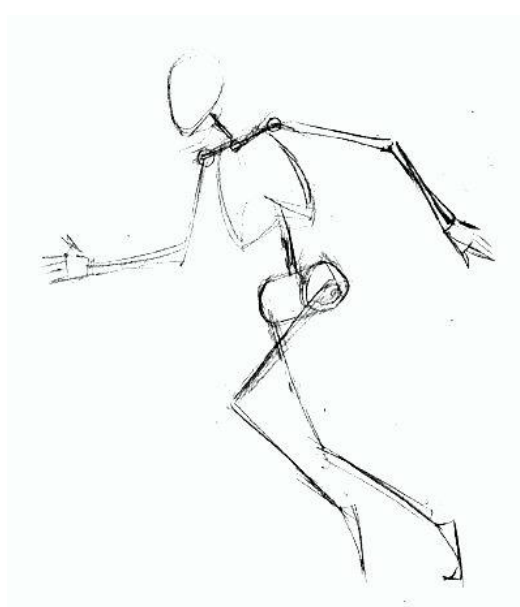


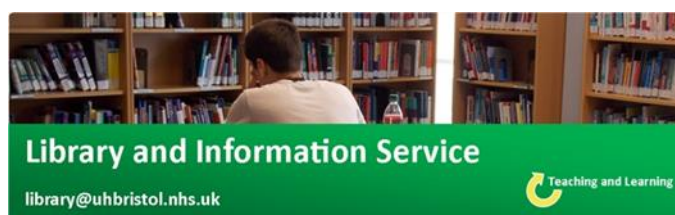
Trauma & Orthopaedics

Current Awareness Newsletter



February 2017 (Quarterly)

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Training Calendar 2017

All sessions are one hour

February (12pm - 1pm)

Fri 3rd	Literature searching
Mon 6th	Critical Appraisal
Tues 14th	Interpreting Statistics
Weds 22nd	Literature Searching

March (1pm - 2pm)

Thurs 2nd	Critical Appraisal
Fri 10th	Interpreting Statistics
Mon 13th	Literature Searching
Tues 21st	Critical Appraisal
Weds 29th	Interpreting Statistics

April (12pm - 1pm)

Thurs 6th	Literature Searching
Mon 10th	Critical Appraisal
Tues 18th	Interpreting Statistics
Thurs 27th	Literature Searching

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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

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Overview of damage control surgery and resuscitation in patients sustaining severe injury

- [Damage control surgery](#)
- [Indications and presurgery damage control](#)
- [Summary and recommendations](#)

General principles of fracture management: Early and late complications

- [Nerve injury](#)
- [Arterial injury](#)
- [Summary and recommendations](#)

Pelvic trauma: Initial evaluation and management

- [Epidemiology > Associated injuries](#)
- [Pediatric considerations > Associated injuries](#)
- [Pelvis injury](#)
- [Acetabular injury](#)
- [Summary and recommendations](#)

Digit dislocation reduction

- [Return to play](#)
- [Evaluation](#)
- [Differential diagnosis](#)
- [Metatarsophalangeal dislocation](#)
- [Summary](#)

Splinting of musculoskeletal injuries

- [Basic principles](#)
- [Splint application](#)
- [Summary](#)

Metacarpal shaft fractures

- [Fracture patterns and mechanism of injury](#)
- [Summary and recommendations](#)

[Diagnosis and management of an acute knee injury](#)

19 January 2017 - Publisher: British Medical Journal

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- **More:** [Medicines Current Awareness](#)

[Upper and lower extremity reconstructive applications utilizing free flaps from the medial genicular arterial system: A systematic review](#)

Source: [PubMed](#) - 27 December 2016

[Read Summary](#)

- **More:** [Systematic Reviews](#)

[A Bayesian network meta-analysis of three different surgical procedures for the treatment of humeral shaft fractures](#)

Source: [PubMed](#) - 01 December 2016

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[Postoperative Computed Tomography for Articular Fractures: A Systematic Review](#)

Source: [PubMed](#) - 01 January 2017

[Read Summary](#)

- **More:** [Systematic Reviews](#)



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[Interventions for treating simple bone cysts in the long bones of children](#)

Jia-Guo Zhao, Jia Wang, Wan-Jie Huang, Peng Zhang, Ning Ding, Jian Shang

Online Publication Date: February 2017

[Conservative interventions for treating middle third clavicle fractures in adolescents and adults](#)

Mário Lenza, Flávio Faloppa

Online Publication Date: December 2016



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Health Education England

Current Awareness Database Articles related to Orthopaedics

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

Radiographic predictors of symptomatic screw removal after retrograde femoral nail insertion

Author(s): Hamaker M.; O'Hara N.N.; Eglseder W.A.; Sciadini M.F.; Nascone J.W.; O'Toole R.V.

Source: Injury; 2017

Publication Type(s): Journal: Article In Press

Abstract:Introduction: Removal of symptomatic implants is a common procedure performed by orthopaedic trauma surgeons. No guidance is available regarding which factors contribute to the likelihood of an implant becoming symptomatic. Our objective was to determine whether radiographic parameters associated with distal interlocks in retrograde femoral nails are associated with the rate of symptomatic screw removal. Patients and methods: We conducted a retrospective review at a Level I trauma center. Study patients (n = 442) had femoral fractures treated with retrograde intramedullary nails from 2007 to 2014 and at least 1. year of follow-up. The main outcome measurement was symptomatic distal screw removal as predicted by radiographic parameters. Results: Symptomatic screw removal occurred in 12% of the patients. Increased distance between the most distal screw and the articular surface of the femur significantly reduced likelihood of symptomatic screw removal. A cutoff of 40. mm from the articular block was predictive of removal (>40. mm, 0% removal; 1 was a strong predictor of symptomatic screw removal (area under Receiver Operating Characteristic curve, 0.75; p 1) that significantly increased the likelihood of symptomatic screw removal. Clinicians can use these data to inform patients of the likely risk of implant removal and perhaps to better guide placement and length of screws when the clinical scenario allows some flexibility in location and length of screws. Copyright © 2017 Elsevier Ltd.

Malnutrition - An underestimated factor in the inpatient treatment of traumatology and orthopedic patients. A prospective evaluation of 1055 patients

Author(s): Ihle C.; Freude T.; Bahrs C.; Zehendner E.; Braunsberger J.; Stockle U.; Wintermeyer E.; Grunwald J.; Grunwald L.; Ochs G.; Flesch I.; Nussler A.; Biesalski H.K.; Lambert C.

Source: Injury; 2017

Publication Type(s): Journal: Article In Press

Abstract:Introduction: Suboptimal nutritional status is often observed among hospitalized patients across all medical specialties. The objective of the present study was to (1) analyze the prevalence of malnutrition in hospitalized orthopedic and trauma patients and (2) to evaluate the relationship between malnutrition and selected clinical outcomes. Materials and methods: The prospective field study was conducted between 06/2014 and 06/2015 in a German level I trauma center (Department of Traumatology, Septic Trauma Surgery and Arthroplasty) with a total number of 1055 patients. At hospital admission, patients were checked for malnutrition using the validated Nutritional Risk Screening (NRS). Patients at risk for malnutrition were defined as NRS. >. 3. Quality of life (SF-36) was assessed to evaluate the physical and mental health status prior to hospitalization. Clinical outcomes under consideration included 1) rate of adverse events, 2) length of hospitalization, and 3)

mobilization after operative and conservative treatment. Patients were included independently of surgical intervention or age. Results: 22.3% (235) of our patients were at risk for malnutrition (NRS. > 3) while a regular nutritional status (NRS. < 3) was diagnosed in 77.7% (819). The highest prevalence of malnutrition was found in Septic Surgery with 31.0% (106), followed by Traumatology with 19.2% (100) and Arthroplasty with 15.1% (29). Higher prevalence of malnutrition was observed among patients with typical fractures of the elderly, such as lumbar spine and pelvis (47.4%), proximal femur (36.4%) and proximal humeral (26.7%) fractures. Furthermore, patients at risk for malnutrition showed prolonged hospitalization (13.7. \pm 11.1 vs. 18.2. \pm 11.7. days), delayed postoperative mobilization (2.2. \pm 2.9 vs. 4.0. \pm 4.9. days) and delayed mobilization after conservative treatment (1.1. \pm 2.7 vs. 1.8. \pm 1.9. days). A statistically significant correlation of NRS with each parameter (Spearman's rank correlation, $p < 0.05$) was observed. The incidence of adverse events in patients at risk for malnutrition was statistically significantly higher compared to that of patients with a regular nutritional status (37.2% vs. 21.1%, $p < 0.001$). Conclusions: Malnutrition is widespread regarding hospitalized patients in the field of orthopedic and trauma surgery and results in suboptimal clinical outcome. It should be considered as an important factor that significantly contributes to delayed recovery. Especially elderly trauma patients and patients suffering from postoperative infections should be monitored carefully during hospitalization. Copyright © 2017 Elsevier Ltd.

Ability of ultrasonography in detection of different extremity bone fractures; a case series study

Author(s): Bozorgi F.; Montazer S.H.; Heidari S.F.; Azar M.S.; Chabra A.; Khalilian A.

