-conjugated nanomaterials for relieving osteoarthritis in rats

Background: Osteoarthritis is a common degenerative condition involving the cartilage and surrounding bones, with significant negative impact on quality of life and increased risk of physical disability. The kartogenin is a small molecule that has been previously shown to alleviate cartilage degeneration and possess protective efficacy. In this experimental study, we developed a chitosan nanoparticles loaded with kartogenin and assessed its efficacy to attenuate osteoarthritis in a rat model.

Methods: The kartogenin-conjugated nanoparticles were synthesized and characterized. Primary chondrocytes from rats were isolated, cultured, and subject to cytotoxicity assays with the CCK-8 assay. Moreover, supernatant pro-inflammatory cytokine concentration measurement was performed with the enzyme-linked immunosorbent assay. Rat osteoarthritis model was established by anterior cruciate ligament transection and destabilization of the medial meniscus. The efficacy of kartogenin-conjugated nanoparticles were assessed by creating 4 groups (n=6): control group (saline injection), chitosan group (chitosan injection), kartogenin group (kartogenin group), and kartogenin-chitosan group (kartogenin-chitosan injection). Cartilage damage by histology was semiquantitatively assessed using the Osteoarthritis Research Society International (OARSI) cartilage histopathology assessment system.

Results: The kartogenin-chitosan nanoparticle is spherical in shape and measures approximately 25nm in size. CCK-8 test indicated that the kartogenin-chitosan nanoparticle had no cytotoxic effect on the chondrocytes and did not induce an elevation in pro-inflammatory cytokines interleukin-1, interleukin-6, interleukin-15 and tumor necrosis factor. In vivo studies in rat osteoarthritis indicated that the OARSI in the kartogenin-chitosan group was significantly lower than that in other groups since week 9.

Conclusion: This animal study suggested that kartogenin-conjugated chitosan nanoparticles are promising for the treatment of osteoarthritis that warrants further investigations in clinical trials.

Hyun-Joo Kang[1*], Jin-Hee Seo[2]

[1]Department of Sports Medicine, Soonchunhyang University, Asan, Chungnam, Republic of Korea

[2]Division of Sport Science, BaekSeok University, Cheonan, Republic of Korea

Effects of hamstring resistance training on peak torque and H/Q ratio in male university students

Purpose: This study aimed to examine the effects on the Hamstring/Quadriceps ratio (H/Q ratio) and H/Q ratio Fatigue Index (H/Q FI) of the knee joint of an 8-week resistance training to improve the hamstring muscles of male university students.

Methods: Twenty male university students were divided into two groups: an Exercise Group (EG) and a Control Group (CG). The EG participated in an 8-week hamstring resistance training program, working out twice a week, 60 min per session, with a 60–80% 1RM and 12–16 RPE intensity. The peak torque and H/Q ratio were measured, and a t-test was used to verify the statistical significance of the difference between the pre- and post-intervention results.

Results: The right flexor peak torque at 60°/sec increased by 14.10±9.60%BW in the EG and decreased by −9.00±16.55%BW in the CG, showing a significant difference between the groups ($p<0.01$). The left flexor peak torque increased by 6.60±12.31%BW in the EG and decreased by −5.10±10.68%BW in the CG, showing a significant difference between the groups ($p<0.05$). The left extensor peak torque decreased by −5.40±19.53%BW in the EG and by −28.40±25.70% BW in the CG, showing a significant difference between the groups ($p<0.05$). The H/Q ratios tended to increase, but the difference was not significant.

Conclusions: To prevent injuries and stabilize the knee joint, the central joint of the lower extremity that plays an important role in daily life and sports activities, hamstring weight training can be performed to maintain the H/Q ratio within the normal range.

Audience Take Away Notes

- The Hamstrings/Quadriceps (H/Q) ratio is a comparison between the strength or activation level of the muscles at the back of the thigh (hamstrings) and those at the front (quadriceps). It's an important metric in sports science, rehabilitation, and injury prevention, particularly in contexts like knee stability and lower limb injury risk assessment
- Strengthening the hamstrings relative to the quadriceps can help stabilize the knee joint and improve overall function during recovery
- The H/Q ratio serves as a valuable tool in assessing and addressing muscle imbalances around the knee joint, with the aim of promoting both injury prevention and athletic performance

Biography

Mrs. Hyun-Joo Kang studied exercise physiology at the Seoul National University, graduated as MS in 1998. She then worked the research group of prof. Stewart at the Johns Hopkins Medical School and Cardiac Rehabilitation Center, USA in 2003. She received her PhD degree in 2004 at the Seoul National University. After six months postdoctoral fellowship supervised by Dr. Jenson at the Mayo Clinic and Endorine Research Center, USA. She obtained the position of an professor at the Soonchunhyang University. She is interested in clinical exercise presription and program for patients with chronic diseases.

Luke Thomas[1*] BS, Jun Ho Chung[1] MD, Sarah Lu[2] BS, Anthony Essilfie[3] MD

[1]School of Medicine, Loma Linda University, Loma Linda, CA, 92354
[2]California University of Science and Medicine, Colton, CA, 92324
[3]Columbia University Vagelos College of Physicians and Surgeons, New York, NY, 10032

Machine learning can be used as an accurate tool to predict surgical outcomes regarding length of postoperative stay after patellar tendon repair

Purpose: The aim of this study is to determine if machine learning is an effective method to identify patients who may need a longer postoperative stay following a patellar tendon reconstruction.

Methods: The American College of Surgeons National Quality Improvement Program (ACS-NSQIP) was used to collect patients who underwent patellar tendon repair. Machine learning was then applied to determine features of importance in this patient population. Several algorithms were used: Random Forest, Artificial Neural Network, Gradient Boosting, and Support Vector Machine. These were then compared to ASA based Logistic Regression as a control.

Results: Random Forest (RF) was determined to be the best performing algorithm, with an AUC of 0.72, accuracy of 77.66%, and precision of 0.79, and recall of 0.96. All other algorithms performed similarly to the control. RF gave the highest permutation feature importance to age (PFI 0.25), BMI (PFI 0.19), ASA classification (PFI 0.14), hematocrit (PFI 0.12), and height (PFI 0.11).

Conclusions: This study shows that machine learning can be used as an accurate tool to predict surgical outcomes regarding length of postoperative stay. RF was found to be a better performing model than linear regression at determining patients predisposed to longer length of stay as determined by AUC. This supported the studies hypothesis that ML can provide a more advanced insight into management of patients undergoing patellar tendon repair than linear regression methods.

