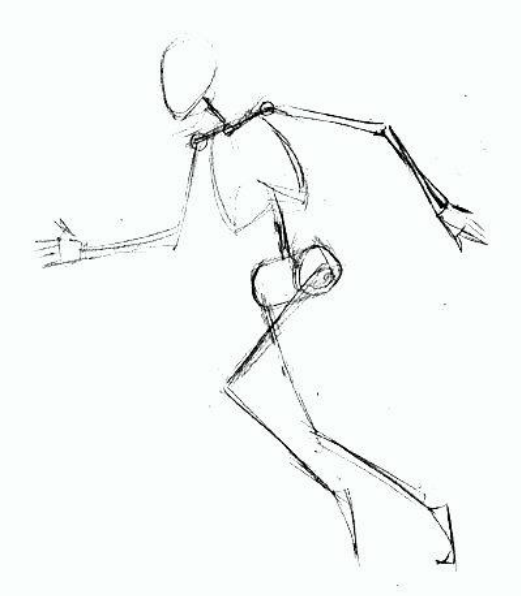
University Hospitals Bristol NHS
NHS Foundation Trust

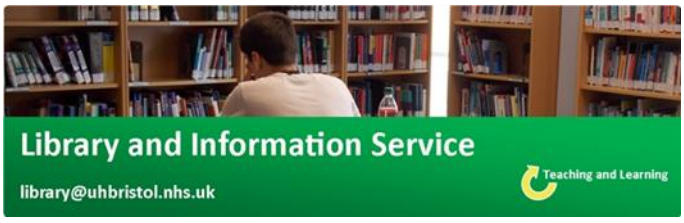
Trauma & Orthopaedics

Evidence Update



November 2017 (Quarterly)

Respecting everyone
Embracing change
Recognising success
Working together
Our hospitals.



Training Calendar 2017

All sessions are one hour

November (13.00)

2nd Thu	**Literature Searching**
10th Fri	**Critical Appraisal**
13th Mon	**Statistics**
21st Tues	**Literature Searching**
29th Wed	**Critical Appraisal**

December (12.00)

7th Thu	**Statistics**
15th Fri	**Literature Searching**

Your Outreach Librarian: Jo Hooper

Whatever your information needs, the library is here to help. As your outreach librarian I offer **literature searching services** as well as training and guidance in **searching the evidence** and **critical appraisal** – just email me at library@uhbristol.nhs.uk

OUTREACH: Your Outreach Librarian can help facilitate evidence-based practise for all in the Orthopaedics team, as well as assisting with academic study and research. We can help with **literature searching, obtaining journal articles and books**, and setting up individual **current awareness alerts**. We also offer one-to-one or small group training in **literature searching, accessing electronic journals, and critical appraisal**. Get in touch: library@uhbristol.nhs.uk

LITERATURE SEARCHING: We provide a literature searching service for any library member. For those embarking on their own research it is advisable to book some time with one of the librarians for a one-to-one session where we can guide you through the process of creating a well-focused literature research and introduce you to the health databases access via NHS Evidence.

Contents

UpToDate® 4

NICE National Institute for Health and Care Excellence 4

Cochrane Library 4

Journal Tables of Contents 6

Journal of Bone and Joint Surgery 6

October 18 2017, Volume 99, Issue 20 6

Journal of Orthopaedic Trauma 6

Injury 6

Strategies in Trauma and Limb Construction 6

Clinical Orthopaedics and Related Research 6

Recent Database Articles related to Orthopaedics 7

Exercise: Sensitivity and Specificity 27

Library Opening Times 28

Updates

UpToDate®

OpenAthens login required. Register here: https://openathens.nice.org.uk/

Severe pelvic fracture in the adult trauma patient

- Summary and recommendations

Literature review current through: Oct 2017. | **This topic last updated:** Apr 19, 2016.

Initial management of trauma in adults

- Summary and recommendations

Literature review current through: Oct 2017. | **This topic last updated:** Oct 30, 2017.

NICE National Institute for Health and Care Excellence

Tranexamic Acid in Orthopaedic Trauma Surgery: A Meta-Analysis

Source: PubMed - 01 October 2017 - Publisher: Journal Of Orthopaedic Trauma Read Summary

Post-operative fever in orthopaedic surgery: How effective is the 'fever workup?'

Source: PubMed - 01 September 2017 - Publisher: Journal Of Orthopaedic Surgery (hong Kong) Read Summary

Efficacy and Safety of Tranexamic Acid in Orthopaedic Fracture Surgery: A Meta-Analysis and Systematic Literature Review

Source: PubMed - 01 October 2017 - Publisher: Journal Of Orthopaedic Trauma

RCS Surgical Research Report 2017 (RCSENG - Research - 2017) [PDF]

Source: Royal College of Surgeons - RCS - 07 September 2017

Cochrane Library

No relevant up to date evidence

UpToDate®

Anywhere

UpToDate® is now available as a Mobile App, free for all UHBristol staff

Interested in staying up to date?

Sign up at the Library, or email:

library@uhbristol.nhs.uk

University Hospitals Bristol NHS
NHS Foundation Trust

Journal Tables of Contents

Click on the hyperlinked journal title or image (+Ctrl) for the most recent tables of contents. If you would like any of these papers in full text then get in touch: library@uhbristol.nhs.uk

Journal of Bone and Joint Surgery
October 18 2017, Volume 99, Issue 20

Journal of Orthopaedic Trauma
November 2017, Volume 31, Issue 11

Injury
November 2017, Volume 48, Issue 11

Strategies in Trauma and Limb Construction
November 2017, Volume 12, Issue 3 (triannual)

Clinical Orthopaedics and Related Research
November 2017, Volume 475, Issue 11

Recent Database Articles related to Orthopaedics

Below is a selection of articles related to orthopaedics recently added to the healthcare databases.

An unusual case of transpelvic impalement injury: A case-report

Author(s): Alani M.; Mahmood S.; Atique S.; Al-Thani H.; Peralta R.; El-Menyar A.

Source: International Journal of Surgery Case Reports; 2017; vol. 41 ; p. 26-29

Publication Type(s): Article

Available at International Journal of Surgery Case Reports - from Europe PubMed Central - Open Access

Abstract: Introduction Impalement injury is a rare type of mechanical injury following forceful insertion of projecting object into the body. Careful planning for removal of the impaling object is essential to decrease the blood loss and preserve the function of the injured organ. Presentation of case A 27 year-old male fell from 4 m height over a U shaped projecting up metallic bar. The bar penetrated the left side of the pelvis and traversed through the left iliac bone causing a comminuted fracture in the supra-acetabular region extending to the left psoas muscle, injuring the viscera and causing fracture of the right femur. Exploratory laparotomy was performed and the metallic bar was pulled out from the sigmoid colon through the inlet of the injury. Intramedullary nailing was performed for femur fracture. The patient developed infection (Methicillin-sensitive Staphylococcus aureus and Escherichia coli) during the post-operative course that was successfully managed with antibiotic therapy. Finally the patient was sent home after a week in a good health condition. Discussion Two surgical teams worked in sequence to fix the injuries starting with the trauma team followed by the orthopedic surgeons. Conclusion Impalement injury is a serious injury that needs a multidisciplinary team with a coordinated approach to achieve a favorable outcome.Copyright © 2017 The Authors

What is the ideal working length for bridge plating osteosynthesis of a femoral shaft fracture? A multinational online survey evaluation.

Author(s): Giordano, Vincenzo; Paes, Roger Pletsch; de-Queiroz, Gustavo Barbosa; Lira, José Claudio;

Source: Revista do Colegio Brasileiro de Cirurgioes; 2017; vol. 44 (no. 4); p. 328-339

Publication Type(s): Journal Article

Abstract:OBJECTIVEto evaluate how orthopedic surgeons in Latin America define the working length for distinct patterns of femoral shaft fracture.METHODSa survey was developed presenting different options of working length in four femoral fracture patterns. The survey was submitted to the participants using Google Forms tool. The association between professional characteristics and medical management options according to each type of fracture was analyzed by Chi-square test, with 5% significance level.RESULTSseven hundred and seven professionals from all Latin America answered the survey. The majority prefered a smaller working length for all situations presented in the study. There was a significant association between the main interest area and the medical preference for the management in fracture types AO 32-B3 and 32-C2 ($p<0.05$). Other professional characteristics had no significant association at the level of 5%.CONCLUSIONmost of the study

participants preferred constructions with smaller working length, representing approximately one-third of the total length of the plate, regardless of fracture pattern. There was a significant association between the main interest area (orthopedic trauma) and medical management options for fracture type AO 32-B3 and 32-C2. This can be attributed in part to the fact that these two types of fractures are considered, in the view of the authors, intermediate patterns in terms of strain. This study reinforces the importance of understanding the concept of working length, showing that its calculation remains more based on the surgeons' experience than grounded by strong biomechanical concepts governing the fracture healing process.

A paradigm shift in surgical planning and simulation using 3Dgraphy: Experience of first 50 surgeries done using 3D-printed biomodels

Author(s): Bagaria V.; Chaudhary K.