Source: Emergency; 2017; vol. 5 (no. 1); p. 80-83

Publication Type(s): Journal: Article

Abstract: Introduction: Despite radiography being the gold standard in evaluation of orthopedic injuries, using bedside ultrasonography has several potential supremacies such as avoiding exposure to ionizing radiation, availability in pre-hospital settings, being extensively accessible, and ability to be used on the bedside. The aim of the present study is to evaluate the diagnostic accuracy of ultrasonography in detection of extremity bone fractures. Methods: This study is a case series study, which was prospectively conducted on multiple blunt trauma patients, who were 18 years old or older, had stable hemodynamic, Glasgow coma scale 15, and signs or symptoms of a possible extremity bone fracture. After initial assessment, ultrasonography of suspected bones was performed by a trained emergency medicine resident and prevalence of true positive and false negative findings were calculated compared to plain radiology. Results: 108 patients with the mean age of 44.6 \pm 20.4 years were studied (67.6% male). Analysis was done on 158 sites of fracture, which were confirmed with plain radiography. 91 (57.6%) cases were suspected to have upper extremity fracture(s) and 67 (42.4%) to have lower ones. The most frequent site of injuries were forearm (36.7%) in upper limbs and leg (27.8%) in lower limbs. Prevalence of true positive and false negative cases for fractures detected by ultrasonography were 59 (64.8%) and 32 (35.52%) for upper and 49 (73.1%) and 18 (26.9%) for lower extremities, respectively. In addition, prevalence of true positive and false negative detected cases for intra-articular fractures were 24 (48%) and 26 (52%), respectively. Conclusion: The present study shows the moderate sensitivity (68.3%) of ultrasonography in detection of different extremity bone fractures. Ultrasonography showed the best sensitivity in detection of femur (100%) and humerus (76.2%) fractures, respectively. It had low sensitivity in detection of intra-articular fractures. Copyright © (2016) Shahid Beheshti University of Medical Sciences.

Rare Presentation of a Marjolin's Ulcer Secondary to a Post-Traumatic Injury.

Author(s): Bernhard, Kaitlyn; Morgan, Kenneth; Kruse, Dustin; Stone, Paul A

Source: The Journal of foot and ankle surgery : official publication of the American College of Foot and Ankle Surgeons; 2017; vol. 56 (no. 1); p. 112-116

Publication Type(s): Journal Article

Abstract:Marjolin's ulcer is a rare and aggressive cutaneous malignancy arising from previously traumatized skin, most commonly at the site of previous burns. We present a unique case of Marjolin's ulceration secondary to an orthopedic injury and a nonburn history of trauma. The patient had been involved in a motorcycle accident >20 years earlier. For 17 months, the patient had refused to acknowledge the severity of his disease state. He had refused the standard of care and opted for local wound care only until a minor fall caused a pathologic fracture, leading to an above the knee amputation. Road traffic incidents remain an uncommon cause of subsequent Marjolin's transformation in developed countries. As such, we present the case of a patient with a unique combination of a continued lack of compliance after diagnosis and the unusual cause of his initial trauma. Copyright © 2016 American College of Foot and Ankle Surgeons. Published by Elsevier Inc. All rights reserved.

High morbidity and mortality after lower extremity injuries in Malawi: A prospective cohort study of 905 patients

Author(s): Chagomerana M.B.; Tomlinson J.; Young S.; Banza L.; Hosseinipour M.C.; Lee C.N.

Source: International Journal of Surgery; Mar 2017; vol. 39 ; p. 23-29

Publication Type(s): Journal: Article

Abstract:Introduction A lower extremity injury can be a devastating event in low-income countries due to limited access to surgical care. Its incidence, treatment patterns, and outcomes, however, have not been well-described. Methods We prospectively enrolled all patients admitted with lower extremity trauma to a tertiary hospital in Lilongwe, Malawi between October 2010 and September 2011. Patients with a lower extremity injury but primarily admitted for unrelated reasons were excluded. The outcomes were deaths, complications, and length of hospital stay. Results Of the 905 patients eligible for analysis, 696 (77%) were males. Most patients had femur fractures (46%), and most were treated non-operatively (70%). Overall mortality rate was 3.9%. For adult patients with femur fractures, mortality was higher in patients treated with traction (9.0%) than for those treated with surgery (1.3%). The total complication rate was 15%, with adjusted odds of developing a complication higher in patients with concurrent head injury (OR = 2.8; 95% CI: 1.3-6.0), and patients who had an operative treatment (OR = 2; 95% CI: 1.2-1.9). The median length of stay was 16 days (IQR: 6-27) and was greatest among patients with femur fractures. Conclusion Lower extremity injuries resulted in substantial mortality and morbidity in this low-income country. Mortality was particularly high among patients with femur fractures who did not have surgery. Modern orthopedic trauma surgery is greatly needed in low-income countries. Copyright © 2017 IJS Publishing Group Ltd

Double plating in Vancouver type B1 periprosthetic proximal femur fractures: A biomechanical study.

Author(s): Wähnert, Dirk; Grüneweller, Niklas; Gehweiler, Dominic; Brunn, Benjamin; Raschke, Michael J; Stange, Richard

Source: Journal of orthopaedic research : official publication of the Orthopaedic Research Society; Feb 2017; vol. 35 (no. 2); p. 234-239

Publication Type(s): Journal Article

Abstract: Periprosthetic hip fractures are an increasing problem in modern orthopedic and trauma surgery. Many options for the operative treatment are available to the surgeon ranging from modern variable angular systems to standard plates, screws, and cerclages. However, there is no gold standard and therefore, the aim of this study, was to investigate the biomechanical characteristics of double plating versus a lateral standard plate in a Vancouver B1 fracture model. Ten 4th generation composite femora were used to implant cementless total hip prosthesis and create Vancouver B1 periprosthetic fractures. Afterwards, the osteotomies were fixed using the locking compression plate in combination with the locking attachment plate (LCP, LAP, DePuy Synthes, Solothurn, Switzerland)-group I. Group II additionally achieved a 5-hole 4.5/5.0 mm LCP anteriorly. Each construct was cyclically loaded to failure in axial compression. Axial construct stiffness was 50.87 N/mm (SD 1.61) for group I compared to 738.68 N/mm (SD 94.8) for group II, this difference was statistically significant ($p = 0.016$). The number of cycles to failure was also significant higher for group II (2,375 vs. 13,000 cycles; $p = 0.016$). Double plating can significantly increase construct stiffness and stability, and thus, is an option in the treatment of complex periprosthetic fractures, in revision surgery and for patients with the inability to partial weight bear. © 2016 Orthopaedic Research Society. Published by Wiley Periodicals, Inc. J Orthop Res 35:234-239, 2017. © 2016 Orthopaedic Research Society. Published by Wiley Periodicals, Inc.

Stiffness of the locking compression plate as an external fixator for treating distal tibial fractures: a biomechanics study

Author(s): Liu W.; Yang L.; Kong X.; An L.; Hong G.; Guo Z.; Zang L.

Source: BMC Musculoskeletal Disorders; Jan 2017; vol. 18 (no. 1); p. 1-6

Publication Date: Jan 2017

Publication Type(s): Journal: Article

Abstract: Background: Locking compress plate, as external fixator, is an attractive technique for distal tibial fracture treatment. But it still remains unclear whether the external LCP has sufficient stiffness. Thus, the present study aims to make a comprehensive evaluation of the stiffness of external locking compress plate when it is used as an external fixator in distal tibial fractures treatment. Methods: Composite tibia was used to simulate distal tibia fracture (Orthopedic Trauma Association type 43 A3 fracture). The fractures were stabilized with medial distal tibial locking compress plates (LCP group), medial distal tibial locking compress plates with 30-mm plate-bone distances (EF-tibia group), and medial distal femur locking compress plates with 30-mm plate-bone distances (EF-femur group). Stiffness of each configuration was measured under axial compression loading and in axial torsion loading directions. Compression stiffness and torsional rigidity were compared across different groups. Results: Compared with LCP group, (1) EF-tibia group showed significantly lower ($p < 0.001$) compression stiffness and torsional rigidity; (2) EF-femur group showed significantly lower ($p < 0.001$) compression stiffness, but significantly higher ($p < 0.001$) torsional rigidity. Conclusions: The results indicated that locking compress plate as an external fixator was flexible, and the distal femur locking compress plate was preferred over the distal tibial locking compress plate to be an external fixator in distal tibia fracture treatment. Copyright © 2017 The Author(s).

Current Quality Measurement Tools Are Insufficient to Assess Complications in Orthopedic Surgery

Author(s): Sebastian A.S.; Kakar S.; Polites S.F.; Cima R.R.; Glasgow A.E.; Habermann E.B.