Clinical Relevance: Using the features of importance identified by RF can help optimize patient care and hospital resource management in cases of patellar tendon repair.

Audience Take Away Notes

- The growing importance of machine learning as a tool for value-centered healthcare.
- Improving the surgeon's ability to predict need for postoperative stay based on patient features.
- Learning how to optimize postoperative length of stay to lower financial burden and potential morbidity for patients

Biography

Luke Thomas studied Biology at Walla Walla University in Washington State and graduated with a BS in 2021. He then began training at Loma Linda School of Medicine, working with several mentors in orthopedics to create research projects. Many of these specifically introduced machine learning algorithms to the field. He continues to study at Loma Linda School of Medicine and will graduate with his MD in 2025.

Mariam S. Banoub[1*] BS, Apurva S. Choubey[2] MD, Brett Drake[2] BS, Mark H. Gonzalez[2] MD, PhD

[1]University of Illinois College of Medicine at Peoria, Peoria, IL
[2]University of Illinois at Chicago, Department of Orthopaedics, Chicago, IL

Prioritizing range of motion over radiographic staging in carpometacarpal osteoarthritis: A clinical perspective

Introduction: Carpometacarpal (CMC) Osteoarthritis (OA) predominantly affects older women, leading to cartilage degeneration, pain, and functional impairment. As patients compensate for this pain by overusing surrounding joints, they may develop deformities such as adduction contracture and the zig-zag deformity, characterized by limited CMC abduction and Metacarpophalangeal (MCP) hyperextension. CMC OA severity is often classified radiographically based on joint changes like space narrowing, sclerosis, and osteophytes, but these classifications do not account for range of motion (ROM) limitations due to pain. This study aims to quantify ROM loss in CMC OA patients, assess its impact on surrounding joints, and correlate ROM limitations with radiographic disease stages.

Methods: The study included patients aged 18 and older with radiographically confirmed CMC OA. Exclusion criteria included prior trauma or surgery on the affected CMC joint. A goniometer was used to measure ROM limitations at the CMC, MCP, and Interphalangeal (IP) joints of the thumb, including flexion, extension, abduction, adduction. CMC opposition was assessed using the total opposition scale. Radiographs were interpreted and graded on a scale from 0 (no changes) to 5 (severe changes) by an on-duty radiologist. One-way Analysis Of Variance (ANOVA) and Pearson's correlation test were conducted to analyze the relationship between radiographic severity and ROM, and to examine early signs of the zig-zag deformity.

Results: The study included 27 patients with CMC OA, 14 of whom had bilateral CMC OA, resulting in 41 cases. There was no statistically significant relationship between radiographic severity and ROM limitations (Table 1): CMC flexion ($p=0.630$), CMC extension ($p=0.622$), CMC abduction ($p=0.070$), CMC adduction ($p=0.310$), CMC opposition ($p=0.827$), MCP flexion ($p=0.166$), MCP extension ($p=0.647$), IP flexion ($p=0.207$), and IP extension ($p=0.624$). A selected figure of CMC flexion is shown to display the lack of correlation between ROM limitations and radiographic severity. (figure 1).

There was a negative correlation between CMC abduction and MCP extension ($r=-0.119$), but this was not statistically significant ($p=0.229$) (Table 2).

Discussion & Conclusion: Radiographic severity of CMC OA did not significantly correlate with ROM limitations in any of the thumb joints assessed. While radiographs confirm CMC OA, ROM limitations and pain levels should primarily guide treatment plans. Radiographs may underestimate disease severity, suggesting that ROM and pain levels could be better clinical indicators. One possible explanation for the discordance between radiographic severity and ROM is the variability in radiographic interpretation. This compromises the reliability of using radiographs alone for treatment planning. Our study was also limited by several factors. First, radiographs were reviewed by multiple radiologists, leading to inconsistent radiographic definitions for mild, moderate, and severe stages. Furthermore, we did not account for

patients' progression through occupational therapy and other conservative treatments which could influence ROM and pain. We are currently enrolling more patients to further investigate the optimal use of ROM measurements in the treatment of CMC OA.

Figure 1: CMC Flexion vs. Radiographic Severity

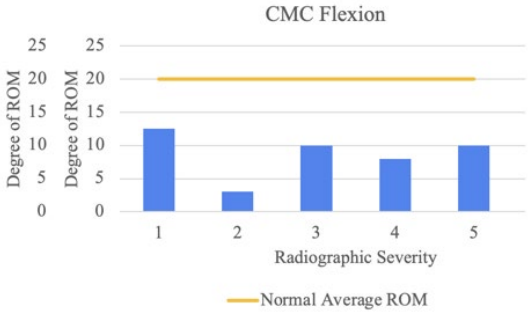


Table 1: Range of Motion Measurement Means

Radiographic Severity	CMC Flexion	CMC Extension	CMC Abduction	CMC Adduction	CMC Opposition	MCP Flexion	MCP Extension	IP Flexion	IP Extension
1	12.52	9.30	61.30	0	9	46	13.65	69.30	16.87
2	3	6	75	0	9.5	41	21	86	31
3	10	8.86	62.57	0	8.43	32.29	15.14	59.43	20.29
4	8	2	63	0	9.5	24	15	72	14
5	10	12	56.57	0.71	8.86	40.29	19.86	74	16.86
p-value	0.630	0.622	0.070	0.310	0.827	0.166	0.647	0.207	0.624

Table 2: CMC Abduction & MCP Extension Correlation.

			n	Pearson's r	p
CMC Abduction	–	MCP Extension	41	−0.119	0.229

Note. All tests one-tailed, for negative correlation.
* p < .05, ** p < .01, *** p < .001, one-tailed

Biography

Mariam Banoub earned her Bachelor of Science degree in Biology and Chemistry from the University of San Francisco in 2020. Following her graduation, she was accepted into the University of Illinois College of Medicine to pursue her Doctor of Medicine (MD) degree. At UI Health, she joined the esteemed research teams of Dr. Mark Gonzalez and Dr. Mehta, where she has been actively involved in pioneering experiments and scientific advancements. Mariam is currently participating in over 15 research projects and has contributed to more than six published articles and presentations.