Source: Injury; Nov 2017; vol. 48 (no. 11); p. 2501-2508

Publication Type(s): Article

Abstract: Introduction Preoperative planning is an important aspect of any orthopedic surgery. Traditionally, surgeons mentally rehearse the operation and anticipate problems based on data available from "radiography" like MRI and CT. 3D printed bio-models and tools, or "3Dgraphy" can simplify this mental exercise and provide a realistic and user-friendly portrayal of this radiographic data. Methods Five surgeons participated in this multicenter study. 3D printed biomodels were obtained for 50 surgical cases that included periarticular trauma (24), pelvic trauma (11), complex primary (7), and revision arthroplasty (8). CT scan data was used to generate computer models which were then 3D printed in real size. These models were used to understand pathoanatomy and conduct simulated surgery as a part of preoperative planning. The models were sterilized and were used for intraoperative referencing. Following each case, the operating surgeon was asked to fill out a structured questionnaire to report on the perceived benefits of these tools. Results All surgeons reported that the biomodels provided additional information to conventional imaging that enhanced their knowledge of the complex pathoanatomy. It was useful in preoperative planning, rehearsing the operation, surgical simulation, intraoperative referencing, surgical navigation, preoperative implant selection, and inventory management. This probably reduced surgical time and improved accuracy of the surgery. All surgeons reported that they would not only use it themselves but also recommend it to other surgeons. Conclusion 3Dgraphy was found to be a valuable tool in orthopedic surgeries that involve complex pathoanatomy like pelvic trauma, revision arthroplasty, and periarticular fracture. As the technology evolves and improves, they are likely to become a standard component of many orthopedic procedures.

Atypical femur fractures: a survey of current practices in orthopedic surgery

Author(s): Schneider P.S.; Wall M.; Harvey E.J.; Morin S.N.; Brown J.P.; Cheung A.M.

Source: Osteoporosis International; Nov 2017; vol. 28 (no. 11); p. 3271-3276

Publication Type(s): Article

Abstract: Summary: The results of a self-administered online survey demonstrate that orthopedic surgeons' management practices for AFF are variable. These data will inform the development of clinical practice guidelines. Introduction: We aimed to determine current AFF treatment practices of orthopedic surgeons to inform clinical practice guideline development. Methods: A self-administered online survey was developed and sequentially posted on the Orthopaedic Trauma Association (OTA) website from July to August 2015 and the Canadian Orthopaedic Association (COA) website from December 2015 to January 2016. Level of confidence in diagnosis and treatment as well as treatment preferences between respondents who self-identified as trauma surgeons vs. non-trauma surgeons were compared. Results: A total of 172 completed surveys were obtained

(OTA, N = 100, 58%; COA, N = 72, 8%). Seventy-eight percent of respondents had treated >=1 AFF in the previous 6 months. Seventy-six percent reported feeling extremely or very confident in diagnosing AFF (trauma 84% vs. non-trauma surgeons 70%, p = 0.04), and 63% reported feeling extremely or very confident in treating AFF (trauma 82%, non-trauma surgeons 50%, p

Perfusion of muscle flaps independent of the anatomical vascular pedicle: Pedicle autonomy

Author(s): Bradshaw K.; Wagels M.

Source: Journal of Plastic, Reconstructive and Aesthetic Surgery; Nov 2017; vol. 70 (no. 11); p. 1547-1555

Publication Date: Nov 2017

Publication Type(s): Article

Abstract: Introduction Free muscle flaps are being used more commonly for complex lower limb reconstruction. Up to 33% of flaps used to reconstruct lower limb trauma will require an orthopaedic procedure after reconstruction. To date there have been only case reports detailing the variable survival of muscle flaps after actual or simulated pedicle injury and the process and timeframe of neovascularisation remains undefined. We aim to show that perfusion of a muscle flap is possible after injury to its anatomical vascular pedicle. Methods Pedicled muscle flaps were raised and transposed to a cutaneous inset on the chest wall in a rodent model. Each flap was subjected to simulated pedicle injury at a variable time. Allocation was by computer randomisation. Flap perfusion was assessed before and after pedicle injury followed 48 h later by sacrifice of the animal and static angiography of the flaps. Results By the 21st day after inset, all flaps survived simulated pedicle injury. Prior to this, flap survival was significantly lower (p = 0.017, Fisher's Exact Test). Clinical signs at the time of pedicle injury did not predict flap survival. Most new vessels form at the distal part of the inset (p

Nanomedicine for safe healing of bone trauma: Opportunities and challenges

Author(s): Behzadi S.; Farokhzad O.C.; Mahmoudi M.; Luther G.A.; Harris M.B.

Source: Biomaterials; Nov 2017; vol. 146 ; p. 168-182

Publication Type(s): Review

Abstract: Historically, high-energy extremity injuries resulting in significant soft-tissue trauma and bone loss were often deemed unsalvageable and treated with primary amputation. With improved soft-tissue coverage and nerve repair techniques, these injuries now present new challenges in limb-salvage surgery. High-energy extremity trauma is pre-disposed to delayed or unpredictable bony healing and high rates of infection, depending on the integrity of the soft-tissue envelope. Furthermore, orthopedic trauma surgeons are often faced with the challenge of stabilizing and repairing large bony defects while promoting an optimal environment to prevent infection and aid bony healing. During the last decade, nanomedicine has demonstrated substantial potential in addressing the two major issues intrinsic to orthopedic traumas (i.e., high infection risk and low bony reconstruction) through combatting bacterial infection and accelerating/increasing the effectiveness of the bone-healing process. This review presents an overview and discusses recent challenges and opportunities to address major orthopedic trauma through nanomedical approaches.

Pedicled Rotational Medial and Lateral Gastrocnemius Flaps: Surgical Technique.

Author(s): Walton, Zeke; Armstrong, Milton; Traven, Sophia; Leddy, Lee

Source: The Journal of the American Academy of Orthopaedic Surgeons; Nov 2017; vol. 25 (no. 11); p. 744-751

Publication Type(s): Journal Article

Abstract: Gastrocnemius flaps have been used for decades to reconstruct defects of the proximal tibia and knee. They have proven to be useful in the soft-tissue reconstruction of defects caused by trauma, tumors, and infections about the knee, and the reconstruction of extensor mechanism discontinuity with and without total joint arthroplasty. The flaps have low failure rates and a distinct proximally based blood supply that allows them to be elevated and rotated up to 15 cm above the level of the knee joint. The vascular anatomy is reproducible because rotational flaps do not require microvascular anastomosis. An understanding of the applied surgical anatomy, approaches, and utility of the gastrocnemius flap makes the technique a useful tool for the orthopaedic surgeon when plastic surgery assistance is not readily available.

The Community Orthopaedic Surgeon Taking Trauma Call: Pediatric Ankle Fracture Pearls and Pitfalls.

Author(s): Parikh, Shital N; Mehlman, Charles T

Source: Journal of orthopaedic trauma; Nov 2017; vol. 31

Publication Type(s): Journal Article

Abstract: Pediatric ankle fractures are common and have unique fracture characteristics because of the presence of distal tibial and fibular physes. When displaced (>3 mm widening of the physis or >2 mm intra-articular gap/step-off), these fractures are typically treated with anatomical reduction and internal fixation. Computed tomography is recommended for preoperative evaluation and surgical planning for intra-articular fractures. These fractures in younger children with substantial growth remaining should be followed closely to monitor for any growth disturbance. Pearls and pitfalls related to the treatment of these fractures would emphasize the physeal-respecting approach to their management.

The Community Orthopaedic Surgeon Taking Trauma Call: Pediatric Femoral Shaft Fracture Pearls and Pitfalls.

Author(s): Gordon, J Eric; Mehlman, Charles T

Source: Journal of orthopaedic trauma; Nov 2017; vol. 31

Publication Type(s): Journal Article

Abstract: Pediatric femoral shaft fractures present many challenging patient care decisions. Nonoperative treatment approaches still dominate care of the youngest age groups while surgical intervention is commonplace in virtually all older children. Treatment is determined primarily by patient age as modified by clinical factors including mechanism of injury, weight, and skeletal maturity. Infants can be successfully treated by placement into a Pavlik harness, whereas children younger than 5 years are most commonly treated by early reduction and spica cast immobilization. Children aged up to 11 years are most commonly treated by flexible intramedullary nailing, whereas older children and adolescents, particularly with length unstable fractures should be treated with more rigid fixation such as lateral entry locked nails or submuscular plating.

Routine computed tomography after recent operative exploration for penetrating trauma: What injuries do we miss?

Author(s): Mendoza A.E.; Wybourn C.A.; Charles A.G.; Campbell A.R.; Cairns B.A.; Knudson M.M.

Source: Journal of Trauma and Acute Care Surgery; Oct 2017; vol. 83 (no. 4); p. 575-578

Publication Type(s): Article

Abstract:BACKGROUND Patients with penetrating trauma who cannot be stabilized undergo operative intervention without preoperative imaging. In such cases, postoperative imaging may reveal additional injuries not identified during the initial operative exploration. The purpose of this study is to explore the utility of postoperative CT imaging in the setting of penetrating trauma. METHODS This was a retrospective analysis of patients with penetrating trauma treated at an urban Level 1 trauma center between 2010 and 2015. Patients were included if they underwent an emergent laparotomy without preoperative imaging. Patients were excluded if they had prior imaging or concomitant blunt injury. For the purposes of this study, occult injury was defined as a CT scan finding not mentioned in the first operative report. Descriptive statistics were used to compare patient characteristics who had received imaging immediately postoperatively with those who had not. RESULTS During the 5-year study period, 328 patients who had a laparotomy for penetrating trauma over the study period, 225 patients met the inclusion criteria. Seventy-three (32%) patients underwent CT scanning immediately postoperatively with occult injuries identified in 38 (52%) patients. The most frequent occult injuries were orthopedic (20 of 43) and genitourinary (9 of 43). Importantly, 10 (26%) of the 38 patients required an intervention for these occult injuries. Those selected for immediate postoperative imaging were more likely to have sustained gunshot wounds and were significantly more severely injured (higher Injury Severity Score and longer length of hospital stay) when compared to patients who did not receive immediate imaging. CONCLUSION We recommend the use of immediate postoperative CT after emergent laparotomy especially when there is a high index of suspicion for spine or genitourinary injuries and in patients who have sustained ballistic penetrating injuries. LEVEL OF EVIDENCE Therapeutic/care management, level IV; diagnostic tests or criteria, level IV.