Source: Journal of Hand Surgery; Jan 2017; vol. 42 (no. 1); p. 10

Publication Type(s): Journal: Article

Abstract: Purpose The American College of Surgeons National Surgical Quality Improvement Project (ACS-NSQIP) is a clinically-derived, validated tool to track outcomes in surgery. The Agency for Healthcare Research and Quality Patient Safety Indicators (AHRQ-PSI) are a set of computer algorithms run on administrative data to identify adverse events. The purpose of this study is to compare complications following orthopedic surgery identified by ACS-NSQIP and AHRQ-PSI. Methods Patients between 2010 and 2012 who underwent orthopedic procedures (arthroplasty, spine, trauma, foot and ankle, hand, and upper extremity) at our tertiary-care, academic institution were identified (n = 3,374). Identification of inpatient adverse events by AHRQ-PSI in the cohort was compared with 30-day events identified by ACS-NSQIP. Adverse events common to both AHRQ-PSI and ACS-NSQIP were infection, sepsis, venous thromboembolism, bleeding, respiratory failure, wound disruption, and renal failure. Concordance between AHRQ-PSI and ACS-NSQIP for identifying adverse events was examined. Results A total of 729 adverse events (21.6%) were identified in the cohort using ACS-NSQIP methodology and 35 adverse events (1.0%) were found using AHRQ-PSI. Only 12 events were identified by both methodologies. The most common complication was bleeding in ACS-NSQIP (18.1%) and respiratory failure in AHRQ-PSI (0.53%). The overlap was highest for venous thromboembolic events. There was no overlap in adverse events for 5 of the 7 categories of adverse events. Conclusions A large discrepancy was observed between adverse events reported in ACS-NSQIP and AHRQ-PSI. A large percentage of clinically important adverse events identified in ACS-NSQIP were missed in AHRQ-PSI algorithms. The ability of AHRQ-PSI for detecting adverse events varied widely with ACS-NSQIP. Clinical relevance AHRQ-PSI algorithms currently are insufficient to assess the quality of orthopedic surgery. Copyright © 2017 American Society for Surgery of the Hand

Submuscular plating of the femur through an anterior approach after bone distraction

Author(s): Persico F.; Fletscher G.; Zuluaga M.

Source: Strategies in Trauma and Limb Reconstruction; Jan 2017 ; p. 1-6

Publication Type(s): Journal: Article In Press

Abstract: The method of osteogenesis by distraction is a known technique in orthopaedics for the management of bone defects secondary to trauma, infections or tumours. New strategies have been developed for decreasing the external fixator time. The use of the minimally invasive plate osteosynthesis technique is a secure approach through a percutaneous fixation technique in the anterior aspect of the femur that permits minimal dissection of the soft tissues while preventing cross-contamination with the pin tracts of the external fixators. The goal of this article is to show that a new surgical technique, to preserve the benefits related to the internal fixation and at the same time decrease the risk of infection, can be used to perform femoral plating after bone distraction with a low contact plate through an anterior approach to the femur while still taking adequate care of the soft tissues. Copyright © 2017 The Author(s)

Orthopedic trauma surgery and hospital cost analysis in refugees; the effect of the Syrian civil War

Author(s): Duramaz A.; Bilgili M.G.; Bayram B.; Ziroglu N.; Bayrak A.; Avkan M.C.

Source: International Orthopaedics; Jan 2017 ; p. 1-8

Publication Type(s): Journal: Article In Press

Abstract: Purpose: The aim of this study was to evaluate the musculoskeletal injury types, injury mechanisms, surgical techniques and treatment costs of Syrian refugees. Methods: Totally 158 patients (67 female, 91 male) treated in our clinic in 34 months period between January 2012 and October 2014 were included in the study. The mean age of the patients was 39.3 years (range: 18-82

years). The patients were evaluated for age, gender, mechanism of injury, location and type of fracture, presence of accompanying injuries, injury severity score, surgical technique, complications, mortality/morbidity and treatment cost. Results: The injuries were more frequently reported in lower extremities, upper extremities and axial skeleton, respectively. Blunt trauma was significantly higher in upper extremity injuries compared with the other types of injuries ($p = 0.001$). Fractures were most commonly reported in foot/ankle region and in males, hand/wrist fractures were significantly higher than that of the females. Plate fixation of upper extremity fractures and intramedullary nailing in lower extremity fractures were the most commonly preferred treatment modalities. The mean hospitalization period of patients was 5.6 days and the mean treatment cost was 3844 Turkish Liras (TL). Conclusions: In this study, it was shown that there was a statistically significant increase in the cost of health expenses in patients with fall from heights or gunshot wound, with fractures in axial skeleton or with the ISS score between 16 and 66. The cost rise was associated with worse prognosis, complications, intensive care treatments and prolonged hospitalization periods. Copyright © 2017 SICOT aisbl

Glial Fibrillary Acidic Protein and Ubiquitin C-Terminal Hydrolase-L1 Are Not Specific Biomarkers for Mild CT-Negative Traumatic Brain Injury.

Author(s): Posti, Jussi P; Hossain, Iftakher; Takala, Riikka S K; Liedes, Hilikka; Newcombe, Virginia;

Source: Journal of neurotrauma; Jan 2017

Publication Type(s): Journal Article

Abstract:Glial fibrillary acidic protein (GFAP) and ubiquitin C-terminal hydrolase-L1 (UCH-L1) have been studied as potential biomarkers of mild traumatic brain injury (mTBI). We report the levels of GFAP and UCH-L1 in patients with acute orthopedic injuries without central nervous system involvement, and relate them to the type of extracranial injury, head magnetic resonance imaging (MRI) findings, and levels of GFAP and UCH-L1 in patients with CT-negative mTBI. Serum UCH-L1 and GFAP were longitudinally measured from 73 patients with acute orthopedic injury on arrival and on days 1, 2, 3, 7 after admission, and on the follow-up visit 3-10 months after the injury. The injury types were recorded, and 71% patients underwent also head MRI. The results were compared with those found in patients with CT-negative mTBI ($n = 93$). The levels of GFAP were higher in patients with acute orthopedic trauma than in patients with CT-negative mTBI ($p = 0.026$) on arrival; however, no differences were found on the following days. The levels of UCH-L1 were not significantly different between these two groups at any measured point of time. Levels of GFAP and UCH-L1 were not able to distinguish patients with CT-negative mTBI from patients with orthopedic trauma. Patients with orthopedic trauma and high levels of UCH-L1 or GFAP values may be falsely diagnosed as having a concomitant mTBI, predisposing them to unwarranted diagnostics and unnecessary brain imaging. This casts a significant doubt on the diagnostic value of GFAP and UCH-L1 in cases with mTBI.

Open Dislocation of Ankle without Fracture Treated with an External Fixator.

Author(s): Sayit, Emrah; Sayit, Asli Tanrivermis; Zan, Elcin

Source: Orthopaedic surgery; Jan 2017

Publication Type(s): Case Reports

Abstract:Ankle dislocations are orthopedic emergencies that require immediate treatment to avoid neurovascular impairment. They are usually accompanied by one or more comminuted fractures of the ankle mortis. In rare circumstances, such as high-energy trauma, the ankle dislocations may not be accompanied by concomitant malleolar fractures and, thus, are named "pure ankle dislocations". We presented a very rare and interesting case of an open medial dislocation of the ankle without associated fracture in an 18-year-old man with no known predisposing risk factors. The patient was

admitted to the emergency department after sustaining a catastrophic trampoline accident resulting in severe inversion of the right ankle. The patient was treated with an external fixator and was mobilized early in the post-surgical course. Despite initial presentation that revealed lack of posterior tibial pulse, the post-surgical course was uneventful, with full functional recovery and joint mobility. The primary goals of treatment are immediate reduction of the joint and relief of neurovascular stress. External fixation is a prompt, fairly easy treatment that one should keep in mind in pure ankle dislocations. Nonetheless, ligamentous restoration and early mobilization were the key elements as seen in our case for full functional recovery. © 2017 Chinese Orthopaedic Association and John Wiley & Sons Australia, Ltd.

Outcomes after orthopedic trauma.

Author(s): Suk, Michael; Daigl, Monica; Buckley, Richard E; Lorch, Dean G; Helfet, David L; Hanson, Beate

Source: Journal of orthopaedic surgery (Hong Kong); Jan 2017; vol. 25 (no. 1); p. 2309499016684089

Publication Type(s): Journal Article

Available in full text at [Journal of Orthopaedic Surgery](#) - from ProQuest

Abstract: Clinical orthopedic research needs better ability to assess patient expectations with regard to orthopedic trauma surgery outcomes. The aim of this study was to investigate to which extent patient expectations prior to surgery could be met after surgery. Patients (≥ 18 years) with surgical ankle fractures were prospectively recruited at 5 orthopedic trauma clinics in the United States (USA), Canada, and Brazil and followed up for 12 months. Patients were asked to complete a previously validated trauma expectation factor (TEF) questionnaire prior to surgery and a trauma outcome measure (TOM) 1 year after surgery. At 1 year, 155 patients had provided complete records. Almost half (49%; 76/155) had a 1-year TOM score equaling or exceeding their preoperative TEF score (95% CI: 41-57%). The remaining scores failed to meet patient expectations. TOM scores matched or exceeded patient expectations for 33% of patients in the USA and 47% in Canada, but for 69% in Brazil ($p = 0.001$ (USA); $p = 0.024$ (Canada)). This geographical effect was attributable to higher patient expectations in North America as compared to Brazil (average TEF scores: 36 (North America) versus 31 (Brazil); $p < 0.001$). Patients with lower household income or smokers were more likely to be satisfied with their treatment ($p = 0.02$ and $p = 0.05$, respectively). Furthermore, patients with severe type C fractures had better rates of satisfaction (62%) than patients with simpler B (50%) or type A fractures (33%) ($p = 0.01$ [C type versus A type]). Orthopedic surgeons have difficulty in meeting or exceeding presurgical patient expectations of long-term outcomes for ankle fracture surgery. This study provides evidence that culture, geography, and surgeon-patient communication have considerable influence on patient expectations.