Na-eun Byeon[1]*, Jang-hoon Shin[2], So-jung Kim[3], Woo-sung Kim[3], Wan-hee Lee[1]*

[1]Applied Physical Therapy Lab, Department of Physical Therapy, Future Convergence University, Sahmyook University, Seoul, Republic of Korea
[2]Applied Physical Therapy Lab, Industry-Academy Cooperation Foundation, Sahmyook University, Seoul, Republic of Korea
[3]Momsbodycare, Seoul, Republic of Korea

Effect of postpartum rehabilitation exercise program (5r system) using visual feedback in rehabilitative ultrasound imaging

Background: Elevated relaxin hormone levels during the early postpartum period can influence physical changes in women, impacting the prevention of body shape alterations, lower back pain, and urinary incontinence. Therefore, appropriate rehabilitation exercises are essential for postpartum women, irrespective of specific conditions. A tailored exercise program that considers the overall recovery process is crucial for effective postpartum care.

Objective: This study aimed to evaluate the efficacy of a real-time visual feedback-based postpartum rehabilitation exercise program, known as the 5R system.

Methods: thirty-nine women who had vaginal deliveries and were within five weeks postpartum participated in the study. Participants were divided into two groups: Group 1 (n=19) engaged in the 5R system program, consisting of a 50-minute session twice a week for six weeks. The 5R system comprises a four-phase rehabilitation exercise program, but this study focused only on the second phase, which included the following exercises: visual feedback training for the Rectus Abdominis (RA) and Transversus Abdominis (TrA) using Rehabilitative Ultrasound Imaging (RUSI), strengthening of the hip adductor and iliopsoas, and pelvic movement training. Group 2 (n=20) performed aerobic exercises twice a week for six weeks, with each session lasting 20-35 minutes at an intensity of 50-65%.

Results: Both groups showed significant reductions in Inter Recti Distance (IRD) and body weight ($p<0.05$). Group 1 experienced an increase in muscle thickness of the RA during contraction and relaxation ($p<0.05$). A significant difference in the post-pre change of RA thickness during relaxation was observed between Group 1 and Group 2 ($p<0.05$). Additionally, trunk extension and flexion strength increased significantly in Group 1 ($p<0.05$). In contrast, skeletal muscle mass decreased in Group 2 ($p<0.05$), while hip extension and knee extension strength increased significantly ($p<0.05$).

Conclusions: Appropriate postpartum exercise positively impacts women's physical recovery. The results indicated reductions in IRD and body weight, increases in muscle thickness, and improvements in strength, highlighting the benefits of targeted rehabilitation exercises.

Biography

Na-eun Byeon is a PhD candidate in Physical Therapy at Sahmyook University, South Korea. She obtained her physical therapy license in 2019 and joined the research group of Prof. Wan-hee Lee at the Institute of Applied Physical Therapy in 2022. She is currently co-working on a mid-career research project funded by the National Research Foundation of Korea under the supervision of Prof. Lee. She has co-authored two research articles in SCI(E) journals and one in a KCI journal.

Prof. Wan-hee Lee is a faculty member in the Department of Physical Therapy at Sahmyook University. He founded the APL in 2009, now comprising 20 members. He has published over 100 papers in SCI(E) journals and holds a patent for a novel tracking algorithm based on muscle thickness from ultrasound images. He received the Excellent Research Award at the 2021 AWP. Currently, he is researching wearable robots developed by Samsung Electronics and leading a mid-career research project funded by the National Research Foundation of Korea.

Panayotis Jusakos* MD, Ravi C. Shah OMS-III, Nauman S Chaudhry MD

Department of Neurosurgery, Lakeland Regional Medical Center, Lakeland, FL, United States

Peroneal nerve entrapment masquerading as lumbar stenosis: A diagnostic and therapeutic challenge

Introduction: Foot drop can stem from central or peripheral neurological pathologies, requiring comprehensive evaluation to guide management. This case report describes the diagnostic journey of a 72-year-old female with a medical history of diabetes, hyperlipidemia, and hypertension, who was initially diagnosed with lumbar stenosis but later found to have peroneal nerve entrapment. This case reinforces the importance of a thorough clinical assessment in distinguishing between central and peripheral nerve disorders, which may have major implications for treatment and prognosis.

Case Description: A 72-year-old female presented with a 5-month history of progressive left foot weakness, pain, and numbness. Her medical history was notable for previous transient right foot drop. She described a progressive foot "drag" that evolved into a "flap" when walking and subsequent left side fall resulting in a severe foot drop. An initial MRI suggested L3-L4 disc protrusion and L5-S1 disc involvement, yet her symptomatology—pain radiating from the groin to the lateral thigh and calf, nocturnal cramping, and lateral calf numbness—was incongruent with radicular patterns. Lumbar radiograph findings were significant for L4 on L5 anterolisthesis without any change in flexion or extension. The patient had previously declined an ankle-foot orthosis and engaged only in limited physical therapy, which provided minimal relief. A meticulous neurological examination revealed complete foot drop with an inability to evert the foot, prompting further investigation. Electromyography confirmed peroneal nerve denervation without considerable lumbar radiculopathy. Her nonresponsive history to epidural steroid injections, gabapentin, celecoxib, and methylprednisolone emphasized the need for an alternative treatment strategy. Based on a comprehensive review of her history, clinical presentation, and diagnostic findings, a left peroneal nerve release was deemed the most appropriate intervention.

Discussion: This case exemplifies the intricacies involved in diagnosing neuro-orthopedic conditions. The comprehensive neurological assessment was critical in differentiating between lumbar spine pathology and peripheral neuropathy. This led to a targeted peroneal nerve decompression, and avoided an unnecessary invasive spinal decompression that was initially considered. The successful outcome—complete resolution of foot drop and return of lower extremity strength—validates this approach. Postoperatively, the patient's enhanced ambulatory capabilities and absence of complications speak to the efficacy and safety of the procedure. The case illustrates the essential role of clinical evaluation over imaging in certain neuropathic presentations. It also demonstrates the value of patient-centered decision-making, as the patient's refusal of an orthosis and limited response to conservative therapy guided the clinical team towards a surgical option, which ultimately proved to be curative. This case highlights the need for a high index of suspicion for potential peripheral nerve entrapment in patients with foot drop and lumbar spine abnormalities on imaging. It showcases the importance of a detailed clinical examination and the integration of diagnostic modalities to elucidate the true etiology of neurologic deficits.