Prone positioning for intramedullary nailing of subtrochanteric fractrures, the techniques of intraoperative fluoroscopy and reduction: A technique note

Author(s): Zhao Z.; Song F.; Tang P.; Zhu J.; He D.; Deng J.; Pan Y.; Ji X.

Source: Injury; Oct 2017; vol. 48 (no. 10); p. 2354-2359

Publication Type(s): Article

Abstract: The treatment of subtrochanteric fractures is a challenge for orthopaedic trauma surgeons. Three positions have been described previously: supine on a fracture table, supine on a flat radiolucent table, and the lateral decubitus position on a flat radiolucent table. Each one has its advantages and limitations. In this article we describe a prone position for intramedullary nailing of subtrochanteric femoral fractures. This position has the advantages including: 1) an easy approach to reduce and maintain the reduction of fracture by adjusting only the leg plate on injured side, 2) perfect intraoperation fluoroscopic imaging on both anteroposterior view and lateral view, and 3) an easy approach to establish an appropriate entry point even in obese patients.

The Pararectus approach provides secure access to the deep circumflex iliac vessel for harvest of a large sized and vascularized segment of the iliac crest

Author(s): Dumont C.E.; Keel M.J.; Haefeli P.C.; Schmid T.; Bastian J.D.; Djonov V.; Olariu R.

Source: Injury; Oct 2017; vol. 48 (no. 10); p. 2169-2173

Publication Type(s): Article

Abstract: Background The feasibility of harvesting a vascularized iliac crest utilizing the Pararectus approach was assessed in cadavers and then this new technique was implemented in a clinical case. Methods Bilaterally in five cadavers the branches of both external iliac arteries were injected with colored silicone to assess their position to each other and to harvest a bone graft vascularized by the

deep circumflex iliac artery (DCIA) through the Pararectus approach. This technique was implemented in a 68-years-old female patient, initially admitted to a level-I-trauma center after sustaining multiple injuries by falling from great height. For definitive treatment of a severely contaminated medially open (Gustilo-Anderson Type 3A) calcaneal luxation fracture (Sanders type IIIBC) in this patient a vascularized iliac crest autograft harvest by the Pararectus approach was used for reconstructive surgery. Results The DCIA and the deep inferior epigastric vessels (DIEV: vascularizing the rectus abdominis muscle and main pedicle of the inferiorly based rectus abdominis myocutaneous flap) are very close on the lateral and medial border of the external iliac artery, respectively. As a consequence, the retrograde dissection of the DIEV towards the DCIA through the Pararectus approach made the dissection of the vascularized iliac crest more amenable, preserving both the lateral femoral cutaneous and the genitofemoral nerves. Four months after the surgery the patient was able to fully weight-bear in orthopedic shoes. Radiographs and CT scans showed correct hind foot alignment and bony integration of the vascularized iliac crest graft into the residual calcaneal body. Conclusion The Pararectus approach allowed for secure collection of large vascularized iliac grafts. The presented technique was successful as a salvage procedure in a clinical case with substantial bone loss after an open calcaneal fracture.

Orthopaedic injuries among electric bicycle users

Author(s): Tenenbaum S.; Weltsch D.; Thein R.; Bariteau J.T.; Givon A.; Peleg K.

Source: Injury; Oct 2017; vol. 48 (no. 10); p. 2140-2144

Publication Type(s): Article

Abstract: Introduction The use of electric bicycles (E-bike) has dramatically increased. E-bikes offer convenient, environmental-friendly, and less expensive alternative to other forms of transport. However, E-bikes provide a new public health challenge in terms of safety and injury prevention. This study is the first to specifically investigate the E-bike related orthopaedic injuries, based on a national trauma registry. Methods Data from a National Trauma Registry were reviewed for patients hospitalized following E-bike related injuries. Between Jan 2014 to Dec 2015, a total of 549 patients were reviewed. Data were analyzed according to demography, type of orthopaedic injury, associated injuries and severity, injury mechanism and treatment in the operating room. Results A total of 360 (65%) patients sustained orthopaedic injuries, out of them 230 (63.8%) sustained limb/pelvis/spine fractures. Lower extremity fractures were more prevalent than upper extremity fractures (p =16) was more than the double (p = 0.03). One third of patients with orthopaedic injuries required treatment in the operating room. Treatment varied depending on the type of fracture. Conclusions This study provides unique information on epidemiological characteristics of orthpaedic injuries caused be E-bikes, pertinent both to medical care providers, as well as to health policy-makers allocating resources and formulating prevention strategies.

The treatment of segmental tibial fractures: does patient preference differ from surgeon choice?

Author(s): Little Z.; Smith T.O.; McMahon S.E.; Cooper C.; Trompeter A.; Hing C.B.; Pearse M.

Source: Injury; Oct 2017; vol. 48 (no. 10); p. 2306-2310

Publication Type(s): Article

Abstract: Introduction Segmental tibial fractures are complex injuries with a prolonged recovery time. Current definitive treatment options include intramedullary fixation or a circular external fixator. However, there is uncertainty as to which surgical option is preferable and there are no sufficiently rigorous multi-centre trials that have answered this question. The objective of this study was to determine whether patient and surgeon opinion was permissive for a randomised controlled trial (RCT) comparing intramedullary nailing to the application of a circular external fixator. Materials and methods A convenience questionnaire survey of attending surgeons was conducted during the

United Kingdom's Orthopaedic Trauma Society annual meeting 2017 to determine the treatment modalities used for a segmental tibial fracture (n = 63). Patient opinion was obtained from clinical patients who had been treated for a segmental tibial fracture as part of a patient and public involvement focus group with questions covering the domains of surgical preference, treatment expectations, outcome, the consent process and follow-up regime (n = 5). Results Based on the surgeon survey, 39% routinely use circular frame fixation following segmental tibial fracture compared to 61% who use nail fixation. Nail fixation was reported as the treatment of choice for a closed injury in a healthy patient in 81% of surgeons, and by 86% for a patient with a closed fracture who was obese. Twenty-one percent reported that they would use a nail for an open segmental tibia fracture in diabetics who smoked, whilst 57% would opt for a nail for a closed injury with compartment syndrome, and only 27% would use a nail for an open segmental injury in a young fit sports person. The patient and public preference exercise identified that sleep, early functional outcomes and psychosocial measures of outcomes are important. Conclusion We concluded that a RCT comparing definitive fixation with an intramedullary nail and a circular external fixator is justified as there remains uncertainty on the optimal surgical management for segmental tibial fractures. Furthermore, psychosocial factors and early post-operative outcomes should be reported as core outcome measures as part of such a trial.

Understanding pelvic ring injuries: Predicting severity of injuries and guiding management in the ER

Author(s): Zheng S.W.; Beckmann N.M.

Source: Emergency Radiology; Oct 2017; vol. 24 (no. 5); p. 461-462

Publication Type(s): Conference Abstract

Abstract: Learning Objectives:-Review anatomy and biomechanics of the pelvic ring-Understand Young and Burgess Classification-Recognize visceral, osseous and soft-tissue injuries in pelvic fractures. Background: Pelvic injuries are usually the result of high energy trauma, such as high speed MVC and fall from a great height. Treating severe, displaced pelvic fractures requires a multidisciplinary approach (radiologists, trauma surgeons, orthopedic surgeons, other healthcare professionals) to reduce morbidity and mortality. Immediate determination of pelvic stability is often the first, andmost critical component in the management of such patients. Content: Pelvic ring anatomy and biomechanics are reviewed first, accompanied by normal pelvic radiographs (AP, inlet, outlet, judet views). Pelvic injury mechanisms (lateral,AP, vertical compression, combined injuries) are illustrated using cases of different injury severities. Complications such as pelvic organ, neurovascular and ligamentous injuries are included, using fluoro, CT, CTA, and MR. Post-operative imaging is included where appropriate. Summary: The central challenge of evaluating pelvic fractures is to determine the nature and scope of causative forces. In the trauma setting, emergency radiologists must quickly differentiate stable vs. unstable pelvic ring injuries, and provide an efficient and accurate triage for patients needing immediate intervention.

Any Cortical Bridging Predicts Healing of Supracondylar Femur Fractures after Treatment with Locked Plating

Author(s): Strotman P.K.; Lack W.D.; Karunakar M.A.; Seymour R.

Source: Journal of Orthopaedic Trauma; Oct 2017; vol. 31 (no. 10); p. 538-544

Publication Type(s): Conference Paper

Abstract: Objectives: To determine the accuracy and reliability of radiographic cortical bridging criteria in predicting the final healing of supracondylar femur fractures after treatment with locked plating. Design: Retrospective review. Setting: Two Level 1 trauma centers. Patients/Participants: Patients who presented with supracondylar femur fractures (OTA/AO 33A, C) and were treated with

locking plate fixation between January 1, 2004, and January 1, 2011. The final study population included 82 fractures after excluding patients with open physes (n = 4), nondisplaced fractures (n = 4), early revision for technical failure (n = 4), or inadequate follow-up (n = 42). Intervention: Distal femur locking plate fixation. Main Outcome Measurements: Postoperative radiographs until final follow-up were assessed for cortical bridging at each cortex on anterior-posterior and lateral views. Images were analyzed independently by 3 orthopaedic traumatologists to allow for assessment of reliability. Final determination of union required both radiographic and clinical confirmation. Results: Assessment for any cortical bridging was the earliest accurate predictor of final union (95.1% accuracy at 4 months postoperatively), compared with criteria requiring bicortical bridging (93.9% accuracy at 6 months) and tricortical bridging (78% accuracy at 21 months). Any cortical bridging demonstrated a higher interobserver reliability (kappa = 0.73) relative to bicortical (kappa = 0.27) or tricortical bridging (kappa = 0.5). Conclusions: Our results for plate fixation of supracondylar distal femur fractures mirror those previously described for intramedullary nailing of tibia shaft fractures. Any radiographic cortical bridging by 4 months postoperatively is an accurate and reliable predictor of final healing outcome after locking plate fixation of supracondylar femur fractures. Assessment for bicortical or tricortical bridging is less reliable and inaccurate during the first postoperative year. Level of Evidence: Diagnostic Level III. See Instructions for Authors for a complete description of levels of evidence.