Prevalence of non-union and delayed union in proximal humeral fractures.

Author(s): Papakonstantinou, Maritsa K; Hart, Melissa J; Farrugia, Richard; Gosling, Cameron; Kamali Moaveni, Afshin; van Bavel, Dirk; Page, Richard S; Richardson, Martin D

Source: ANZ journal of surgery; Jan 2017; vol. 87 (no. 1-2); p. 55-59

Publication Date: Jan 2017

Publication Type(s): Journal Article

Abstract: Little is known about the prevalence of proximal humeral non-union. There is disagreement on what constitutes union, delayed union and non-union. Our aim was to determine the prevalence of these complications in proximal humeral fractures (PHFs) admitted to trauma hospitals. The

Victorian Orthopaedic Trauma Outcomes Registry identified 419 cases of PHFs, of which 306 were analysed. Three upper limb orthopaedic surgeons used X-rays to classify fractures according to the Neer classification and determine union. Twelve-item Short Form Health Survey scores were used to assess patient health and wellbeing. Of 306 cases, 49.4% reached union. Median time to union was 100 days (confidence interval 90-121). Of these, 17.0% united by 60 days, 8.5% united by 89 days and 23.9% united after 90 days, demonstrating 'prolonged delayed union'. There were 25 non-unions with a prevalence of 8.2%, most occurring in two-part surgical neck fractures. Our cohort of largely displaced PHFs admitted to trauma hospitals had a non-union prevalence of 8.2% and an overall delayed union prevalence of 32.4%. Consensus is required on definitions of non-union and delayed union timeframes. © 2016 Royal Australasian College of Surgeons.

Complicated osteomyelitis-a diagnosis to considerate in claudication

Author(s): Soares S.; Cardoso A.L.; De Liz C.F.; Carvalho C.; Cunha J.; Machado L.; Oliveira C.; Freitas J.M.

Source: Cogent Medicine; 2016; vol. 3 (no. 1)

Publication Date: 2016

Publication Type(s): Journal: Conference Abstract

Abstract: Introduction: Bone infections are an important reason for incapacity in children, affecting mostly newborn and young children. Most infections occur through haematogenous spread, but minor trauma may be responsible for about 30% of cases. Large bones are the most frequently involved, with increased severity if affecting the epiphysis. Localized pain is the main warning sign, presenting sometimes in younger children with limb immobilization or constitutional symptoms. Diagnosis requires a high index of suspicion and a prompt start of treatment is crucial for the prognosis. Complications such as limited bone movement or length can occur in prepubertal children. Materials and Methods: Case report of a 12 years old adolescent with a complication of sacroiliac joint osteomyelitis. Results: A previously healthy twelve year-old female came to the emergency department (ED) with right sacroiliac pain radiating to the knee and muscular weakness. The pain had started 36 hours before, initially on her lower back, and was getting worse. Except for tenderness on the affected region, physical examination (PE) was normal and she was discharged home with symptomatic treatment. Seven days later, she returned to the ED for similar pain now associated with morning fever. A hip CT scan was performed, revealing no relevant alterations and she was discharged home with analgesia. Eleven days later, the pain kept getting worse and was now incapacitating, associated with insomnia and anorexia, and the morning fever was higher. On PE, she had a limp and severe hip tenderness with mobility limitation. Blood tests revealed anaemia, leukocytosis, thrombocytosis and increased inflammatory markers. Blood and urine cultures were negative. Abdominal ultrasound revealed a homogenous splenomegaly and a psoas abscess, which was confirmed by a CT scan, also showing right sacroiliitis with osteomyelitis. The patient was transferred to the Orthopaedic Department of a reference centre and the diagnosis was confirmed with MRI. The teenager was treated with flucloxaciline for 41 days and surgical debridement was required on the 25th day of admission. Staphylococcus epidermidis was isolated from surgical debridement samples. After clinical improvement the patient was discharged home with an 18 weeks course of antibiotics and is still in orthopaedics outpatient revision. Conclusion: An osteomyelitis of the sacroiliac joint complicated with a psoas muscle abscess following minor trauma is a rare event. Correct diagnosis requires an adequate valuing of clinical findings and an early detection with prompt treatment is essential to decrease comorbidities.

Database: EMBASE

Antimicrobial coated implants in trauma and orthopaedics-A clinical review and risk-benefit analysis

Author(s): Alt V.

Source: Injury; 2016

Publication Date: 2016

Publication Type(s): Journal: Article In Press

Abstract: Implant-associated infections remain a major issue in orthopaedics and antimicrobial functionalization of the implant surface by antibiotics or other anti-infective agents have gained interest. The goal of this article is to identify antimicrobial coatings, for which clinical data are available and to review their clinical need, safety profile, and their efficacy to reduce infection rates. PubMed database of the National Library of Medicine was searched for clinical studies on antimicrobial coated implants for internal fracture fixation devices and endoprostheses for bone surgery, for which study design, level of evidence, biocompatibility, development of resistance, and effectiveness to reduce infection rates were analyzed. Four different coating technologies were identified: gentamicin poly(d, l-lactide) coating for tibia nails, one high (MUTARS) and one low amount silver (Agluna) technology for tumor endoprostheses, and one povidone-iodine coating for titanium implants. There was a total of 9 published studies with 435 patients, of which 7 studies were case series (level IV evidence) and 2 studies were case control studies (level III evidence). All technologies were reported with good systemic and local biocompatibility, except the development of local argyria with blue to bluish grey skin discoloration after the use of silver MUTARS megaendoprostheses. For the local use of gentamicin, there is contradictory data on the risk of emergence of gentamicin-resistance strains, a risk that does not seem to exist for silver and iodine based technologies. Regarding reduction of infection rates, one case control study showed a significant reduction of infection rates by Agluna silver coated tumor endoprostheses. Based on socio-economic data, there is a strong need for improvement of infection prevention and treatment strategies, including implant coatings, in fracture care, primary and revision arthroplasty, and bone tumor surgery. The reviewed gentamicin, silver Agluna, and povidone-iodine technologies have shown a good risk benefit ratio for patients. Further data from randomized control trials are desirable, although this will remain challenging in the context of infection prevention due to the required large sample size of such studies. Copyright © 2016 Elsevier Ltd.

The burden of orthopaedic disease presenting to a referral hospital in northern Tanzania

Author(s): Premkumar A.; Massawe H.H.; Mshabaha D.J.; Foran J.R.; Sheth N.P.

Source: Annals of Global Health; 2016; vol. 82 (no. 3); p. 553-554

Publication Date: 2016

Publication Type(s): Journal: Conference Abstract

Abstract: Background: In low and middle-income countries, country specific data is scarce regarding the burden of surgical disease, with most estimates extrapolated from indirect methods. Kilimanjaro Christian Medical Center (KCMC) is the only tertiary referral hospital for a population of over 11 million in Northern Tanzania. This study aims to directly quantify the current orthopaedic burden of disease at KCMC and provide a foundation to estimate the magnitude and potential benefit of improving access to orthopaedic surgical care in the northern regions of Tanzania. Methods: Prospective data was collected during June 2015 for 113 patients admitted to the Orthopaedic Surgery ward at KCMC. Retrospective review of available hospital records for 11,678 patients presenting to the KCMC Emergency Medicine Department, Orthopaedic Clinic, and Orthopaedic Ward over the previous 12 months was also performed to obtain a more complete picture of the

burden of orthopaedic disease seen at this tertiary referral center. Findings: KCMC treats an average of 11,172 orthopaedic patients each year. Approximately 57.1% of these patients are seen as outpatients in clinic, 30.1% are seen in the emergency department and 12.8% are admitted as inpatients in the orthopaedic ward. Road traffic accidents (RTAs) represented the most common etiology of injury requiring ward admission at 63.7%, followed by falls at 29.2%, and assaults at 4.4%. Of admissions between ages 15-45, 73.5% were from RTAs. The majority of RTAs, 52.8%, involved a motorcycle and 30.56% involved pedestrians. Femur fractures were the most common injury seen (39.0%), followed by tibia (27.2%) and radius (17.7%) fractures. Patients used a wide variety of transportation methods and took 2.3 hours on average to arrive at KCMC from the location of their injury. Once in the hospital, patients averaged a length to surgery of 10.2 days and a hospital length of stay of 13.5 days. Of all admissions, 96.5% had indications for surgical fixation, while only 57.9% received surgery. KCMC is the only tertiary referral center for a five state region; however, 65.7% of patients originated from the same state in which the hospital resides. Interpretation: KCMC sees an approximately identical volume of surgical orthopaedic trauma as a Level 1 Trauma Center in the United States, but has significantly fewer material and intellectual resources to meet this surgical burden. These data give a more complete picture of the patient demographics, mechanisms of injury, types of injury and patient outcomes for similar resource-limited locations.