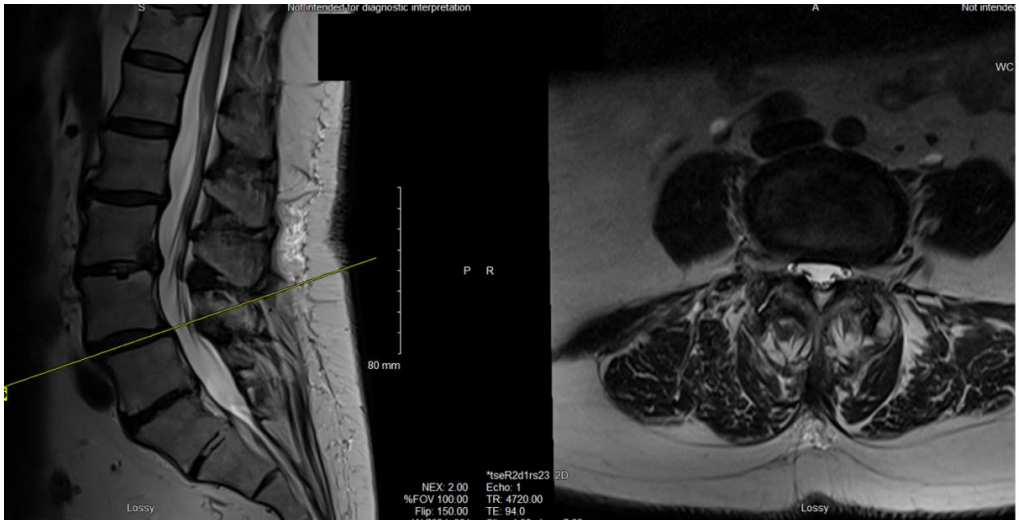


Figure 1: MRI of Patients Lumber Spine Illustrating Nerve Encroachment.

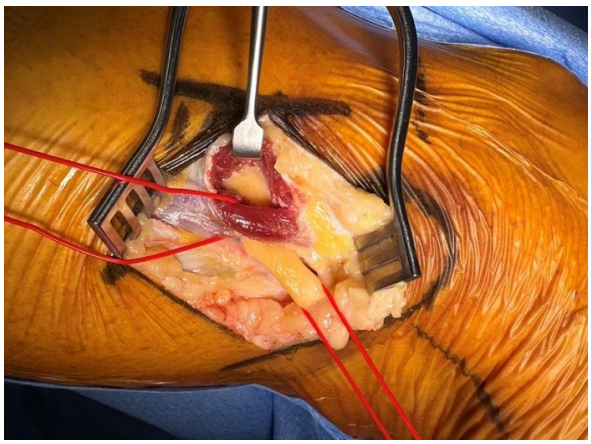


Figure 2: Left-sided peroneal nerve release.

Audience Take Away Notes

- Follows a 72-year-old initially diagnosed with lumbar stenosis but later found to have peroneal nerve entrapment, illustrating the complexities in differentiating central and peripheral nerve disorders
- Underscores the indispensable role of clinical evaluation over imaging in neuropathic presentations, aligning with the need for suspicion of peripheral nerve entrapment in patients with foot drop and lumbar spine abnormalities
- Highlights the intricacies in diagnosing neurological conditions, emphasizing the critical role of comprehensive neurological assessments in distinguishing between spinal pathology and peripheral neuropathy

Biography

Dr. Panayotis Jusakos is currently a PGY1 at Lakeland Regional Medical Center. He will specialize in Physical Medicine and Rehabilitation at Brooklyn One Health next year in New York. Committed to advancing patient care, he actively contributes to the dynamic learning environment at Lakeland Regional Medical Center. He also aspires to delve into a fellowship in Pain Management, showcasing a multifaceted dedication to enhancing patient well-being.

Panayotis Jusakos* MD, Andrew Rivera MD, Nauman S Chaudhry MD

Department of Neurosurgery, Lakeland Regional Medical Center, Lakeland, FL, United States

Progressive lower extremity weakness, implication vs causation

Introduction: This case report aims to elucidate the intricate clinical presentation of a 37-year-old male with progressive lower extremity weakness and numbness. The paper seeks to explore the challenges in establishing causation amidst complex factors, including lumbar spine abnormalities, Guillain-Barre Syndrome, and the patient's recent initiation of Humira (adalimumab), a TNF-□ inhibitor. The aim is to contribute insights into the diagnosis and tailored management of neurological presentations with multifaceted influences. This case illustrates the importance of considering reversible medical causes prior to considering invasive surgical interventions.

Case Description: This case report details a patient presenting with a two-week history of progressive lower extremity weakness and numbness, with initial manifestations observed in the feet. Numbness radiating on the lateral aspects of his bilateral knees and lower extremities with a noticeable motor deficit in the right ankle down, with an absent ankle reflex.

Further complicating the clinical picture, the patient has a sequestered disc fragment at L5-S1, potentially contributing to the observed foot weakness. However, the recent diagnosis of Guillain-Barré Syndrome (GBS) adds complexity to establishing a clear causation. Notably, the patient recently initiated Humira (adalimumab), a Tumor Necrosis Factor-alpha (TNF-□) inhibitor, a few months prior, and reports associating TNF-□ inhibitors with demyelinating diseases, including a multiple sclerosis-like syndrome, underscore the need for careful consideration in this case.

Comprehensive investigations, including brain and spine Magnetic Resonance Imaging (MRI), revealed multiple areas of possible nerve impingement. Focal disc herniations at L4-L5 with inferior migration, bilateral foraminal stenosis, broad disc herniation at L5-S1, with contrast enhancements of multiple cauda equina roots on the right side of the thecal sac extending from T12 to L4-L5 suggestive of possible arachnoiditis. Cerebrospinal Fluid (CSF) analysis revealed elevated protein levels with a normal white blood cell count and infection was ruled out.

The decision for conservative management was made. The patient was treated with Intravenous Immunoglobulin (IVIG), a common therapeutic approach for GBS. In light of the complex clinical presentation and the potential association with Humira, the TNF-□ inhibitor was also discontinued. Patient was later discharged after the completion of IVIG and plan was to follow up outpatient neurology and pain management for continued treatment with epidural spinal injections. Patient was lost to follow up.

Discussion: This case emphasizes the challenges in delineating causation in the context of multiple potential contributing factors, including a Disc herniations, GBS, and TNF-□ inhibitor exposure for a patient presenting with lower extremity numbness and weakness. Collaborative efforts among the patient, neurologist, neurosurgery, and healthcare team are essential for a nuanced diagnosis and tailored management approach. It highlights the importance of good clinical reasoning to avoid possibly unnecessary surgical interventions and promote conservative management.