Trajectory of Short- and Long-Term Recovery of Tibial Shaft Fractures after Intramedullary Nail Fixation

Author(s): Ko S.J.; O'Brien P.J.; Guy P.; Broekhuyse H.M.; Blachut P.A.; Lefaivre K.A.

Source: Journal of Orthopaedic Trauma; Oct 2017; vol. 31 (no. 10); p. 559-563

Publication Type(s): Article

Abstract: Objective: To determine the trajectory of recovery after tibial shaft fracture treated with intramedullary nail over the first 5 years and to evaluate the magnitude of the changes in functional outcome at various time intervals. Design: Prospective cohort study. Setting: A Level 1 trauma center. Patients/Participants: One hundred thirty-two patients with tibial shaft fracture (OTA 42-A, B, C) were enrolled into the Center's prospective orthopaedic trauma database between January 2005 and February 2010. Functional outcome data were collected at baseline, 6 months, 1 year, and 5 years. Intervention: Enrolled patients were treated acutely with intramedullary nailing of their tibia. Main Outcome Measurements: Evaluation was performed using the Short Form-36 and Short Musculoskeletal Function Assessment (SMFA). Results: Mean SF-36 physical component scores improved between 6 and 12 months (P = 0.0008) and between 1 and 5 years (P = 0.0029). Similarly, mean SMFA dysfunction index scores improved between 6 and 12 months (P = 0.0254) and between 1 and 5 years (P = 0.0106). In both scores, the rate or slope of this improvement is flatter between 1 and 5 years than it is between 6 and 12 months. Furthermore, SF-36 and SMFA scores did not reach baseline at 5 years (SF-36 P

Does Provisional Plating of Closed Tibia Fractures Have Higher Complication Rates?

Author(s): Haller J.M.; Githens M.; Firoozabadi R.; Scolaro J.

Source: Journal of Orthopaedic Trauma; Oct 2017; vol. 31 (no. 10); p. 554-558

Publication Type(s): Article

Abstract: Objectives: To compare infection and nonunion rates after provisional plating (PP) with standard reduction (SR) techniques for closed tibia fractures treated with an intramedullary nail. Design: Retrospective comparative study. Setting: Level 1 academic trauma center. Patients/Participants: Of the 348 closed tibia fractures (Orthopaedic Trauma Association/Arbeitsgemeinschaft fur Osteosynthesefragen 42) treated using an intramedullary nail

from January 2007 through June 2015, 231 (40 PP and 191 SR) patients met inclusion/exclusion criteria. Intervention: The patients received either a provisional plate or an SR before intramedullary nail placement. Main Outcome Measurement: Infection and nonunion. Results: The PP cohort had a significantly higher proportion of high-energy injury mechanism and a significantly higher proportion of diabetes than the SR cohort. We were unable to demonstrate a difference in rates of infection [PP cohort (1/40, 2.5%) vs. SR cohort (6/191, 3.1%), P = 1.0], nonunion [PP cohort (3/40, 7.5%) vs. SR cohort (9/191, 4.7%), P = 0.44], or malunion [PP cohort (0/40, 0%) vs. SR cohort (8/191, 4.2%), P = 0.36]. Symptomatic implant removal was similar between the 2 groups [PP cohort (4/40, 10%) vs. SR cohort (27/191, 14%), P = 0.61]. Conclusion: PP can be used for complex, closed tibia fractures without an increased risk of infection, nonunion, and malunion compared with standard closed reduction techniques. Level of Evidence: Therapeutic Level III. See Instructions for Authors for a complete description of levels of evidence.

Structured reporting of MRI of the shoulder - improvement of report quality?

Author(s): Gassenmaier S.; Armbruster M.; Sommer W.H.; Sommer N.N.; Haasters F.; Helfen T.; Henzler T.; Alibek S.; Pforringer D.

Source: European Radiology; Oct 2017; vol. 27 (no. 10); p. 4110-4119

Publication Type(s): Article

Abstract: Objectives: To evaluate the effect of structured reports (SRs) in comparison to non-structured narrative free text (NRs) shoulder MRI reports and potential effects of both types of reporting on completeness, readability, linguistic quality and referring surgeons' satisfaction. Methods: Thirty patients after trauma or with suspected degenerative changes of the shoulder were included in this study (2012-2015). All patients underwent shoulder MRI for further assessment and possible surgical planning. NRs were generated during clinical routine. Corresponding SRs were created using a dedicated template. All 60 reports were evaluated by two experienced orthopaedic shoulder surgeons using a questionnaire that included eight questions. Results: Eighty per cent of the SRs were fully complete without any missing key features whereas only 45% of the NRs were fully complete (p

Low Incidence of Neurovascular Complications After Placement of Proximal Tibial Traction Pins.

Author(s): Sobol, Garret; Gibson, Peter; Patel, Param; Koury, Kenneth; Sirkin, Michael; Reilly, Mark; Adams, Mark

Source: Orthopedics; Oct 2017 ; p. 1-5

Publication Type(s): Journal Article

Abstract: Skeletal tibial traction is a temporizing measure used preoperatively for femoral fractures to improve the length and alignment of the limb and provide pain relief. The goal of this study was to identify possible neurovascular morbidity associated with the use of bedside skeletal tibial traction to treat femur fractures. All femoral fractures treated with proximal tibial traction during a 10-year period at an urban level I trauma center were retrospectively reviewed. The medical record was reviewed to determine whether a pin-related complication had occurred. Records also were reviewed to identify ipsilateral multi-ligamentous knee injuries that were not diagnosed until after the application of traction. In total, 303 proximal tibial traction pins were placed. A total of 7 (2.3%; 95% confidence interval, 0.60%-4.0%) pin-related neurologic complications and zero vascular complications were noted. All complications involved motor and/or sensory deficits in the distribution of the peroneal nerve. Of the 7 complications, 6 resolved fully after surgery and removal of the pin. After traction placement, 6 (2.0%) ipsilateral multiligamentous knee injuries were diagnosed. None of these patients had a neurovascular complication. This study suggests that

bedside placement of proximal tibial traction for femoral fractures is associated with a low incidence of neurovascular complications and that traction can be safely placed at the bedside by residents. A thorough neurovascular examination should be performed before insertion, and care should be taken to identify the proper starting point and reduce soft tissue trauma during pin placement.

Opioid Prescribing Practices by Orthopaedic Trauma Surgeons after Isolated Femur Fractures.

Author(s): Attum, Basem; Rodriguez, Andres Buitrago; Harrison, Nichelle; Evans, Adam; Obremskey, William; Sethi, Manish; Jahangir, Alex

Source: Journal of orthopaedic trauma; Oct 2017

Publication Type(s): Journal Article

Abstract:OBJECTIVEThe purpose of this retrospective study was to identify opioid prescribing practices, determine the number of morphine milliequivalents (MMEs) prescribed by orthopaedic/non-orthopaedic members to narcotic naive and previously exposed patients and provide narcotic prescribing recommendations.METHODSPatients over 18 years old with an isolated femur fracture sustained between 2013 and 2015 were identified using the CPT code 27506. Prescribing information was obtained from the State Controlled Substance Monitoring Database (CSMD). Descriptive analysis of MMEs was then performed. Outliers and patients without prescriptions from orthopaedic providers were excluded to eliminate skewing of data. Mean and standard deviations were then calculated for patients without a history of opiates prescribed within 1 year of injury and for patients with a history of opiates prescribed within 1 year prior to the injury.RESULTS45% (40/88) of patients were opiate exposed at the time of injury. Previously exposed patients received 1491 MMEs (SD 1044, median 1350, range 210 - 5140) and non-exposed received 1363 MMEs (SD 977.2, median 1260, range 105 - 4935) from orthopaedic providers (p=0.1473). Non-orthopedists prescribed 530 MMEs (SD 780.7, median 140, range 0 - 3515) to previously exposed patients and 175 MMEs (SD 393, median 140, range 0 - 1890) to patients without exposure (p<.0001).CONCLUSIONPatients with prior history are more likely to be prescribed more opiates after femoral shaft fracture treatment. We recommend a protocol of prescribing half the mean of MMEs currently prescribed by orthopedists equating to 47 (711 MMEs) pills of oxycodone 10 mg in up to three prescriptions.

Demographics, Mechanisms of Injury, and Concurrent Injuries Associated With Calcaneus Fractures: A Study of 14 516 Patients in the American College of Surgeons National Trauma Data Bank.