Database: EMBASE

Elevated blood GFAP and UCH-L1 levels in acute orthopaedic injuries without CNS involvement

Author(s): Posti J.; Takala R.; Katila A.; Frantzen J.; Coles J.; Tenovuo O.; Hossain I.; Ala-Seppala H.; Kyllonen A.; Maanpaa H.-R.; Tallus J.; Lieder H.; Van Gils M.; Newcombe V.; Outtrim J.; Hutchinson P.; Menon D.

Source: Brain Injury; 2016; vol. 30 (no. 5); p. 647-648

Publication Type(s): Journal: Conference Abstract

Abstract: Objectives: Glial fibrillary acidic protein (GFAP) and ubiquitin C-terminal hydrolase-L1 (UCH-L1) are considered to be both sensitive and specific for traumatic brain injury (TBI) in acute injury diagnostics. The objective of this study is to report the levels of GFAP and UCH-L1 in patients with acute orthopaedic injuries without central nervous system (CNS) involvement and to relate them with the type of extracranial injury, head magnetic resonance imaging (MRI) findings and GFAP and UCH-L1 levels of patients with mild TBI (mTBI). Methods: Serum UCH-L1 and GFAP were measured from 74 patients with acute orthopaedic trauma without any TBIs or CNS diseases and compared with patients with TBI. For the patients in whom GFAP and UCH-L1 levels were in the upper quartile on arrival day biomarker levels were compared to those found within patients with mTBI with negative head computed tomography findings (n = 52). The injury types and head MRI findings were recorded from all orthopaedic trauma patients. Results: The levels of UCH-L1 were not significantly different in patients with mTBI and orthopaedic trauma. The levels of GFAP were higher in patients with orthopaedic trauma as compared to patients with mTBI on arrival day (p = 0.026), but the levels were not significantly different on the following days. Twenty-three patients with orthopaedic trauma (31%) had elevated levels of GFAP, UCH-L1 or both. The patients with elevated levels of GFAP and UCH-L1 had significantly higher levels as compared to patients with mTBI (p < 0.001). The levels of UCH-L1 and GFAP in patients with orthopaedic trauma correlated significantly on admission, on the day after the injury and on the follow-up visit 3-6 months after the injury. Eight patients with high UCH-L1 values had injuries in the upper extremity and the majority of them had concurrently high GFAP values. Another eight patients with high GFAP levels had ankle fractures. Fifty-three patients with orthopaedic injuries underwent MRI of the brain and 31 of those were reported as normal, the rest showing non-specific ischaemicdegenerative changes or other insignificant abnormalities and in only one a suspicion of an old contusion. The majority of patients

who had high levels of UCH-L1 and GFAP and underwent MRI of the brain had normal findings. Conclusions: Levels of GFAP and UCH-L1 were not able to distinguish patients with mTBI from patients with orthopaedic trauma. Patients with orthopaedic trauma with biomarker levels in the upper quartile had significantly higher biomarker levels than those found in patients with mTBI. The source of elevated GFAP and UCH-L1 levels in the presented patients remains unknown. Patients with orthopaedic trauma with high UCH-L1 and GFAP values may be falsely diagnosed as being at risk of TBI. This may pre-dispose them to unwarranted diagnostics and recurrent brain imaging.

The Military Orthopaedic Trauma Registry: The potential of a specialty specific process improvement tool

Author(s): Rivera J.C.; Greer R.M.; Spott M.A.; Johnson A.E.

Source: Journal of Trauma and Acute Care Surgery; 2016; vol. 81 (no. 5)

Publication Date: 2016

Publication Type(s): Journal: Conference Paper

Abstract:BACKGROUND: The Military Orthopaedic Trauma Registry (MOTR) was designed to replicate the Department of Defense Trauma Registry's (DoDTR's) role as pillar for data-driven management of extremity war wounds. The MOTR continuously undergoes quality assurance checks to optimize the registry data for future quality improvement efforts. We conducted a quality assurance survey of MOTR entrants to determine if a simple MOTR data pull could provide robust orthopaedic-specific information toward the question of causes for late amputation. METHODS: Forty-five entrants into the DoDTR with late transtibial amputation were sequentially abstracted into MOTR by MOTR data abstractors. The MOTR record was then examined by an independent reviewer for three data fields pertaining to the events leading up to the late amputation: injury before limb amputation, complications before and after amputation, and complication or other factor directly contributing to the decision for amputation. RESULTS: Thirty-nine subjects had at least one fracture of the tibial diaphysis, tibial pilon, calcaneus, or multiple foot fractures. Twenty-nine fractures were described as open injuries for which 27 included a Gustilo and Anderson classification in the available data fields. Complications could be identified along the treatment course for 43 of the 45 entrants specific to the amputated limb. A directly contributing factor to late amputation was identified in 36 (80%) of the subjects. Infection, either alone or associated with fracture nonunion, was a contributing factor in 46% of late amputations. Wound infection was the most common complication both before and after the amputation. CONCLUSION: The MOTR, using a simple data extraction from a few registry fields, can provide a robust amount of information that can direct process and care improvement for severely injured limbs by providing the level of detail pertinent to an orthopaedic surgeon. (J Trauma Acute Care Surg. 2016;81: S100-S103. Copyright © 2016 Wolters Kluwer Health, Inc. All rights reserved.).

Arthroscopic transphyseal anterior cruciate ligament reconstruction in adolescent athletes

Author(s): Dei Giudici L.; Gigante A.; Fabbrini R.; Garro L.; Tucciarone A.; Arima S.

Source: Journal of Orthopaedic Surgery; 2016; vol. 24 (no. 3); p. 307-311

Publication Date: 2016

Available in full text at [Journal of Orthopaedic Surgery](#) - from ProQuest

Abstract:Purpose. To evaluate the 5-year outcome of arthroscopic transphyseal anterior cruciate ligament (ACL) reconstruction in 19 adolescent athletes. Methods. 14 male and 5 female adolescent athletes aged 12 to 16 (mean, 13.9) years with Tanner stage 2 or 3 open physes underwent

arthroscopic transphyseal ACL reconstruction by a single surgeon and were followed up for 5 years. Patients were evaluated using the numerical rating score (NRS) for pain, knee osteoarthritis outcome score (KOOS), International Knee Documentation Committee (IKDC) score, Tegner Activity Scale, and Lysholm Score, as well as the leg length discrepancy, femorotibial alignment, varus or valgus deformities, active and passive knee range of motion. Results. At 5-year follow-up, physes were closed in all patients. The mean NRS for pain improved from 7.2 to 1.6; the KOOS improved from 55.3 to 88; the mean IKDC score improved from 34.5 to 84; the mean Serena Arima3 Antonio Gigante1 Agostino Tucciarone2 1 Clinical Orthopaedics, Department of Clinical and Molecular Science DISCLIMO, School of Medicine, Universita Politecnica delle Marche, Italy 2 Department of Orthopaedics, Istituto Chirurgico Ortopedico Traumatologico ICOT, Latina, Italy 3 Department of Methods and Models for Economy, Territory and Finance, Sapienza Universita di Roma, Roma, Italy Department of Clinical and Molecular Science DISCLIMO, School of Medicine, Universita Politecnica delle Marche, Via Tronto, 10/A, 60126, Ancona, Italy Tegner Activity Scale improved from 2.7 to 8.2 and was comparable with that before injury (8.4); and the mean Lysholm score improved from 36.3 to 84.6. All except 2 patients returned to their pre-injury level of sports activity after a mean of 25 weeks. The 2 exceptions had a 2+ Jerk test and a 3+ Lachman test; one of them also had positive signs for a lateral meniscal lesion. Both had sustained a second trauma not long before the 5-year follow-up. Two patients had reduced sensitivity in the anteromedial aspect of the proximal third of the tibia. One patient had leg length discrepancy of +1.5 cm owing to overgrowth response of the physis. Conclusion. Transphyseal ACL reconstruction is a viable option for skeletally immature patients, with high reproducibility, a high rate of return to sport, and a low incidence of growth disturbance. Early surgery can prevent the onset of meniscal lesions and early osteoarthritis. Copyright © 2016, Hong Kong University Press. All rights reserved.

How Knowledge Relates to Confidence in Orthopedics and Emergency Medicine Regarding Return to Sport and Rehabilitation in Foot and Ankle Trauma

Author(s): Johnson-Lynn S.; Townshend D.

Source: Journal of Surgical Education; 2016

Publication Date: 2016

Publication Type(s): Journal: Article In Press

Abstract:Objective: The aim of this study was to survey the knowledge of registrars in emergency medicine and orthopedics on 5 common injuries to the foot and ankle and compare this knowledge, and self-reported confidence in giving it, with that of consultants and physiotherapists of various levels of experience. Design: An online survey was used to gather the information using scenario-based open and closed questions. Participants: A total of 102 health care professionals, who regularly deal with sports injuries, were recruited. These included consultant orthopedic surgeons with a subspecialty interest in foot and ankle surgery, orthopedic surgeons in other specialties, extended scope physiotherapy practitioners (ESPs) in foot and ankle and general musculoskeletal practice, emergency medicine consultants, emergency medicine registrars, orthopedic registrars, senior physiotherapists, and junior physiotherapists. Setting: The participants were drawn from various health care institutions in the North East of England. Results: Consultant foot and ankle surgeons and extended scope practitioners in foot and ankle both scored significantly on knowledge of rehabilitation program design than either set of registrars. For 2 of the case scenarios, there was a significant difference in scores between either orthopedic consultants or ESPs and registrars ($p < 0.05$). For total score, there was a trend for extended scope practitioners to score higher than both sets of registrars, but this did not reach significance. Correlation coefficients for knowledge and self-reported confidence ranged between 0.009 and 0.33, demonstrating only weak positive linear correlation between scenario score and reported confidence in advice given. Conclusions: The most

significant area of gaps in knowledge among the 2 groups of registrars was in the specifics of rehabilitation programs. There was markedly higher confidence with greater seniority. Registrars in emergency medicine and orthopedics are likely to benefit from case-based teaching in sports injury rehabilitation. Copyright © 2016 Association of Program Directors in Surgery.