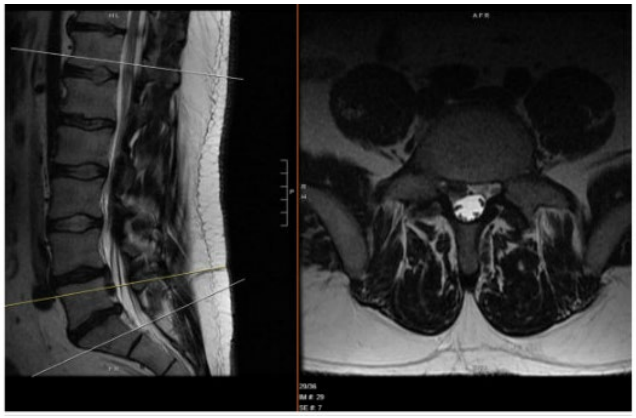


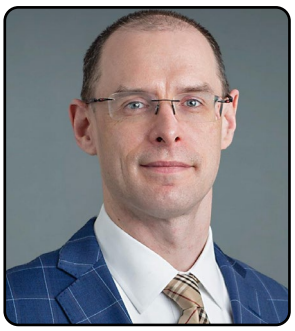
Figure 1: MRI of Patients Lumbar Spine Noting Discs Herniations, Stenosing, and Abnormal Contrast Enhancement of Multiple Cauda Equina Roots.

Audience Take Away Notes

- The case offers insights applicable to clinicians, aiding in diagnosis and tailored management of complex neurological presentations that could stem from multiple different causes. fostering a more comprehensive and effective approach to patient care.
- This case emphasizing the importance of considering reversible causes before opting for surgical interventions, promoting informed decision-making.
- The case prompts considerations about the association between TNF-□ inhibitors, demyelinating diseases, lumber Disc herniations offering valuable information for designers to improve the accuracy and safety of medical interventions.

Biography

Dr. Panayotis Jusakos is currently a PGY1 at Lakeland Regional Medical Center. He will specialize in Physical Medicine and Rehabilitation at Brooklyn One Health next year in New York. Committed to advancing patient care, he actively contributes to the dynamic learning environment at Lakeland Regional Medical Center. He also aspires to delve into a fellowship in Pain Management, showcasing a multifaceted dedication to enhancing patient well-being.



Raymond Walls
NYU Langone Orthopaedics, United States

Flexor hallucis longus tendon transfer for chronic Achilles tendon ruptures: Isolated or augmented technique?

Purpose: The purpose of this study was to evaluate the outcome, return to activities, and complications of FHL tendon transfer as an augmentation or isolated procedure in patients with chronic Achilles tendon rupture.

Methods: In November 2022, PubMed, Embase and Cochrane library databases were systematically reviewed to identify clinical studies examining outcomes following augmented and isolated management of neglected Achilles tendon ruptures. Data regarding clinical outcomes, return to activities and complications were analyzed.

Results: Data were retrieved from 16 articles including 339 patients, 277 underwent FHL augmentation and 62 an isolated procedure. The weighted mean age in the augmentation cohort was 52.68±10.24 years and 53.67±8.65 years in the isolated cohort. The weighted mean duration of the follow-up was 41.66 ± 28.6 months in the augmented patients compared with 33.98±12.77 months in the isolated. The weighted mean AOFAS scores in the FHL augmentation cohort were 60.5 pre-operative versus 91.71 post-operative; compared with the FHL isolated cohort that scored 57.63 pre- operative versus 93.96 post- operative. The ATRS improved by 53.75/100 points in the augmented populations compared with their pre-operative scores. Patients were able to return to sport after a mean of 8.3±2.94 months in the FHL augmentation versus 6 months in the isolated cohort. A total of 96% of patients were able to return to their previous activities in the FHL augmented patients compared with 93.43% in the isolated. The rate of complications was higher 21% in the augmented patients comparing the 6.5% in the isolated patients.

Conclusion: The use of local tendon transfer for chronic Achilles tendon ruptures using both FHL as an augmentation or isolated procedure resulted in good clinical outcomes and a reliable return to daily activities. We believe that the FHL as an isolated tendon transfer can potentially reach comparable results as a classic FHL augmentation technique with the advantage of a less invasive procedure. However, the under-reporting of data, marked heterogeneity between studies and paucity of comparative studies limits the generation of any robust conclusions. Further high-quality comparative studies are warranted to determine the optimal management of neglected Achilles tendon ruptures.

Audience Take Away Notes

- The study informs healthcare professionals on the efficacy of FHL tendon transfer, both as an augmentation and isolated procedure, for managing chronic Achilles tendon ruptures, emphasizing the need for further comparative research
- This research aids healthcare professionals in making informed decisions about FHL tendon transfer for chronic Achilles tendon ruptures. It also serves as a resource for other faculty members to enhance their research or teaching in the field

- Offers practical insights for healthcare professionals, potentially simplifying decision-making in the management of chronic Achilles tendon ruptures and improving the precision of treatment designs

Biography

Dr. Raymond Walls obtained his medical degree from Trinity College, Dublin, Ireland. He completed his surgical residency at the Royal College of Surgeons in Ireland where he achieved Board Certification in Orthopaedic Surgery (FRCS{Tr&Orth]). Dr. Walls completed Fellowship training in Foot and Ankle surgery at Hospital for Special Surgery, New York. He is on Faculty with the Department of Orthopaedic Surgery, NYU Langone Orthopaedics, New York. He has over 100 publications and presentations, is a review for several specialty journals and serves on the Public Education committee for the American Orthopaedic Foot and Ankle Society (AOFAS).

Raymond Walls
NYU Langone Orthopaedics, United States

Surgical management of spiral oblique fractures of the fifth metatarsal leads to faster return to play in athletes: A systematic review

Purpose: The purpose of this systematic review was to evaluate outcomes following both operative and non-operative management of spiral oblique fractures of the 5th metatarsal.

Methods: During November 2023, the PubMed, Embase and Cochrane library databases were systematically reviewed to identify clinical studies examining outcomes following operative and non-operative management of dancer's fractures. Data regarding subjective clinical outcomes, radiological outcomes, complications and failure rates were extracted and analyzed.

Results: Ten studies were included in this review. In total, 125 patients underwent operative treatment for dancer's fractures and 365 patients underwent non-operative treatment for dancer's fracture. The weighted mean follow-up in the operative cohort was 15.3±32.7 months and the weighted mean follow-up in the non-operative cohort was 30.6±24.3 months. The union rate in the operative cohort was 99.2% and the union rate in the non-operative cohort was 98.6%. The weighted mean time to return to sport was 15.4±6.7 and 22.4±4.4 weeks in the operative cohort and nonoperative cohort, respectively. The complication rate in the operative cohort and non-operative cohort was 12.0% and 15.9%, respectively.