Author(s): Bohl, Daniel D; Ondeck, Nathaniel T; Samuel, Andre M; Diaz-Collado, Pablo J;

Source: Foot & ankle specialist; Oct 2017; vol. 10 (no. 5); p. 402-410

Publication Type(s): Journal Article

Abstract:BACKGROUNDThis study uses the American College of Surgeons National Trauma Data Bank (NTDB) to update the field on the demographics, injury mechanisms, and concurrent injuries among a national sample of patients admitted to the hospital department with calcaneus fractures.METHODSPatients with calcaneus fractures in the NTDB during 2011-2012 were identified and assessed.RESULTSA total of 14 516 patients with calcaneus fractures were included. The most common comorbidity was hypertension (18%), and more than 90% of fractures occurred via traffic accident (49%) or fall (43%). A total of 11 137 patients had concurrent injuries. Associated lower extremity fractures had the highest incidence and occurred in 61% of patients (of which the most common were other foot and ankle fractures). Concurrent spine fractures occurred in 23% of patients (of which the most common were lumbar spine fractures). Concurrent nonorthopaedic injuries included head injuries in 18% of patients and thoracic organ injuries in 15% of patients.CONCLUSIONThis national sample indicates that associated injuries occur in more than

three quarters calcaneus fracture patients. The most common associated fractures are in close proximity to the calcaneus. Although the well-defined association of calcaneus fractures with lumbar spine fractures was identified, the data presented highlight additional strong associations of calcaneus fractures with other orthopaedic and nonorthopaedic injuries.LEVELS OF EVIDENCEPrognostic, Level III: Retrospective review of a prospectively collected cohort.

Impact of CT scan utilization on surgical management and outcome in patients with severe traumatic brain injury at a tertiary care referral Hospital in Tanzania

Author(s): Schenck H.; Wu X.; Gerber L.M.; Shabani H.; Santos M.M.; Ngerageza J.; McClelland P

Source: Intensive Care Medicine Experimental; Sep 2017; vol. 5 (no. 2)

Publication Type(s): Conference Abstract

Available at Intensive Care Medicine Experimental - from Europe PubMed Central - Open Access

Abstract:INTRODUCTION.Traumatic brain injury (TBI) is a leading cause of death and disability in the developing world.Guidelines-based management is limited in low-middle income countries by resource availability, utilization and cost1.Computed tomography (CT) is particularly expensive, not consistently available, yet forms the core of surgical management of severe TBI patients.There is a lack of data on the pattern of utilization of CT in TBI patients in resource-limited settings in East Africa,2 while in other developing countries it is significantly inderutilized3.Therefore, an impact assessment of CT use in the management of severe TBI patients is necessary to develop culturally competent evidence-based protocols.OBJECTIVES.We evaluated the utilization of CT scan in the management of severe TBI and its impact on surgical treatment and 2-week patient mortality at a tertiary care referral hospital in Dar-es- Salaam, Tanzania.METHODS.This is a retrospective analysis of prospectively collected data of all severe TBI patients admitted to Muhimbili Orthopaedic Institute, Dar-es-Salaam, Tanzania, 2014-2017.The Brain Trauma Foundation TBI-trac database was implemented locally and utilized for this project.Epidemiological and treatment data was exported in an anonymized manner and analyzed.RESULTS.253 patients with severe TBI were enrolled.Average age was 33.65years, 87% were male, median initial GCS was 7, and overall mortality was 56.1%.From the 44.7% patients who had at least one brain CT scan: 92% had post-traumatic abnormalities, 35.5% underwent surgery and 46.5% died.Of the sub-group of patients who had a post-traumatic abnormality on CT, 36.6% were operated and 51.4% died.From the group of patients who did not undergo a CT scan on admission, only 12.2% underwent surgery and 66% died.CONCLUSIONS.The majority of patients did not undergo brain CT after severe TBI at our tertiary care hospital with a high overall 2- week mortality.Patients who underwent a cranial CT had a higher surgical rate and lower mortality than patients that did not have a CT on admission.The surgical mortality of severe TBI patients, with or without an admission CT is still high.We are currently exploring obstacles in routinely obtaining CT, and factors determining CTbased surgical intervention in these patients in order to help develop an evidence-based approach to lowering mortality after severe TBI.

Postoperative acute kidney injury prediction in orthopaedic surgery patients by urinary peptide panel: A cohort study

Author(s): Lowe A.; Walsh T.; Griffith D.; Mullen W.; Carrick E.; Mansoorian B.

Source: Anaesthesia; Sep 2017; vol. 72 ; p. 18

Publication Type(s): Conference Abstract

Abstract: Acute kidney injury (AKI) is a prominent problem associated with poor outcomes in hospital patients. Furthermore, evidence has shown even mild AKI is associated with increased risk of long-term mortality and chronic kidney disease development [1]. Early AKI diagnosis is hampered by lack of accurate early biomarkers which limits improvements in clinical management. It has been suggested that using multiple biomarkers could be key to diagnosing renal injury. An AKI multi-

peptide panel was previously established in intensive care patients using capillary-electrophoresis mass-spectrometry (CE-MS) [2]. We aimed to evaluate if, in a surgical population with potentially various AKI causes, AKI could be detected early and accurately by urinary peptide analysis. Methods Between January and March 2017, 39 patients at the Royal Infirmary of Edinburgh undergoing fractured neck of femur fixation were enrolled. Urine samples were analysed by CE-MS and peptide profiles compared to the AKI multi-marker panel for signs of AKI. Postoperative AKI was defined by KDIGO serum creatinine criteria - urine output criteria was not used as it is often not well documented on trauma wards. Primary outcome was presence or development of AKI within the first 7 days after surgery. Results From the 39 patients, 30 samples were successfully collected before the end of postoperative day 1 (sampling window). For the primary outcome, the panel demonstrated a promising area under the receiver operating characteristics curve of 0.80, with a 95% confidence interval of 0.56-1.00 (Fig. 1). The pre-specified threshold (from ICU derivation study) also appeared successful in this cohort. Duplicate analyses of the same sample produced similar results, demonstrating that CE-MS has good repeatability. Discussion This study demonstrates potential for early AKI detection with the CE-MS multi-marker panel in this cohort, highlighting applicability irrespective of underlying AKI cause. Further research with a larger sample size and higher event rate needs to be undertaken before any major conclusions can be made. The early diagnostic panel has potential to improve patient management and outcomes, with both short and long-term health benefits and financial benefits for health authorities.

The value of 3D printed models and virtual reality in understanding acetabular fractures

Author(s): Brouwers L.; Pull Ter Gunne A.F.; Jongh De M.A.C.; Bemelman M.; Lansink K.W.W.

Source: European Surgical Research; Sep 2017; vol. 58 ; p. 15

Publication Type(s): Conference Abstract

Abstract: Introduction: Acetabular fractures are complex and difficult to understand. We hypothesize that 3D printing and Virtual Reality (VR) will lead to an increased understanding and knowledge about the acetabular fracture for inexperienced observers. Method: Seven senior trauma surgeons, 5 junior orthopedic surgeons, 5 senior surgical residents, 5 junior surgical residents and 5 surgical interns were asked to classify 20 acetabular cases on Xray and 2D CT, 3D-reconstructions, 3D printed models and VR according to the Judet-Letournel classification. Furthermore, all fellowshiptrained- and senior trauma orthopedic surgeons were asked to evaluate their surgical approach for every acetabular fracture. Results: Senior surgeons (? = 0.34), junior surgeons (? = 0.24), senior surgical residents (? =0.20), junior surgical residents (? = 0.018) and interns (? = 0.18) showed fair interobserver agreements for X-ray/2D CT. However, 3D printing showed moderate and substantial inter-observer agreements for senior surgeons (? = 0.60), junior surgeons (? = 0.58), senior surgical residents (? = 0.67) and interns (? = 0.62). VR inter-observer agreements increased especially for junior surgeons and senior-and junior surgical residents, respectively ? = 0.50, ? = 0.53 and ? = 0.54. The inter-observer agreements about the surgical approach remained approximately the same for senior surgeons on all diagnostic imaging tools. However the inter-observer statistics increased from fair (? = 0.18) to a moderate agreement (? = 0.40, ? = 0.32) for junior surgeons when comparing X-ray/2D CT with 3D printed models and VR. Conclusion: We conclude that 3D printing can be of added value in understanding acetabular fractures whereas VR is of added value for the future generation trauma orthopedic surgeons. We recommend for implementation of 3D printed models and VR models in the orthopedic surgery training.

Musculoskeletal Tissue Regeneration: the Role of the Stem Cells

Author(s): Narayanan G.; Bhattacharjee M.; Nair L.S.; Laurencin C.T.

Source: Regenerative Engineering and Translational Medicine; Sep 2017; vol. 3 (no. 3); p. 133-165

Publication Type(s): Review

Abstract: Abstract: Ligament, cartilage, and meniscus injuries often have poor healing due to low vascularity and low proliferative abilities of the resident cells. Drawbacks with conventional treatment methodologies have prompted interest in a new approach we term "Regenerative Engineering" to regenerate orthopaedic tissues. The work of cells is of central importance in the Regenerative Engineering paradigm. In this regard, both differentiated cells and stem cells such as bone marrow stromal cells have been studied as sources for orthopaedic tissue regeneration. In addition, other stem cells such as those derived from peripheral blood, synovium, adipose, and other extraembryonic sources have been isolated and characterized and subsequently investigated for regenerating various orthopaedic tissues. In this review, recent developments in the stem cell-mediated regeneration of ligament, cartilage, and menisci are discussed. Lay Summary: Most orthopaedic tissue ailments originate from trauma or degenerative diseases. Commonly utilized strategies in clinical settings have shortcomings such as poor or incomplete healing. By converging advanced materials science with stem cells, growth factors/small molecules, and developmental biology, regenerative engineering is expected to provide strategies for orthopaedic tissue regeneration. In this review, we discuss various cell sources that have been isolated, characterized, and studied for regenerating orthopaedic tissues. Some of the underlying molecular mechanisms involved in those cells are also discussed. In addition, various approaches based on those cell sources for regenerating ligament, cartilage, and meniscus tissues are reported. In the future, cell-based approaches discussed in this review need to be combined with other salient aspects of regenerative engineering to facilitate activation of multiple signaling pathways required for tissue regeneration. Via such a holistic approach, we anticipate regeneration of ligaments, cartilage, and meniscus with features similar to that of native tissue.