Database: EMBASE

Minimally invasive plate osteosynthesis using posterolateral approach for distal tibial and tibial shaft fractures

Author(s): Yamamoto N.; Ogawa K.; Terada C.; Okazaki Y.; Munetomo K.; Noda T.; Ozaki T.

Source: Injury; 2016

Publication Type(s): Journal: Article In Press

Abstract:Objective: The objective of the study was to evaluate the effectiveness of the posterolateral minimally invasive plate osteosynthesis (MIPO) method for managing distal tibial or tibial shaft fractures with severe anterior and medial soft tissue injuries. Materials and methods: Five consecutive patients with three distal tibial and two tibial shaft fractures (three open fractures) at a level-1 trauma and tertiary referral center were retrospectively reviewed. All patients were definitively treated and followed to bone union. Main outcome was measured by American Orthopaedic Foot and Ankle Society (AOFAS) ankle-hindfoot score, complications, and bone union on radiographs. Results: The average follow-up period was 15.8 months (range, 12-24 months). The average AOFAS score was 88.2 (range, 81-90). There were no complications, such as incision breakdown, deep infection, or impingement of the flexor hallucis longus tendon. Bone union was achieved in all cases. Conclusions: Posterolateral MIPO is a feasible option when treating these fractures, especially in cases with severe anterior and medial soft tissue injuries. Copyright © 2016 Elsevier Ltd.

Ineffective Treatment of Low-Molecular-Weight Heparin in Obese Subject with Traumatic Fractures of the Leg

Author(s): Imbalzano E.; Creazzo M.; Trapani G.; Lizio G.; Saitta A.

Source: International Journal of Angiology; Dec 2016; vol. 25 (no. 5)

Publication Type(s): Journal: Article

Abstract:American College of Chest Physicians Evidence-Based Clinical Practice Guidelines, 9th edition, 2012, suggest no prophylaxis rather than pharmacological thromboprophylaxis in management of venous thromboembolism (VTE) risk of isolated lower leg injuries distal to knee requiring leg immobilization. Low-molecular-weight heparin (LMWH) is a class of drugs commonly used as antithrombotics in surgery and in case of prolonged bed rest and hypomobility. A 35-year-old obese man with no history of health disease (height, 170 cm; weight, 95 kg; and body mass index, 32.9 kg/m²) was involved in a car accident, and as a result of the trauma he suffered the compound fracture of left tibia and fibula. Tibial intramedullary nailing was performed. The injury was near the knee, and the patient was advised long-term bed rest. For these reasons, he was treated with enoxaparin 40 mg once daily subcutaneously. On the 7th day of hospitalization, the leg became edematous and reddish. A Doppler ultrasonography evaluation was performed which showed a massive deep vein thrombosis of left leg and then a pulmonary angiotomography showed a massive pulmonary embolism. In this clinical case, there was a pharmacological treatment failure to prevent VTE after orthopedic surgery and related long-term rest using enoxaparin at prophylaxis dosage in a patient without history of health disease but at high risk of VTE for obesity, trauma, orthopedic surgery, and immobilization. Enoxaparin dosage to prevent VTE in patients with high risk

should be reconsidered and especially in obese a weight-adjusted dosage can be better than a fixed dosage. Copyright © 2016 by Thieme Medical Publishers, Inc.

Diaphyseal fractures of the forearm in adults, plating or intramedullary nailing is a better option for the treatment?

Author(s): Al-Sadek T.A.; Niklev D.; Al-Sadek A.

Source: Macedonian Journal of Medical Sciences; Dec 2016; vol. 4 (no. 4); p. 670-673

Publication Type(s): Journal: Article

Abstract:BACKGROUND: Fractures of the radius and ulna occupy a large field of the modern traumatology. Therefore, these fractures are a major subject in modern orthopaedics and traumatology. The study of the mechanisms of the trauma, and the pathophysiological changes that occur are of great importance for the development of ever more efficient and varied ways of the treatment and prophylactics of this type of fracture. AIM: The aim of this paper was to study the pattern of the diaphyseal fractures of the forearm in adults, to decide the modalities of surgical management, to observe the period of fracture healing clinically and radiologically, as well to study the rehabilitation of the patients. MATERIAL AND METHODS: The present study included 45 cases of diaphyseal fractures of both bones forearm in adults presenting to the orthopaedic outpatient department. For all the patients a detailed history was taken. A thorough clinical examination was carried out, required X-rays were taken, and initial treatment was given and admitted as in all patients. After careful pre-operative planning and evaluation for anaesthetic fitness, patients were operated for the fractures of both bone forearms. Twenty-three cases with 46 fractures were treated by open reduction and rigid fixation with DCP & Semi-tubular plates and 22 cases with 44 fractures were treated by closed reduction and fixation with "Talwarkar" intramedullary square nails. RESULTS: United results were found in 100% of plating group vs. 86% in the nailing group. Delayed and non-union results were found in 9% of the nailing group only. Average time to union in weeks was 9.4 weeks in the plating group vs. 10.2 weeks in the nailing group. CONCLUSION: Open reduction and internal fixation with compression plates with strict adherence to surgical technique is the gold standard method of treatment in both bones forearm fractures with excellent results than closed reduction, internal fixation with "Talwarkar" square nails which is also again a simple method with better results than conservative methods. Copyright © 2016 Tabet A. Al-Sadek, Desislav Niklev, Ahmed Al-Sadek.

Is early definitive fixation of bicondylar tibial plateau fractures safe? An observational cohort study

Author(s): Unno F.; Lefavre K.A.; Osterhoff G.; Guy P.; Broekhuyse H.M.; Blachut P.A.; O'Brien P.

Source: Journal of Orthopaedic Trauma; Dec 2016

Publication Type(s): Journal: Article In Press

Abstract:OBJECTIVES:: The optimal treatment protocol for bicondylar plateau fractures remains controversial. Contrary to popular practice which favors a staged protocol in many high-energy fracture patterns, we have used early single-stage open reduction and internal fixation (ORIF) to treat these injuries whenever possible. The purpose of this study was to determine the complication rate as well as the functional and radiographic outcomes of this strategy. DESIGN:: Retrospective Cohort study and prospective data collection. SETTING:: Level I trauma center. EVIDENCE:: Therapeutic Level II Evidence. Patients/Participants: 101 patients with 102 AO/OTA type 41-C bicondylar tibial plateau fractures treated with Early definitive ORIF, defined as non-staged surgery performed within 72 hours from injury. A subset of patients was part of a longitudinal study and

reported functional outcomes at one year. **INTERVENTION::** Early definitive ORIF. **MAIN OUTCOME MEASUREMENT::** Primary outcome: re-operation rate, defined as any surgery within twelve months following the index operation; secondary outcomes: quality and stability of radiographic fracture reduction; functional outcome (SF-36 and Short Musculoskeletal Functional Assessment - SMFA). **RESULTS::** Non-staged operative treatment of bicondylar plateau fractures was performed in 91.3% of the fractures during the study period. For those, early definitive ORIF (surgery within 72 hours from injury) was performed in 82.3%. Mean time from injury to ORIF, for closed fractures, was 29.8 hours. Sixteen fractures (15.7%) who were treated with early definitive ORIF required an additional surgical procedure within twelve months. Complications included wound infection requiring surgical management, compartment syndrome requiring fasciotomies, non-union, early fixation failure and implant removal for discomfort. The re-operation rate was 12.7% if implant removal was excluded. At least three of the four radiographic criteria used to assess the adequacy of reduction were achieved in 95.1% of cases and all four criteria were met in 59.8% of fractures. The Physical Component of the SF-36 at twelve months was 42.6, which is comparable to values reported in previous studies for operative treatment of bicondylar plateau fractures. **CONCLUSION::** In a model where surgery is performed without delay by experienced orthopaedic trauma surgeons, a large proportion of bicondylar tibial plateau fractures can be safely treated with early definitive ORIF. Early surgery was associated with satisfactory post-operative radiographic reductions. Copyright © 2017 Wolters Kluwer Health, Inc. All rights reserved.

The role of radiographs and office visits in the follow-up of healed intertrochanteric hip fractures: An economic analysis

Author(s): Kempegowda H.; Richard R.; Borade A.; Tawari A.; Suk M.; Horwitz D.S.; Howenstein A.M.; Kubiak E.N.