Conclusion: This current systematic review demonstrated comparable radiographic outcomes together with low failure rate and low complication rate following both operative and non-operative management of dancer’s fracture at short-term follow-up. However, faster return to sport rates were observed in the operative cohort, suggesting that surgical management of displaced spiral oblique fractures of the 5th metatarsal should be the mainstay treatment option. Nonetheless, the under-reporting of data, marked heterogeneity between studies and paucity of comparative studies limits the generation of any robust conclusions, thus further high-quality comparative studies are warranted.

Audience Take Away Notes

- This presentation will optimize the management of the dancer’s fractures, especially in athletes
- This systematic review empowers practitioners to consider surgical intervention as a potentially more efficient treatment
- It provides information about faster return to sport after operative management and could inform design decisions in fields related to orthopedics or sports equipment

Biography

Dr. Raymond Walls obtained his medical degree from Trinity College, Dublin, Ireland. He completed his surgical residency at the Royal College of Surgeons in Ireland where he achieved Board Certification in Orthopaedic Surgery (FRCS{Tr&Orth]). Dr. Walls completed Fellowship training in Foot and Ankle surgery at Hospital for Special Surgery, New York. He is on Faculty with the Department of Orthopaedic Surgery, NYU Langone Orthopaedics, New York. He has over 100 publications and presentations, is a review for several specialty journals and serves on the Public Education committee for the American Orthopaedic Foot and Ankle Society (AOFAS).

Seungyong Sung

Catholic Kwandong Univ. Int. St. Mary's Hospital, Incheon Metropolitan City, South Korea

Conversion to hemiarthroplasty as a salvage treatment for failed reverse total shoulder arthroplasty and severe glenoid bone deficiency

Aim: Hemiarthroplasty may offer a cost-effective alternative that avoids the complications unique to reverse total shoulder arthroplasty in cases of cuff tear arthropathy and severe glenoid bone deficiency.

Background: Surgical treatment of failed reverse total shoulder arthroplasty and other shoulder conditions with severe glenoid bone deficiency is extremely challenging. Glenoid bone loss and rotator cuff dysfunction is a complex surgical combination that has no reliable or satisfactory method of treatment. In some cases, resection arthroplasty, glenohumeral arthrodesis, or revision to hemiarthroplasty remain options. We hypothesized that the revision to hemiarthroplasty might be a valuable fallback option with sufficient pain reduction.

Methods: The review comprised 16 patients who underwent hemiarthroplasty between May 2010 and June 2020 for revision of a failed reverse total shoulder arthroplasty (four patients with glenoid loosening and two with instability) and for salvage of severe glenoid bone loss (two patients with infection). All patients had insufficient bone stock for reimplantation of reverse total shoulder arthroplasty. Patient-reported outcomes and pre and postoperative radiographic results were collected with minimum 2-year follow-up (range, 18~72 months) and analyzed retrospectively.

Results: The average follow-up time was 45.1 months, and the mean age at follow-up was 69 years. The range of motion did not improve postoperatively (average forward elevation of 41.5 degrees and average external rotation near zero), but the pain level improved. The mean VAS score improved from 8.2 to 2.1 postoperatively. The American Shoulder and Elbow Surgeons (ASES) score (from 34.6 to 71.3) and Simple Shoulder Test (SST) score (from 2.4 to 6.3) improved compared with preoperative scores. Postoperative anterosuperior escape was present in four patients.

Conclusion: Conversion to hemiarthroplasty in cases that revision to another reverse total shoulder arthroplasty is impossible can be a valid fallback option to reduce the patient's pain levels and provide low-level function. Furthermore, hemiarthroplasty might be used for severe glenoid erosion as a useful tool in the revision and salvage setting.

Biography

Dr. Sung graduated from Yonsei University, Seoul, Korea in 1996. He then completed internship and his orthopedic surgery residency at Severance Hospital, Seoul, Korea. Currently working as head of the department of orthopedic surgery at Catholic Kwandong University, College of Medicine, International St. Mary's Hospital.

S Ganguly[1]*, M.H. Chunara[2], C.M. McLeavy[2], V Kesavanarayanan[2], D Paton[3], A Ganguly[2]

[1]University College London Medical School, UCL, London, UK
[2]Department of Radiology, Warrington & Halton teaching Hospitals NHS FT, Warrington, UK
[3]Nottingham University Business School, Nottingham University, Nottingham, UK

The imaging modality of choice for patients with a suspected scaphoid fracture who have normal initial radiographs: A UK-wide national audit

Background: The prevalence of scaphoid fractures in the young and active patient population is high. Initial suspicion relies on the combination of a clinical examination and scaphoid series. Both of these are imperfect and often result in premature wrist immobilisation, itself associated with significant lifestyle and socioeconomic implications. MRI has been shown to be an effective modality for the investigation of radiographically-occult scaphoid fractures, yet there remains a stark inconsistency in the modality of choice both in the UK and internationally.

Aim: To assess the current practice of scaphoid fracture imaging (where initial scaphoid radiographs are normal) in the UK.

Materials and Methods: A survey monkey questionnaire was sent to 140 eligible NHS trusts derived from the NHS England database following exclusion of all non-acute and specialist centres. Four questions were asked regarding the provision of Magnetic Resonance Imaging (MRI) for radiographically occult scaphoid fractures, time to MRI, number of departmental MRI scanners, and alternative imaging offered.

Results: Responses were received from 74 trusts (53%). Thirty-eight offered MRI as a first-line test in plain-film occult scaphoid injury, 25 preferred Computed Tomography (CT), and 11 opted for repeat plain radiographs. Of the 38 trusts who offered MRI, 26 provided this within 1 week; the rest within 2 weeks. No trends were identified based on the size of the hospital or its geographical location. Statistical analysis of the data revealed no significant relationship between the number of MRI scanners and the provision of MRI, nor between the numbers of MRI scanners and the time to MRI.

Conclusions: MRI has been recognised in the literature as a highly specific, highly sensitive, and cost-effective tool, yet only 51% of trusts provide this service in the UK. For those who cannot offer MRI first-line, CT remains a very accurate and reliable alternative.

Audience Take Away Notes

- Imaging modality of choice for scaphoid fracture
- Reason for variation in practice
- Pros and cons of CT versus MRI for first imaging
- Role of any new imaging modality in the horizon

Biography

Soham Ganguly, is a 4th year medical student at University College London. He intercalated in his 3rd year with an iBSc in Oncology at UCL. He is the educational officer for Surgical society for Medical students at UCL. Currently he is also involved in the UCL 'target medicine scheme' mentoring senior school students in London, for their medical application process.