Rare imaging of a known entity: fat embolism seen on CT in lower extremity vein after trauma

Author(s): Chowdhary V.; Mehta V.; Bajaj T.; Scheiner J.

Source: Radiology Case Reports; Sep 2017; vol. 12 (no. 3); p. 488-490

Publication Type(s): Article

Available at Radiology Case Reports - from Europe PubMed Central - Open Access

Abstract: Fat embolism occurs in the vast majority of patients who have had trauma (approximately 90%). The most common occurrence is after long bone fracture. It has also been noted in cases after orthopedic surgery. Fat embolism is most often diagnosed when the clinical manifestations of fat embolism syndrome become apparent. Reported cases of fat emboli in transit are unusual. In our case, we present the rare finding of fat embolism seen on computed tomography in the lower extremity after a trauma.

Evaluation of the new C-arm guiding system ClearGuide in an orthopaedic and trauma operating theatre

Author(s): Muller M.C.; Frege S.; Strauss A.C.; Gathen M.; Windemuth M.; Striepens E.N.

Source: International Journal of Medical Robotics and Computer Assisted Surgery; Sep 2017; vol. 13 (no. 3)

Publication Type(s): Article

Abstract: Background: The objective was to evaluate whether the new intraoperative C-arm guiding system ClearGuide (CG) reduces radiation exposure of the staff in an Orthopaedic and Trauma operation theatre. Methods: Data of 95 patients CG was used were retrospectively compared using matched-pair analysis with controls without CG. Radiation dose (RD), fluoroscopic time (FT) and

operation time (OT) were analysed in ten types of operative procedures. Results: Use of CG led to a significant reduction (p

Atypical oligoarticular juvenile arthritis in children: Elbow chronic monoarthritis

Author(s): Kozhevnikov A.; Pozdeeva N.; Konev M.; Nikitin M.; Bryanskaya A.; Prokopovich E.

Source: Pediatric Rheumatology; Sep 2017; vol. 15 ; p. 60-61

Publication Type(s): Conference Abstract

Available at Pediatric Rheumatology - from BioMed Central

Abstract: Introduction: Juvenile arthritis is a broad term that describes hetero-geneous group of a chronic inflammatory joint disease which characterized by progressive course leading reduced mobility and function. Progressive chronic arthritis of an unknown cause lasting for at least more than three months are the main diagnostic criteria of JIA. A typical classic variant of oligoarticular JIA (oligo-JIA) is well known. Monoarthritis of the elbow joint is atypical onset oligo-JIA. It's diffi-cult to differentiate of elbow chronic synovitis due to clinically het-erogeneous. The instrumental and specific diagnostic tests are great assistance to determine cause of synovitis. Objectives: Chronic synovitis in children arises from several causes. There are inflammatory, infectious, traumatic, reactive, hemorrhagic, neoplastic and undifferent etiologies of synovial diseases. Usually chronic elbow monoarthritis associated with tumor-like conditions (pig-mented villonodular synovitis, synovial haemangioma and chondroma-tosis), osteomyelitis, tuberculosis arthritis, osteochondropathy and rare JIA. The aim of the present study was to determine diagnostic and treatment strategies of elbow monoarthritis manifested like oligo-JIA. Methods: We carried out a retrospective review of sixteen children with chronic undifferentiated elbow monoarthritis which were hospi-talized at Children Orthopedics Institute, Saint-Petersburg (rheuma-tology department) between 2011 and 2016. The data of clinical, serological, X-ray, ultrasound, MRI, arthroscopy and synovial fluid were analyzed. Detected atypical/diffuse form synovial proliferation or limited to a well-defined single nodule were recommended for arthroscopy and biopsy. Six children were excluded from study due to verification of cause elbow monoarthritis: 6-yr-old girl-PVNS, 10-yr-old boy cavernous haemangioma and 17-yr-old boy-synovial chondromatosis, 2 small girls and 1 boy-osteoid osteoma. Ten children were study group (median age 5,8 +/- 2,5, range 3-11 years; female 90%, male 10%). Children with post-traumatic elbow joint transient effusion were controls. Results: Trauma of elbow joint related to onset chronic arthritis, progressive flexure contracture with dry synovitis, low activity and the long-term period absence of clinical involvement of other joints were occurred in all children. Asymptomatic early-stage, progressive flexure/combined contracture less joint effusion and morning stiffness were cause of late diagnosis of oligo-JIA. Only seven children (all girls) were ANF positive >= 1:160, two HLA-B27 positive. Radiographic finding of early-stage JIA were accelerated cartilage model ossification of distal humeral epiphysis and trochlear, osteoporosis with sub-chondral bone sclerosis and cyst-like deformation. The MR imaging were non-specific inflamed elbow synovium. Overgrowth of epiphy-sis and trochlear with joint space narrowing, deformation articular surfaces with erosive changes were radiographic findings of late-stage JIA. MR imaging revealed significance multiple erosive synovitis with bone cyst-like deformation. Ultrasound wasn't show elbow synovitis at half of the study children. 70% children were negative effect of monotherapy NSAID. Positive treated effect was achieved after intra-articular triamcinolone injection (20-40 mgs) and metho-trexate therapy (15 mg/m2/week) > 6 months, splinting and physio-therapy. After 2-3 years 30% children were persistence oligo-JIA (involved wrist or knee), 40%-extended oligo-JIA, 30%-isolated monoarthritis. Children with post-traumatic elbow joint deformation haven't revealed chronic synovitis. Conclusion: Monoarthritis of elbow joint are rare atypical manifestation of pauciarticular JIA. Non-specific clinical signs and instrumental imaging may contribute to diagnostic problems of elbow chronic synovitis. Therapy of elbow chronic idiopathic

monoarthritis must be coincide treat-to-target strategy in juvenile arthritis. Ultrasound can't be the decisive diagnostic method of chronic elbow pathology.

Usefulness of magnetic resonance imaging in early assesment of low back pain with possible inflammatory cause in children

Author(s): Lamot L.; Vidovic M.; Mustapic M.; Lamot M.; Rados I.; Rubelj K.; Harjacek M.

Source: Pediatric Rheumatology; Sep 2017; vol. 15 ; p. 15-16

Publication Type(s): Conference Abstract

Available at Pediatric Rheumatology - from BioMed Central

Abstract: Introduction: Low back pain (LBP) is a common complaint in adults that often begins in childhood. Despite the increasing frequency, it is estimated only 24% of children with LBP visit a doctor. Nevertheless, those patients are often seen in Pediatric Rheumatology clinic. Although most of the LBP cases after exclusion of trauma are caused by benign musculoskeletal disease, a history of sacroiliac (SI) joint tenderness anD/Or inflammatory lumbosacral (LS) pain is one of the ILAR classification criteria for enthesitis related arthritis (ErA), a form of juvenile idiopathic arthritis (JIA) that includes most of the patients with juvenile spondyloarthritis (jSpA). Recognition of jSpA particularly early in the course of the disease represents a unique set of challenges and therefore all of the patients with inflammatory back pain (IBP) and arthritis or enthesitis should be suspected for jSpA with possible involvement of SI and other vertebral joints. Since magnetic resonance imaging (MRI) is the preferred method of assessment both for axial inflammation and other possible musculoskeletal, infectious and malignant causes of LBP in children, it might be advisable to use it in the initial assessment of suspected IBP in children. Objectives: To evaluate the usefulness of early MRI in discovering inflammation of spinal joints and other possible causes of LBP in children with suspected IBP not fulfilling ILAR classification criteria for ErA at the time of investigation. Methods: Thirty five children referred to our Pediatric Rheumatology clinic due to LBP lasting for more than three months, who meet ASAS criteria for IBP and had SI joint tenderness and positive FABRE test on physical examination, participated in the study. Their average age was 14.2 years (6-18) and 11 (31.4%) of them were boys. Five study participants (14.3%) had arthritis and 19 (54.3%) had enthesitis confirmed by physical examination and ultrasound, but none of them meet ILAR criteria for ErA at the time. Twelve (out of 15) were HLA-B27 positive and 13 (37.1%) had a history of SpA related disease in a first degree relative. One of the patients had a diagnosis of ul-cerative colitis (UC), and one of psoriasis. All of the participants had normal CBC and CRP values, with negative ANA and RF. None had neurological symptoms. Contrast enhanced MRI of SI joints and thoracolumbar spine was performed according to recommended protocols for the assesment of inflammatory changes within one week after initial visit on a 1.5 T machine and interpreted by experi-enced musculoskeletal radiologist. Results: Nineteen (54,3%) patients had various pathological findings detected by MRI. Four (11,4%) had signs of inflammation with one having an active sacroiliitis according to ASAS criteria. Schmorl nodes were discovered in six patients and three of them, including one with the signs of inflammation, had Scheuermann disease. Two patients had stress reaction in LS region. Five patients had incipient degeneration of intervertebral discs. Three patients had disc protrusion without and one with radial nerve compression. After three months of follow up, 19 patients (54.3%) meet ILAR criteria for ErA, one for psoriatic arthritis and one, who also had UC, meet criteria for undifferentiated arthritis. Conclusion: Differential diagnosis of LBP in children is very wide and it is difficult to distinguish inflammatory and other causes upon the first encounter with pediatric rheumatologist based on history and physical examination alone. In our study, all of the patients with LBP had some characteristics of IBP and ErA, while definite diagnosis of jSpA was subsequently established in almost 60% of the patients. Interestingly, 20% of them already had inflammatory changes of LS and SI joints discovered by MRI, while many others had signs of other LBP causes. Therefore, MRI performed early after referral to pediatric rheumatologist, in all children

with suspected IBP, can be very useful in elucidating the cause of LBP and differentiation of those who need only symptomatic relief, orthopedic consultation or further follow up in Pediatric Rheumatology clinic. High cost of this approach can be justified with the benefit of early therapeutic intervention in those with established axial inflammation and the avoidance of unnecessary treatment in those with other causes.