Source: Journal of Orthopaedic Trauma; Dec 2016; vol. 30 (no. 12); p. 687-690

Publication Type(s): Journal: Conference Paper

Abstract: Objectives: The purpose of this study was to evaluate the role and the necessity of radiographs and office visits obtained during follow-up of intertrochanteric hip injuries. Design: Retrospective study. Setting: Two level I trauma centers. Patients: Four hundred sixty-five elderly patients who were surgically treated for an intertrochanteric fracture of the femur at 2 level I trauma centers between January 2009 and August 2014 were retrospectively identified from orthopaedic trauma databases. Intervention: Analysis of all healed intertrochanteric hip fractures, including demographic characteristics, quality of reduction, time of healing, number of office visits, number of radiographs obtained, and each radiograph for fracture alignment, implant position or any pathological changes. Results: The surgical fixation of 465 fractures included 155 short nails (33%), 232 long nails (50%), 69 sliding hip screw devices (15%), 7 trochanteric stabilizing plates (1.5%), and 2 proximal femur locking plates (0.5%). The average fracture healing time was 12.8 weeks and the average follow-up was 81.2 weeks. Radiographs of any patient obtained after the fracture had healed did not reveal any changes, including fracture alignment or implant position and hardware failure. In 9 patients, pathological changes, including arthritis (3), avascular necrosis (3), and ectopic ossification (3) were noted. The average number of elective office visits and radiographs obtained after the fracture had healed were 2.8 (range: 1-8) and 2.6 (range: 1-8), respectively. According to Medicare payments to the institution, these radiographs and office visits account for a direct cost of \$360.81 and \$192, respectively, per patient. Conclusion: The current study strongly suggests that there is a negligible role for radiographs and office visits during the follow-up of a well-healed hip fracture when there is documented evidence of radiographic and clinical healing with acceptable fracture alignment and implant position. Implementation of this simple measure will help

in reducing the cost of care and inconvenience to elderly patients. Level of Evidence: Diagnostic Level IV. See Instructions for Authors for a complete description of levels of evidence. Copyright © 2016 Wolters Kluwer Health, Inc.

Can MDCT unmask instability in binder-stabilized pelvic ring disruptions?

Author(s): Dreizin D.; Davis D.L.; Mascarenhas D.; Tirada N.; Chen H.; Bodanapally U.K.; Nascone J.

Source: American Journal of Roentgenology; Dec 2016; vol. 207 (no. 6); p. 1244-1251

Publication Type(s): Journal: Article

Abstract:Objective. Pelvic binders may hinder radiologic assessment of pelvic instability after trauma, and avulsive injuries can potentially unmask instability in this setting. We compare the performance of MDCT for the detection of pelvic disruptions in patients with binders to a matched cohort without binders, and we assess the utility of avulsive injuries as signs of pelvic instability. MATERIALS AND METHODS. MDCT examinations of 56 patients with binders were compared with MDCT examinations of 54 patients without binders. Tile grading by an experienced orthopedic surgeon was used as the reference standard (A, stable; B, rotationally unstable; C, rotationally and vertically unstable). Two radiologists performed blinded reviews of CT studies in two reading sessions (sessions 1 and 2). In session 1, Tile grade was predicted on the basis of established signs of instability, including pubic symphysis and sacroiliac (SI) joint widening. In session 2, readers could change the Tile grade when avulsive injuries were seen. Diagnostic performance for predicting rotational instability and vertical instability was assessed. RESULTS. In the binder group, AUCs under the ROC curves for rotational instability increased from fair (0.73-0.77) to good (0.82-0.89) when avulsive signs were considered. In the control group, AUCs were good in both sessions. AUCs for vertical instability were fair with binders in both sessions. Agreement with the reference standard increased from fair (0.30-0.32) to moderate (0.46-0.54) when avulsive signs were considered in the binder group but were in the moderate range for both sessions in the control group. Combined evaluation for inferolateral sacral fractures, ischial spine fractures, and rectus abdominis avulsions resulted in optimal discrimination of rotational instability. CONCLUSION. Evaluation for avulsive signs improves MDCT sensitivity for the detection of rotational instability but not vertical instability in patients with binders. Copyright © 2016 American Roentgen Ray Society.

Reconstruction of patellar tendon following implantation of proximal tibia megaprosthesis for the treatment of post-traumatic septic bone defects

Author(s): Calori G.M.; Mazza E.L.; Mazzola S.; Colombo A.; Colombo M.; Vaienti L.; Gala L.

Source: Injury; Dec 2016; vol. 47

Publication Type(s): Journal: Article

Abstract:Introduction Latest advances made in joint replacement implants allows reconstruction of entire limbs. These special prostheses or megaprostheses were originally designed for the treatment of severe oncological bone loss. Nowadays, however, the indications and applications of these devices are expanding to other orthopaedic and trauma clinical conditions. Since 2008 we have implanted 152 megaprostheses in non-oncological conditions: 87 were implanted for post-traumatic failures aseptic/septic (represented by complex non-unions and critical size bone defects); 26 total femur, 52 distal femur and 9 proximal tibia. In this group of patients bone and soft tissues conditions are completely different compared to patients with oncological back ground. The presence of infection and previous surgeries can lead to adhesion, scar interference, muscular and tendon impairment and skin problems that lead to reduced function and severe joint stiffness. The purpose of this study is to evaluate the results of treatment of reconstruction of patellar tendon during

implantation of proximal tibia megaprosthesis for the treatment of septic post traumatic critical bone defects. Patients and methods In this retrospective study, we evaluated 9 patients treated with proximal tibia megaprosthesis who underwent patellar tendon reconstruction. All patients presented a complete patellar tendon disruption at the time of prosthesis implantation. Procedures of reconstruction included a tendon-plasty of quadriceps and/or patellar tendons, a pie crusting of quadriceps fascia, a reinforcement of the apparatus with synthetic tendon graft substitutes (LARS) and a medial gastrocnemius muscular flap to reconstruct the extensor mechanism and obtain skin coverage when needed. The average follow up was 18 months (9-36). For each of the cases, we analysed the complications occurred regarding septic recurrence, patellar fracture, quadriceps and patellar tendon rupture and number of reinterventions. The clinical outcome was assessed by the WOMAC Score. Results: In all cases there was no infection recurrence or skin related problems. None of the patients require prosthesis revision due to loosening or device failure. No patellar fracture or quadriceps tendon failure was recorded. One patient presented a rupture of the reconstructed patellar tendon due to a trauma incident 18 months after the implantation and he required revision surgery. From a clinical point of view the average WOMAC score was 62.4 at 1 month rising to 72.6 at 3 months, 78.2 at 6 months, 76.4 at 1 year and 74.8 at 18 months. Conclusion When proximal tibia megaprosthesis is implanted and there are soft tissue and patellar tendon deficiency, soft tissue reconstruction can be achieved by appropriate lengthening of the tendon and a gastrocnemius flap reinforced by LARS. Such an approach allows restoration of the extensor mechanism and coverage of the prosthesis in an area where skin problems are frequently very common. Copyright © 2016 Elsevier Ltd

Early prediction of tibial and femoral fracture healing: Are we reliable?

Author(s): Squyer E.R.; Dikos G.D.; Kaehr D.M.; Maar D.C.; Crichlow R.J.

Source: Injury; Dec 2016; vol. 47 (no. 12); p. 2805-2808

Publication Type(s): Journal: Article

Abstract: Introduction To evaluate the ability of orthopaedic trauma subspecialists to predict early bony union in femoral and tibia shaft fractures. Materials and methods Eight orthopaedic trauma subspecialists prospectively predicted the probability of bony union at 6 and 12 weeks post-operatively for an aggregate of 48 femoral and tibial shaft fractures treated at a Level 1 trauma centre. An additional orthopaedic trauma subspecialist was blinded to treating surgeon and adjudicated healing at 18 weeks. The Squared-Error Skill Score (SESS) determined the likelihood of accurate forecasting for bony union. Results Nine patients were lost follow-up, resulting in 39 fractures (81.25% retention) including 20 femoral and 19 tibial fractures. Fourteen fractures were open, 15 were not-yet united at final follow-up. SESS values were 0.25-0.77. The ability to predict union (sensitivity) was 1.000. The ability to predict nonunions (specificity) was 0.330-0.500. The probability of a correct predicted union was 0.727 and correct predicted nonunion at final follow-up was 1.000. AO/OTA type A fractures pattern predictions were highly accurate. As body mass index increased, predictions trended toward decreased accuracy ($p = 0.06$). Tobacco use, age, gender, associated injuries, open fractures, and surgeons' years in clinical practice were not associated with accuracy of predictions. Conclusions At 12-weeks post-operatively orthopaedic trauma subspecialists can confidently predict the union state in this patient population. This data is most useful in the nonunion patient, directing early intervention, thereby decreasing patient disability and discomfort. Copyright © 2016 Elsevier Ltd

Can applied external fixators be sterilized for surgery? A prospective cohort study of orthopaedic trauma patients

Author(s): Hardeski D.; Gaski G.; Nascone J.W.; Sciadini M.F.; O'Toole R.V.; Joshi M.; Venezia R.