Sunyoung Joo

Department of Rehabilitation Medicine, Asan Medical Center, University of Ulsan College of Medicine, Seoul 05505, Republic of Korea

Pain management with extracorporeal shockwave treatment in multiple level clay-shoveler's fracture in a novice golfer: A case report

Case Report: A 30-year-old male golfer was diagnosed with a clay-shoveler's fracture. Cervical radiographs and CT scans revealed fractures in the spinous processes from C7 to T3. Despite receiving pain medication and a neck brace, his discomfort persisted. He then underwent Extracorporeal Shockwave Therapy (ESWT) targeting the upper back, which significantly reduced his pain. Thus, ESWT may be beneficial for managing pain in patients with clay-shoveler's fractures.

Discussion: Clay-shoveler's fractures typically occur in the lower cervical or upper thoracic spine. Sudden, forceful contractions of the neck, torso, and shoulder muscles can cause these fractures due to the pressure exerted on the spinous processes. Young athletes are particularly at risk, as their high levels of physical activity increase the likelihood of such injuries.

These fractures often improve with conservative treatments such as rest, pain medication, and sometimes a brace or collar for stabilization. Surgery might be necessary if complications or instability arise. Despite a generally good prognosis, patients may experience pain during recovery, highlighting the importance of effective pain management.

Among various pain management approaches, ESWT is a promising option for clay-shoveler's fractures. While the exact mechanisms of ESWT are not fully understood, several theories exist. These include inducing microtrauma and cellular responses, promoting neovascularization, releasing growth factors, and recruiting mesenchymal stem cells. Research has shown ESWT's effectiveness in treating soft tissue injuries, particularly chronic tendinopathies, and aiding pain relief and functional recovery.

In this case, although not chronic, the patient experienced a 50% reduction in pain after the first ESWT session. This suggests that ESWT may aid tissue regeneration and provide significant pain relief. Studies have also highlighted ESWT's efficacy in subacute musculoskeletal conditions. A key mechanism involves Nitric Oxide (NO) modulation, which offers pain relief by mediating opioid analgesic effects, improving circulation, and reducing nerve pressure from localized edema. A single ESWT session can elevate NO levels and related factors, improving blood perfusion in tissues. These mechanisms likely contributed to the patient's pain relief and continued improvement with repeated ESWT sessions.

Many studies have reported only mild, self-resolving side effects from ESWT, with no severe adverse effects. This makes ESWT a popular non-invasive option for managing musculoskeletal pain due to its safety and effectiveness. In fracture cases, manipulation or exercises can be challenging, and medication alone often isn't enough for pain control. Thus, ESWT is a valuable choice for conservative management when other treatment options are limited.

Audience Take Away Notes

- ESWT can be considered as a treatment option for the persistent pain associated with Clay-shoveler's fracture
- This case provides further evidence for the combined use of ESWT with conservative treatments like medication and braces in fracture patients
- This case illustrates that ESWT, commonly used for chronic pain, may also be effective in treating acute and subacute pain. This evidence supports ESWT as a new treatment option for patients across different pain stages

Biography

Dr. Joo majored in Molecular Biology at Pusan National University. After receiving a degree in 2014, he transferred to Dong-A University School of Medicine. In 2024, he obtained a specialization in Rehabilitation Medicine. He has published two articles in SCI(E) journals and is currently pursuing a fellowship and master's program at Asan Medical Center in Seoul.

Xiaoyu Huang
The People's Hospital of Tongliang, Chongqing

Effect of comfort care empowerment combined with quality care on postoperative pain levels and negative emotions in patients with hip fracture

Background: Hip fracture is usually triggered by violence, transitional strain injury and other factors, resulting in redness, swelling, pain and activity limitation of the affected limb, which seriously affects the quality of life. At present, for these patients, hip replacement and internal fixation are mostly used to help hip fracture patients to reset the fracture end and improve their prognosis. However, due to the large trauma of surgery, and most of the surgical objects are elderly, patients with aging blood vessels, muscle contraction ability decreased, postoperative blood flow is prone to stagnation, blood hypercoagulability and other phenomena, and at the same time, it may increase the risk of Deep Vein Thrombosis (DVT), which seriously affects the recovery process. Therefore, it is particularly important to actively adopt effective interventions. This study analyzes the effects of comfort care empowerment combined with quality care on postoperative pain levels and negative emotions in hip fracture patients, clarifies the application value of comfort care empowerment combined with quality care, and thus provides a reference for the selection of clinical intervention methods.

Methods: 80 patients admitted to our hospital for hip fracture surgery from March 2023 to March 2024 were randomly divided into the control group (n=40) and the observation group (n=40), with the control group practicing conventional nursing care and the observation group practicing comfort care empowerment combined with quality care. VAS score, negative emotion (SAS score and SDS score), complications and patient satisfaction were compared between the two groups.

Results: The VAS score of the observation group was 1.22±0.23, which was significantly lower than that of the control group of 3.88±0.38, and the scores of the two groups were statistically significant (P<0.05). The SAS score and SDS score of negative emotions in the observation group were 30.66±1.55 and 34.88±1.17, respectively, which were significantly lower than the SAS score and SDS score of 49.19±3.34 and 47.12±3.51 of the control group, and the negative emotions of the two groups were statistically significant (both P<0.05). In the observation group, there was 1 case of constipation, 0 cases of thrombophlebitis, 1 case of pressure injury, and 1 case of lung infection, with a total incidence of 7.5%; in the control group, there were 2 cases of constipation, 2 cases of thrombophlebitis, 2 cases of pressure injury, and 3 cases of lung infection, with a total incidence of 22.5%, and the rate of complications in the patients of the observation group was significantly lower than that of the control group, and the difference was statistically significant when compared with the two groups (P<0.05). The satisfaction score of patients in the observation group was 91.06±8.34 points, and the satisfaction of patients in the control group was 83.17±7.26 points in order, and the satisfaction of patients in the observation group was significantly higher than that of the control group, and the difference was statistically significant when compared between the two groups (P<0.05).

Conclusion: Comfort care empowerment combined with quality care for hip fracture surgery patients reduces the level of pain, facilitates the enhancement of healing effects, ensures that the negative emotions of patients are effectively released, accelerates the speed of their recovery process, improves the hip function of patients and enhances the level of quality of life.

Keywords: Comfort Care, Quality Care, Hip Fracture Patients, Pain Levels, Negative Emotions.

