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12th International Conference on

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Scientific Tracks & Abstracts

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Average return to play time following anterior cruciate ligament reconstruction in elite athletes participating in different sports – A literature review

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Introduction: Anterior Cruciate Ligament (ACL) ruptures are career-threatening injuries for athletes. A common question asked by athletes following ACL repair is the time frame for return to sport. This difficult decision is influenced by many elements, but a key factor is the type of sport that the athlete participates in. A review of current literature was conducted to compare the average return to play time of athletes competing in different sports.

Methods: A literature search yielded 646 papers from the earliest possible entry to November 2018. However only 21 Studies, from 6 different sports, evaluated the average return to play time of professional athletes following an ACL injury. This review also examined the factors which influenced the athletes' return to play time.

Results: The average return to play time in soccer athletes varied from 5.5 to 12 months depending on the league and country of participation, whilst the average return to play time ranged from 10.7 to 12.4 months for American football players. In comparison, the average return to play time for other sports was 9.8 months for hockey, 11.6 months for basketball, 12 months for alpine skiers and 13.6 months for baseball. Factors influencing athletes' return to play time included tailored rehabilitation, referral to experienced surgeons and time of season at which the athlete was injured.

Conclusion: Return to sport following ACL injury was influenced by many factors including the sport that athletes participated in. Additionally, the return to play time varied within the same sport when leagues from different countries were analysed; supporting the theory that the return to sports time is multifactorial. Due to the relative scarcity of studies involving elite athletes, we suggest that more high-quality studies are required to improve our understanding and ability to facilitate athletes' successful return to sport following an ACL injury.

Biography

My name is Louai Abdeh and I am a Trauma & Orthopedics Core Surgical Trainee at the Manchester Royal Infirmary. As a medical student and junior doctor, I have taken an active role in many clinical governance and research projects, and I have presented at a number of conferences including the ASiT International Conference 2018, Barts and London National Undergraduate Surgical Conference and Warwick Undergraduate Regional Medical Conference. I have also completed a Master of Research in Tissue Engineering for Regenerative Medicine, and I received a distinction grade for my dissertation "The Role of Macrophages and Mast Cells in Fibroblast to Myofibroblast Differentiation- An insight into the Relationship between Inflammatory Cells and Fibrosis".

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Effects of NSAID use on bone healing: A meta-analysis of cohort studies and randomised controlled trial within clinical settings

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This unique meta-analysis aims to determine whether Non-Steroidal Anti-Inflammatory Drugs (NSAID) use is significantly associated with poor bone healing outcomes within clinical settings and to further highlight whether such association is more significant for non-union or delayed union of fractures. It will further explore bone healing outcomes in relation to the type, route, dosage and duration of NSAID exposure and aims to demonstrate modifying evidence effects of patients' age, smoking status, diabetes, site of fracture and length of follow-up to diagnosis on bone healing outcomes. MedLine, Embase and Cochrane electronic databases were searched electronically, and search period included January 1975 to December 2017. Observational studies and randomised trials involving effects of NSAID exposure on fracture healing and spinal fusion were considered for non-union and delayed bone union. Meta-analysis was performed in compliance with QUORUM and PRISMA guidelines. In the initial analysis of pooled data from 15 studies including randomised trials and cohort studies, results suggested significant risk of poor bone healing in patients with NSAID use (OR = 2.45, 95% CI 1.57-3.82, $p < 0.0001$). Meta-regression further suggested significant poor outcomes in relation to oral route (OR = 4.34, 95% CI 2.50-7.55, $p < 0.00001$), extended duration of NSAID exposure (OR = 2.64, 95% CI 1.41-4.91, $p = 0.002$) and across all bone types (OR = 2.71, 95% CI 1.74-4.22, $p < 0.0001$). Smoking was a significant confounder associated with poor bone healing (OR = 2.55, 95% CI 2.12-3.07, $p < 0.00001$). The current synthesis incorporates high-quality randomized controlled trials and retrospective cohort studies; however, it lacks decent quality prospective cohort studies due to their non-existence within available literature. This highlights the need for further high-quality randomized controlled trials or prospective cohort studies assessing NSAID exposure on bone healing that will also provide basis for more extensive meta-analysis in future.

Biography

Ali and Hayat are currently undergoing their training in Trauma and Orthopaedics Surgery in North West region, UK. Through-out his undergraduate and postgraduate career, Ali had been involved in extensive research and is author to several international publications and monographs. Hayat completed her masters in Orthopaedics and Trauma Science and thrives to contribute to ongoing research in the subject. Authors unique and robust work on role of NSAID use on bone healing provides a cornerstone for future research to highlight effects of NSAID use on fracture healing and spinal fusion. This extensive project will be of interest to a wide variety of readers including medical practitioners, orthopaedic surgeons, and emergency medicine doctors while considering use of NSAIDs for pain management in patients with fractures.

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Management of open fractures in a major trauma center with no plastics service on site – Does this affect outcomes?

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Background: Open fractures of long bones should be managed by an orthoplastic team, BOAST (2017).