Adamantinoma of the tibia: A case report

Author(s): Baral R.

Source: Virchows Archiv; Sep 2017; vol. 471 (no. 1)

Publication Type(s): Conference Abstract

Abstract: Objective: Adamantinoma is one of the rarest low-grade malignant bone tumours which is predominantly located in the mid-portion of the tibia. It comprises of only 0.1-0.5%of all primary bone tumours. The symptoms are indolent, nonspecific with slow progression of the painless swelling. Histologically, classic Adamantinoma is a biphasic tumour with epithelial and osteofibrous component intermingled with each other. Method: Poster Presentation for case report Results: A 22 year old male presented to Orthopaedic department with history of painless swelling in the right leg following trauma in the same leg 2 years ago. MRI showed two lesions in the right tibia. Histology showed epithelial cells arranged in islands with glandular pattern in a fibrous stroma. Immunohistochemistry showed positivity for cytokeratin and vimentin. Conclusion: Though a rare and indolent tumour, Adamantinoma, can metastasize to lungs or recur locally, hence, a complete and sufficient surgery is necessary.

Case report: Secondary osteosarcoma arising in the femur of a 26-year-old woman with a long-standing benign orthopaedic condition

Author(s): Andreoiu O.-M.; Pop D.M.

Source: Virchows Archiv; Sep 2017; vol. 471 (no. 1)

Publication Type(s): Conference Abstract

Abstract: Objective: Osteosarcoma arising in association with metallic orthopaedic devices(DCS) in benign conditions (symple bone cyst- SBC) is rare, understudied and has unknown mechanisms. Our pacient known with SBC had multiple surgical orthopaedic interventions for complications (infection, fracture) and ultimately developed an osteosarcoma. Method:We present a case of a 26-year-old woman with a long history of disease. Thirteen years ago the patient suffered a pathologic fracture of the right femoral neck due to SBC, underwent orthopaedic reduction and plaster cast immobilization, healed with secondary coxa vara, limb shortening and difficulty walking. In 2010, was admitted for open curettage with bone grafting, Pauwels osteotomy and plate osteosynthesis using DCS with favorable recovery. At that time, histopathology was negative formalignancy and the radiologic data supported the findings. The patient was stationary on routine radiologic examination(available-end 2013). In 2017, presented with pain/difficulty walking, radiology showed the presence of the osteosynthetic metallic material and changes indicative of malignancy, no metastasis. Arteriography with right AFP embolisation and surgical biopsy were done, followed by segmental femoral resection with modular bipolar prosthesis, good recovery. The surgical specimens were adequately processed-histopathologically/immunohistochemically examined. Results: On microscopy, histopathological profile was:conventional osteosarcoma with extension in surrounding soft tissue . Immunohistochemic profile: CD56 difusely positive, MDM2-focally positive, S100-positive, Ki67-positive in 40 % of neoplastic cells. Conclusion: Although very rare, published cases of osteosarcoma secondary to metallic implants do exist. Such cases should be reported because the literature does not provide sufficient data and further studies are needed in assesing additional risk factors, such as infection and trauma.

The predictable factors of the postoperative kyphotic change of sagittal alignment of the cervical spine after the laminoplasty

Author(s): Lee J.S.; Son D.W.; Lee S.H.; Kim D.H.; Lee S.W.; Song G.S.

Source: Journal of Korean Neurosurgical Society; Sep 2017; vol. 60 (no. 5); p. 577-583

Publication Type(s): Article

Available at Journal of Korean Neurosurgical Society - from Europe PubMed Central - Open Access

Abstract: Objective: Laminoplasty is an effective surgical method for treating cervical degenerative disease. However, postoperative complications such as kyphosis, restriction of neck motion, and instability are often reported. Despite sufficient preoperative lordosis, this procedure often aggravates the lordotic curve of the cervical spine and straightens cervical alignment. Hence, it is important to examine preoperative risk factors associated with postoperative kyphotic alignment changes. Our study aimed to investigate preoperative radiologic parameters associated with kyphotic deformity post laminoplasty. Methods: We retrospectively reviewed the medical records of 49 patients who underwent open door laminoplasty for cervical spondylotic myelopathy (CSM) or ossification of the posterior longitudinal ligament (OPLL) at Pusan National University Yangsan Hospital between January 2011 and December 2015. Inclusion criteria were as follows: 1) preoperative diagnosis of OPLL or CSM, 2) no previous history of cervical spinal surgery, cervical trauma, tumor, or infection, 3) minimum of one-year follow-up post laminoplasty with proper radiologic examinations performed in outpatient clinics, and 4) cases showing C7 and T1 vertebral body in the preoperative cervical sagittal plane. The radiologic parameters examined included C2-C7 Cobb angles, T1 slope, C2-C7 sagittal vertical axis (SVA), range of motion (ROM) from C2-C7, segmental instability, and T2 signal change observed on magnetic resonance imaging (MRI). Clinical factors examined included preoperative modified Japanese Orthopedic Association scores, disease classification, duration of symptoms, and the range of operation levels. Results: Mean preoperative sagittal alignment was 13.01degree lordotic; 6.94degree lordotic postoperatively. Percentage of postoperative kyphosis was 80%. Patients were subdivided into two groups according to postoperative Cobb angle change; a control group (n=22) and kyphotic group (n=27). The kyphotic group consisted of patients with more than 5degree kyphotic angle change postoperatively. There were no differences in age, sex, C2-C7 Cobb angle, T1 slope, C2-C7 SVA, ROM from C2-C7, segmental instability, or T2 signal change. Multiple regression analysis revealed T1 slope had a strong relationship with postoperative cervical kyphosis. Likewise, correlation analysis revealed there was a statistical significance between T1 slope and postoperative Cobb angle change (p=0.035), and that there was a statistically significant relationship between T1 slope and C2-C7 SVA (p=0.001). Patients with higher preoperative T1 slope demonstrated loss of lordotic curvature postoperatively. Conclusion: Laminoplasty has a high probability of aggravating sagittal balance of the cervical spine. T1 slope is a good predictor of postoperative kyphotic changes of the cervical spine. Similarly, T1 slope is strongly correlated with C2-C7 SVA.

Damage control surgery - Experiences from a level i trauma center

Author(s): Gasser B.; Tiefenboeck T.M.; Boesmueller S.; Platzer P.; Bukaty A.; Kivaranovic D.

Source: BMC Musculoskeletal Disorders; Sep 2017; vol. 18 (no. 1)

Publication Type(s): Article

Available at BMC Musculoskeletal Disorders - from EBSCO (MEDLINE Complete)

Abstract: Background: There is still no evidence in literature for damage control orthopaedics (DCO), early total care (ETC) or using external fixation solely in fractures of the long bones in multi-system-trauma. The aim of this study was to determine parameters influencing the choice of treatment in clinical routine (DCO, ETC, or EF) in femoral or tibial shaft fractures in combination with multi-

system-trauma, severe soft tissue damage or both. Methods: Data of 236 patients with 280 fractures of long bones of the lower extremities treated at a level I trauma center were analysed. Clinical parameters on arrival (age, sex [m/f], ISS, fracture site [femur/tibia], soft tissue damage [closed or open fractures according to the Gustilo-Anderson classification], pulmonary injury [yes/no]) were collected and analysed whether they influence the choice of upcoming treatment (DCO/ETC/EF). Results: Our findings showed that high ISS and severe soft tissue damage (grade III) significantly correlated with DCO. High ISS, old age, female sex and fracture site (tibia) correlated with EF. This group of sole use of external fixation had highest rate of complications, 69% were associated with at least one complication. Conclusion: Severely injured patients are treated significantly more often with DCO or EF. The presence of higher ISS (>=16) and of type III open fractures increased the use of DCO. However, ISS, fracture-site, patient's age, type III open fractures or sex (female) increased the use of EF compared to ETC.

Fat emboli syndrome and the orthopaedic trauma surgeon: lessons learned and clinical recommendations

Author(s): Dunn R.H.; Jackson T.; Burlew C.C.; Pieracci F.M.; Fox C.; Cohen M.; Campion E.M.

Source: International Orthopaedics; Sep 2017; vol. 41 (no. 9); p. 1729-1734

Publication Type(s): Article

Abstract: Purpose: Fat emboli syndrome is a rare but well-described complication of long-bone fractures classically characterised by a triad of respiratory failure, mental status changes and petechial rash. In this paper, we present the case of a patient who sustained bilateral femoral fractures and subsequently developed FES. Our aim was to review and summarise the current literature regarding the pathophysiology and management of fat emboli syndrome (FES) and propose an algorithm for treating patients with bilateral femoral fractures to reduce the risk of FES. Methods: A literature analysis was performed to determine implications in the clinical setting. Results: Currently, there exists little high-quality evidence to guide the orthopaedic surgeon in identifying patients at highest risk of FES or in preventing FES in patients with multiple long-bone fractures. However, the literature does suggest that the risk is directly related to the volume of marrow displaced and inversely related to both the time to fracture stabilisation and the respiratory reserve of the patient. Based on these correlations, we propose an algorithm for treating patients with bilateral femoral fractures, taking into consideration haemodynamic and pulmonary stability. Conclusions: Our algorithm for managing bilateral femoral fractures prioritises early stabilisation with external fixation, staged intramedullary nailing and conversion to plate fixation if FES develops. This protocol is meant to be the basis of future investigations of optimal treatment strategies.