Yi Zou

Traditional Chinese Medicine Hospital, Dianjiang, Chongqing

Enhancing rehabilitation after orthopedic trauma surgery: Evidence-based nursing interventions

Objective: To evaluate the effect of evidence-based nursing interventions on post-surgery rehabilitation in upper limb trauma patients.

Methods: This retrospective cohort study involved 98 patients who had undergone internal fixation surgery due to upper limb fractures. They were randomly divided into a control group, which received standard orthopedic nursing care, and an experimental group subjected to evidence-based nursing interventions. These interventions included the evidence-based selection of nursing measures, the creation of personalized care plans, and the dynamic care quality evaluation. Both groups were provided care for 12 weeks. Assessments of the 36-item short-form health Survey (SF-36), Disabilities of the Arm, Shoulder, and Hand (DASH) questionnaires, and Visual Analog Scale (VAS), were conducted before and after the care, along with records of fracture healing times and complications.

Results: At the initiation of care, there were no significant differences between the groups regarding gender, age, injury-to-hospital time, surgical method, fracture location, SF-36, DASH, and VAS. After 12 weeks of care, the experimental group showed significant improvements in SF-36, DASH, and VAS compared to the control group. Specifically, the SF-36 score in the experimental group (75.43±5.21) was significantly higher than in the control group (68.32±5.43), with DASH and VAS scores significantly lower in the experimental group (14.23±2.43 and 2.23±0.95) compared to the control group (17.83±4.13 and 3.21±1.12). The experimental group also demonstrated a shorter fracture healing time (9.03±0.82 weeks) and a lower complication rate (2.04%) compared to the control group (10.32±1.53 weeks and 11.22%), with P-values <0.01 for all comparisons.

Conclusion: Evidence-based nursing interventions have shown significant improvements in the quality of life, functional recovery, and pain relief for patients with upper limb fractures, alongside faster fracture healing and lower complication rates. This suggests that implementing evidence-based nursing interventions in post-operative care for patients undergoing internal fixation can significantly enhance patient outcomes.

Keywords: Evidence-Based Nursing, Orthopedic Trauma Rehabilitation, Upper Limb Fractures.

Dr. Zachary Sinagra*; Dr. Jean-Louis Papineau MBBS, FRACS, FAOrthoA; Dr. Mark Hurworth MBBS, FRACS, FAOrthoA

Department of Orthopaedics, Royal Perth Hospital, Perth, WA, Australia

Tripartite lunate as part of a previously undescribed carpal anomaly

Congenital anomalies of the human lunate, whether they be accessory bones or a bipartite lunate, are rare entities. To date, only seven case reports of a bipartite lunate exist in the literature, with six of these reports in the English literature. Here, we report on what is to our knowledge the first case of a bilateral tripartite lunate in the English language literature.

Audience Take Away Notes

- This case provides an interesting account of a very rare anatomical variant
- This will broaden the audience's knowledge and understanding of carpal anomalies
- This case is a useful teaching tool in demonstrating the potential variations in abnormal carpal embryological development

Biography

Dr. Zachary Sinagra is a Surgical Registrar (international equivalent to Resident) in Orthopaedic Surgery in Perth, Western Australia. Dr. Sinagra studied Anatomy and Sports Science (BSc) at the University of Western Australia prior to completing his Bachelor of Medicine, Bachelor of Surgery (MBBS) at the University of Notre Dame, Fremantle, in 2014. In 2023, he completed a Master of Surgery (MS) by thesis at the University of Western Australia. So far, he has published five articles in international journals and has a keen interest in research and teaching.

Zhou Chuanqi
People's Hospital of Chongoing Banan

The clinical and radiological improvement comparison between Anterior Cervical Corpectomy and Fusion (ACCF) and posterior single-door laminoplasty in the treatment of cervical Ossification of Posterior Longitudinal Ligament (OPLL)

Objectives: To observe the mid-term clinical outcomes and radiological parameters of Anterior Cervical Corpectomy and Fusion (ACCF) and posterior single-door laminoplasty in cervical Ossification of Posterior Longitudinal Ligament (OPLL).

Methods: All 35 cervical OPLL cases (19 males, 16 females; mean age, 61.5±7.9 years; range, 53 to 72 years) treated in our department between January 2018 and December 2020 were analyzed retrospectively. 17 cases with less than 2 segments involved were treated by ACCF (group A). 18 cases with more than 2 segments involved were treated by the posterior single-door laminoplasty (group B). All patients included in the study underwent preoperative, postoperative cervical X-rays, CT and MRI examinations. Japanese Orthopaedic Association (JOA) score was used to evaluate the clinical outcomes of the two groups. Angle and canal stenosis rate before surgery and at the follow-up were analyzed. The clinical and radiographic differences between the two groups were compared using the paired t-test.

Results: The mean follow-up time in group A and B was 50.16±6.58 and 52.33±6.82 months, respectively. One case presented postoperative dysphagia in group A and recovered by self in the follow-up. One case occurred cerebrospinal fluid leakage and one case occurred postoperative wound infection in group B, they recovered by delayed drainage and placing drainage-tube respectively. The postoperative JOA score was significantly higher than the preoperative ($P<0.05$) in both group but showed no significant difference ($P>0.05$) between groups. The cervical ROM at the last follow-up decreased significantly ($P<0.05$) in group a but maintained in group B ($P>0.05$). At the last follow-up, ossified mass area was significantly higher than the postoperative in group A ($P<0.05$), but not in group B ($P>0.05$). The canal stenosis rate at the last follow-up was significantly less than the preoperative ($P<0.05$) in both group, and it was 12.53±4.39 in group A, significantly better than 19.45±6.18 in group B ($P<0.05$).

Conclusions: For cervical OPLL, the ACCF and posterior single-door laminoplasty appear to be comparably efficient and safe approaches. Posterior single-door laminoplasty is able to enlarge the canal and maintain the cervical ROM. ACCF surgery can decompress cervical canal stenosis better by removing ossified mass.

Keywords: Ossification of the Posterior Longitudinal Ligament, Cervical Surgery, Canal Stenosis Ratio, Anterior Cervical Corpectomy and Fusion, Posterior Single-Door Laminoplasty.

BOOK OF ABSTRACTS

We wish to meet you again at our upcoming events

3rd Edition of Global Conference on

Physical Medicine and Rehabilitation

September 22-24, 2025 | London, UK | Hybrid Event

https://physical-medicine.magnusconferences.com/

3rd Edition of

World Orthopedics Conference

September 22-24, 2025 | London, UK | Hybrid Event

https://orthopedics.magnusconferences.com//

Questions? Contact

+1 (702) 988-2320 or

secretary@magnusconference.com