Aim: To evaluate the impact of a trauma team with no plastic surgeons on the management of open fractures.

Methods: Retrospective service evaluation exercise looking at outcomes of open fractures managed at our centre over a 6-month period. Care provided was audited against BOAST guidelines on open fractures.

Results: 17 patients identified. All cases were initially managed by orthopaedic surgeons. Following initial debridement, 5 patients required plastics input for wound closure which was sought via online referral to another centre. Definitive wound closure within 72 hours, as advised by BOAST guidelines, occurred in none of the cases that required plastics input compared to 91% of cases where plastics were not required. Definitive fracture management within 72 hours occurred in only 40% of cases that required plastics input compared to 82% in cases that did not. Infection was also recorded in 67% of cases with delayed wound closure compared to none in wounds that were closed within 72 hours.

Conclusion: Delayed wound closure is associated with increased infection and delayed fixation. We suggest that these fractures are managed in centres with on-site access to plastics.

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Acute presentations of crystal arthropathy: A retrospective cohort review

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Background: Synovial fluid analysis is an indispensable investigation to attain a diagnosis in a patient with acute hot swollen joint. A delay in appropriate early management results in serious undesired consequences. The management of acute hot swollen joint would normally be conducted along BSR/ BOA guidelines. The management of pediatric hot swollen joints is normally conducted with reference to Kocker's criteria for septic arthritis in children.

Methods: We have evaluated the pathway for acute hot swollen joints as an audit of practice against published guidelines; the time frame was set at an interval of three years allowing the capture of a larger series. This included any patient with a synovial fluid sample with a request for gram stain direct microscopy and culture. The study involved 562 synovial samples, for every sample data were collected to include; age at presentation, gender, time lapse between sample collection and reporting of results, other relevant results both hematological and biochemical. The synovial fluid samples were also examined for white cell content and prevalence of Polymorphs.

Results: The median age at presentation was 68 years, the audit identified areas for improvement e.g. Failure to report joint affected (1.78%), Failure to report side (6.35%). Adherence to all 6 points outlined in guidelines was 75.5%. In our review it was evident that crystal arthropathies accounted for 25% of cases presenting with acute onset arthropathy in adults, in this study calcium pyrophosphate arthropathy was more prevalent than gouty arthritis. Acute presentations of crystal arthropathy have been associated with a significant inflammatory reaction as evidenced by a high C-Reactive Protein (CRP) even if compared to septic arthritis. The classic radiological findings associated with calcium pyrophosphate crystal arthropathy3 were not evident in all patients presenting with acute mono–arthropathy confirmed to be related to calcium pyrophosphate deposition. There were two cases of joint sepsis associated with crystal arthropathy.

Discussion: The exact prevalence of acute presentations of crystal arthropathy is difficult to assess, in this study crystal arthropathy accounted for 25% of presentations, crystal arthropathy was found to incite a significant inflammatory reaction and therefore differentiation based on clinical, radiological and biochemical parameters only can be misleading.

Biography

Ayman Sorial. MBBCh. Hons. MSc. MD MRCS. FRCS. Consultant trauma and orthopaedic surgeon (Egypt). Staff grade trauma and orthopaedic surgeon (UK). First RCS fellow certificate awarded for senior hip fellowship harrogate and district NHS FT. Clinical hip fellowship leeds teaching hospitals. Lower limb arthroplasty and arthroscopy specialist.

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Dose adjustment of antibiotic loaded calcium sulphate in patients with renal dysfunction

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Introduction: The use of antibiotic loaded biodegradable calcium sulphate (also known as Stimulan) is an effective treatment option in patients suffering from osteomyelitis or soft tissue infection. The small size of Stimulan beads gives it a large surface area to volume ratio, which is considerably higher compared to traditional antibiotic loaded cement. This allows it to release a high concentration of antibiotics locally; which in theory can lead to high systemic levels of antibiotics. However, there is a lack of sufficient data regarding the systemic absorption of antibiotic loaded Stimulan especially in patients with renal dysfunction.

Methods: 15 patients underwent surgical debridement and lavage followed by the insertion of gentamicin and vancomycin loaded Stimulan for the treatment of osteomyelitis or soft tissue infection. In some patients suffering with renal dysfunction, the antibiotic doses were halved. Antibiotic levels were then checked daily for 3 days following the procedure.

Results: Patients with no renal dysfunction: Systemic levels of antibiotics were below trough levels at all times. Patients with renal dysfunction receiving full dose of antibiotics: Systemic levels of gentamicin and vancomycin were in therapeutic range post-op and remained high until dialysis. Patients with renal dysfunction receiving half dose of antibiotics: Vancomycin levels were below trough level, but gentamicin levels were above.

Conclusion: Patients with normal renal function treated with antibiotic loaded Stimulan do not require dose adjustment or antibiotic assay levels. However, in patients with renal dysfunction, antibiotic doses should be adjusted, regular assays should be undertaken, and post-operative dialysis should be arranged.

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