Erratum: Outcomes after severe distal tibia, ankle, and/or foot trauma: Comparisons of limb salvage versus transtibial amputation (OUTLET) (Journal of Orthopaedic Trauma (2017) 31:Suppl 1 (S48-S55) DOI: 10.1097/BOT.0000000000000799)

Author(s): anonymous

Source: Journal of Orthopaedic Trauma; Sep 2017; vol. 31 (no. 9)

Publication Date: Sep 2017

Publication Type(s): Erratum

Abstract: In the article that appeared on page S48, an investigator was not included in the METRC group authorship acknowledgment. The correct acknowledgment should include: University of Miami Ryder Trauma Center: Stephen Quinnan, MD. Jan Paul Ertl, MD and Karl Shiverly, MD are incorrectly listed under Methodist Hospital. The correct affiliation for these authors is Eskenazi Health.

Erratum: A prospective randomized trial to assess fixation strategies for severe open tibia fractures: Modern ring external fixators versus internal fixation (FIXIT study) (Journal of Orthopaedic Trauma (2017) 31:Suppl 1 (S10-S17) DOI: 10.1097/BOT.0000000000000804)

Author(s): anonymous

Source: Journal of Orthopaedic Trauma; Sep 2017; vol. 31 (no. 9)

Publication Type(s): Erratum

Abstract: In the article that appeared on page S10, several investigators were not included in the METRC group authorship acknowledgement. The correct acknowledgement should include: University of Wisconsin: Christopher Doro, MD; Paul Whiting, MD; David Goodspeed, MD; Gerald Lang, MD. Jose Santayo is incorrectly listed under University of Texas Health Science Center at Houston. The correct affiliation is University of Texas Southwestern Medical Center.

Erratum: Intramedullary nail fixation of atypical femur fractures with bone marrow aspirate concentrate leads to faster union: A case-control study (Journal of Orthopaedic Trauma (2017) 31 (358-362) DOI: 10.1097/BOT.0000000000000851)

Author(s): anonymous

Source: Journal of Orthopaedic Trauma; Sep 2017; vol. 31 (no. 9)

Publication Type(s): Erratum

Abstract: In the article that appeared on page 358 of the July 2017 issue of the Journal of Orthopaedic Trauma, what is listed in Table 1 under Control for Female is incorrect. The correct information is 90.9% (20).

Muscle versus Fasciocutaneous Free Flaps in Lower Extremity Traumatic Reconstruction: A Multicenter Outcomes Analysis.

Author(s): Cho, Eugenia H; Shammas, Ronnie L; Carney, Martin J; Weissler, Jason M;

Source: Plastic and reconstructive surgery; Sep 2017

Publication Type(s): Journal Article

Abstract:PURPOSEClinical indications are expanding for the use of fasciocutaneous free flaps in lower extremity traumatic reconstruction. We assessed the impact of muscle versus fasciocutaneous free flap coverage on reconstructive and functional outcomes.METHODSA multicenter retrospective review was conducted on all lower extremity traumatic free flaps performed at Duke University (1997-2013) and the University of Pennsylvania (2002-2013). Muscle and fasciocutaneous flaps were compared in two subgroups (acute trauma and chronic traumatic sequelae), according to limb salvage, return to ambulation, flap outcomes, and secondary flap procedures.RESULTSA total of 518 lower extremity free flaps were performed for acute traumatic injuries (n=238) or chronic traumatic sequelae (n=280). Muscle (n=307) and fasciocutaneous (n=211) flaps achieved similar cumulative limb salvage rates in acute trauma (90% versus 94%; p=0.56) and chronic trauma subgroups (90% versus 88%; p=0.51). In addition, flap choice did not impact functional recovery (p=0.83 for acute trauma; p=0.49 for chronic trauma). Flap groups did not differ in the rates of flap thrombosis, flap salvage, flap loss, or nonunion requiring bone grafting in Gustilo IIIb tibial fractures. Fasciocutaneous flaps were more commonly re-elevated for subsequent orthopedic procedures (p<0.01) and required fewer secondary skin grafting procedures (p=0.01). Reconstructive and functional outcomes were heavily influenced by the severity of the original defect.CONCLUSIONSMuscle and fasciocutaneous free flaps achieved comparable rates of limb salvage and functional recovery. Fasciocutaneous flaps

enabled re-elevation for orthopedic procedures and limited the need for secondary skin grafting. Flap selection should be guided by defect characteristics and reconstructive needs.

Locking Screw Migration to the Palm Four Years Following Surgical Implantation of Distal Radius Locking Plate.

Author(s): Marwan, Yousef; Makhdom, Asim M; Berry, Gregory

Source: The journal of hand surgery Asian-Pacific volume; Sep 2017; vol. 22 (no. 3); p. 363-365

Publication Type(s): Journal Article

Abstract: Hardware-related complications are rare in patients with distal radius fractures who were surgically fixed with volar-locking plates. In this report, we present a case of locking screw loosening and migration to the palm four years following the treatment of type 23-C1 distal radius fracture with a volar locking-plate. This complication occurred without evidence of trauma, infection, non-union or plate breakage. Orthopaedic surgeons should be aware of such rare complication and add it to the list of potential postoperative complications when counseling their patients preoperatively.

Extent and Morbidity of Lateralization of a Trochanteric Fixation Nail Blade.

Author(s): Sandifer, Phillip A; Hulick, Robert M; Graves, Matthew L; Spitler, Clay A; Russell, George V; Hydrick, Josie M; Jones, LaRita C; Bergin, Patrick F

Source: Orthopedics; Sep 2017; vol. 40 (no. 5); p. e886

Publication Type(s): Journal Article

Abstract: This study examined the incidence and risk factors associated with lateral helical blade migration and trochanteric pain with the trochanteric fixation nail. A retrospective review was performed of 141 cases of pertrochanteric femur fracture treated with a trochanteric fixation nail at a level I trauma center over a period of 42 months. Exclusion criteria included follow-up of less than 60 days, preexisting osteonecrosis of the femoral head, and prophylactic trochanteric fixation nail treatment. Patient demographics, operative findings, and radiographic findings were recorded. Medical records were reviewed to identify symptomatic hardware. Overall, 27 patients (19.1%) were symptomatic, and 3 (2.1%) required revision surgery for blade prominence. Of the patients, 42 (30%) had lateralization of greater than 1 cm, and 16 of these (38.1%) were symptomatic (P<.02). A risk factor for lateralization was AO classification, with 46.1% of type A2 fractures showing lateralization of greater than 1 cm. The quality of calcar reduction nearly reached statistical significance, and 44.8% of patients who had inadequate reduction had lateralization of greater than 1 cm compared with 26.4% of patients who had adequate reduction (P=.054). Lateralization of greater than 1 cm was directly associated with the presence of symptoms (P<.001) and removal of hardware because of trochanteric pain (P=.007). Multivariate analysis showed that increasing tip-apex distance, inadequate calcar reduction, and greater fracture severity were predictive of excessive lateralization of greater than 1 cm. Nearly 20% of patients had lateral hip pain associated with cephalomedullary fixation. Final lateralization of the helical blade of greater than 1 cm was a very strong predictor of symptoms. During preoperative counseling, surgeons should caution patients about this relatively frequent and likely underreported complication. [Orthopedics. 2017; 40(5):e886-e891.].

Database: Medline

Exercise: Sensitivity and Specificity

Sensitivity:
If a person has a disease, how often will the test be positive (true positive rate)?

If the test is highly sensitive and the test result is negative you can be nearly certain that they don't have disease.

Specificity:
If a person does not have the disease how often will the test be negative (true negative rate)?

If the test result for a highly specific test is positive you can be nearly certain that they actually have the disease.

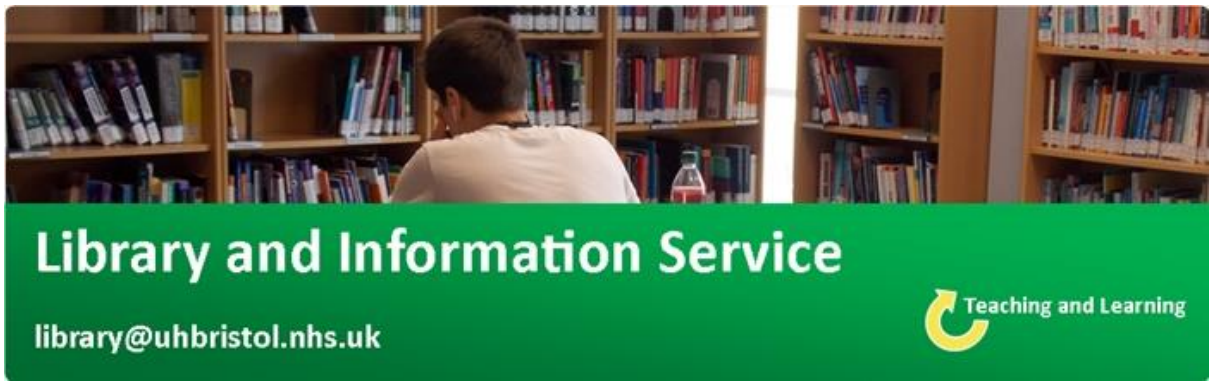
Quick Quiz:

1. **A very sensitive test, when negative, helps you:**
   a: Rule-in disease
   b: Rule-out disease
   c: Confuse medical students
   d: Save money

2. **A test which is highly specific, when positive, helps you:**
   a: Rule-in disease
   b: Rule-out disease
   c: Confuse medical students
   d: Save money

To find out more about medical statistics, sign up for one of our training sessions. To book a session or for more details, email library@uhbristol.nhs.uk.

Answers: 1b; 2a



Library Opening Times

Staffed hours: 8am-5pm, Monday to Friday

Swipe-card access: 7am-11pm, seven days a week

Level 5, Education and Research Centre

University Hospitals Bristol

Contact your Outreach Librarian:

Jo Hooper

library@uhbristol.nhs.uk

Ext. 20103