Source: Injury; Dec 2016; vol. 47 (no. 12); p. 2679-2682

Publication Type(s): Journal: Article

Abstract:Background Temporary external fixators are often used to stabilize fractures when definitive fracture surgery must be delayed. Sometimes, external fixators are left in place during repeat operations, including definitive internal fixation of tibial pilon and tibial plateau fractures. It is unknown how well current surgical preparation sterilizes these devices, which become part of the surgical field. Our hypothesis was that our institution's standard surgical preparation creates a low rate of culture-positive environments on external fixators at the time of surgical skin incision. Methods We prospectively consented and enrolled patients to obtain cultures (48 patients, 55 external fixators, 165 sets of culture data). After standard preparation and immediately before incision, cultures were obtained from three sites on each external fixator: 1) most distal pin 1 cm from pin-skin interface, 2) most distal bar at midpoint between pin and clamp connectors, and 3) most distal clamp at bar-clamp interface. Our standard preparation for patients with external fixation in place is to don sterile gloves and wipe down all components of the external fixator with 70% alcohol-soaked sterile 4 x 4 in gauze sponges before skin preparation. The skin and external fixator are then prepped in the usual fashion with Chloraprep for closed wounds or with povidone iodine scrub and paint for open wounds. Swabs were processed and organisms from cultures identified. Clinicians were blinded to study results until study completion. Results Two of 165 cultures (1.2%; 95% confidence interval [CI]: 0-2.9%) were positive for common pathogens sometimes observed in surgical site infection. Four cultures (2.4%; 95% CI: 0-4.8%) had pathogens that are rarely associated with surgical site infection, and four (2.4%; 95% CI: 0-4.8%) had nonpathogenic organisms. Conclusion Using 70% alcohol on external fixators plus either Chloraprep for closed wounds or povidone iodine for open wounds seems to result in a low rate of positive cultures. Most species that were isolated are infrequently identified as sources of surgical site infections. This preparation protocol might be effective at producing a relatively clean environment at the time of surgery for patients with external fixators already in place. Copyright © 2016

Evaluation of Reduction Accuracy of Suture-Button and Screw Fixation Techniques for Syndesmotic Injuries

Author(s): Kocadal O.; Pepe M.; Aktekin C.N.; Yucel M.; Aksahin E.

Source: Foot and Ankle International; Dec 2016; vol. 37 (no. 12); p. 1317-1325

Publication Type(s): Journal: Article

Abstract:Background: Among the most important predictors of functional results of treatment of syndesmotic injuries is the accurate restoration of the syndesmotic space. The purpose of this study was to investigate the reduction performance of screw fixation and suture-button techniques using images obtained from computed tomography (CT) scans. Methods: Patients at or below 65 years who were treated with screw or suture-button fixation for syndesmotic injuries accompanying ankle fractures between January 2012 and March 2015 were retrospectively reviewed in our regional trauma unit. A total of 52 patients were included in the present study. Fixation was performed with syndesmotic screws in 26 patients and suture-button fixation in 26 patients. The patients were divided into 2 groups according to the fixation methods. Postoperative CT scans were used for radiologic evaluation. Four parameters (anteroposterior reduction, rotational reduction, the cross-sectional syndesmotic area, and the distal tibiofibular volumes) were taken into consideration for the radiologic assessment. Functional evaluation of patients was done using the American Orthopaedic Foot & Ankle Society (AOFAS) ankle-hindfoot scale at the final follow-up. The mean follow-up period was 16.7 +/- 11.0 months, and the mean age was 44.1 +/- 13.2. Results: There was

a statistically significant decrease in the degree of fibular rotation ($P = .03$) and an increase in the upper syndesmotic area ($P = .006$) compared with the contralateral limb in the screw fixation group. In the suture-button fixation group, there was a statistically significant increase in the lower syndesmotic area ($P = .02$) and distal tibiofibular volumes ($P = .04$) compared with the contralateral limbs. The mean AOFAS scores were 88.4 ± 9.2 and 86.1 ± 14.0 in the suture-button fixation and screw fixation group, respectively. There was no statistically significant difference in the functional ankle joint scores between the groups. Conclusion: Although the functional outcomes were similar, the restoration of the fibular rotation in the treatment of syndesmotic injuries by screw fixation was troublesome and the volume of the distal tibiofibular space increased with the suture-button fixation technique. Level of Evidence: Level III, retrospective comparative study. Copyright © American Orthopaedic Foot & Ankle Society.

No difference in prevalence of radiographic subspinal impingement of the hip between symptomatic and asymptomatic subjects.

Author(s): Yoo, Jun-Il; Ha, Yong-Chan; Lee, Han-Jun; Lee, Jung-Yeop; Lee, Young-Kyun; Koo, Kyung-Hoi

Source: Knee surgery, sports traumatology, arthroscopy : official journal of the ESSKA; Dec 2016

Publication Type(s): Journal Article

Abstract: The study determined the prevalence of subspinal impingement (SSI) in symptomatic and asymptomatic individuals, morphologic characteristics in symptomatic patients, and risk factors for SSI. The study cohort consisted of 427 patients (427 hips; median age 33.4 years; range 19-50 years) with mechanical symptoms who underwent multi-detector computed tomography arthrography (symptomatic patients) and 259 control (asymptomatic) patients who underwent abdominopelvic three-dimensional CT because of a ureter stone or minor trauma. Two orthopaedic surgeons reviewed the images to evaluate the prevalence of SSI and the relationship with morphologic abnormalities. Radiologic parameters were further compared between the SSI and non-SSI groups in symptomatic patients using the Chi-squared test or two-sample t test. Variables with p values <0.10 (sex and age) were included in the multi-variate analysis. Logistic regression analysis was carried out to identify independent risk factors for SSI. The prevalence of SSI in symptomatic and asymptomatic patients was 65/427 (15.2%) and 40/259 (15.4%), respectively (n.s.). Structural bony abnormalities in symptomatic patients were not associated with the presence of SSI (n.s.). Binary logistic regression analysis revealed that youth (odds ratio 0.952, 95% CI 0.922-0.984) was the only significant factor for SSI. SSI had a similar prevalence in symptomatic and asymptomatic patients and was not rare in either group. Therefore, clinical implication of SSI in symptomatic patient should be re-evaluated through further study. Level IV.

Ultrasound-assisted external fixation: a technique for austere environments.

Author(s): Talbot, Max; Harvey, E J; Reindl, R; Martineau, P; Schneider, P

Source: Journal of the Royal Army Medical Corps; Dec 2016; vol. 162 (no. 6); p. 456-459

Publication Type(s): Journal Article

Abstract: Ultrasound-assisted external fixation of long bones has the potential to enhance extremity damage control surgery in locations without fluoroscopy, such as forward surgical elements, the intensive care unit, and spacecraft. This pre-clinical study specifically sought to evaluate orthopaedic surgeons' ability to sonographically define fracture patterns and the associated zone of injury in order to improve surgical decision-making and safely insert Schanz pin percutaneously. We encased small composite femurs in a cylindrical echogenic gelatin matrix to simulate a human thigh.

Three orthopaedic trauma surgeons with no prior ultrasound experience were taught to use sonography to diagnose fractures and assist external fixation. The surgeons were then presented with five specimens in a randomized sequence: three diaphyseal fractures (32-A2, 32-C2 and 32-C3); a distal femur fracture (33-A1.2); and an intact femur, all encased in an opaque black gelatin matrix to blind the participants to the underlying pathology. If they diagnosed a diaphyseal fracture, the surgeons were instructed to insert two Schanz pins proximal and two distal to the fracture, no closer than 40 mm from the fracture edges. Fracture diagnosis and surgical decision-making were correct in all cases. All intact femurs were recognized as such. The need for a knee-spanning external fixator was recognized for all distal femur fractures. The three surgeons performed appropriate ultrasound-assisted pin placement in every case of diaphyseal fracture. The pins adjacent to the fracture site were on average 58 mm (SD ± 11 mm) from the edge of the fracture. No pins were inserted in the fracture or in the knee joint. The current study results suggest that with minimal training, orthopaedic surgeons can use portable ultrasound to diagnose femur fractures, decide the appropriate external fixator configuration, and safely insert Schanz pins outside the zone of injury. Published by the BMJ Publishing Group Limited. For permission to use (where not already granted under a licence) please go to <http://www.bmj.com/company/products-services/rights-and-licensing/>.

The Clinical and Economic Impact of Generic Locking Plate Utilization at a Level II Trauma Center.

Author(s): McPhillamy, Austin; Gurnea, Taylor P; Moody, Alastair E; Kurnik, Christopher G; Lu, Minggen

Source: Journal of orthopaedic trauma; Dec 2016; vol. 30

Publication Type(s): Journal Article

Abstract: In today's climate of cost containment and fiscal responsibility, generic implant alternatives represent an interesting area of untapped resources. As patents have expired on many commonly used trauma implants, generic alternatives have recently become available from a variety of sources. The purpose of this study was to examine the clinical and economic impact of a cost containment program using high quality, generic orthopaedic locking plates. The implants available for study were anatomically precontoured plates for the clavicle, proximal humerus, distal radius, proximal tibia, distal tibia, and distal fibula. Retrospective review. Level II Trauma center. 828 adult patients with operatively managed clavicle, proximal humerus, distal radius, proximal tibia, tibial pilon, and ankle fractures. Operative treatment with conventional or generic implants. The 414 patients treated with generic implants were compared with 414 patients treated with conventional implants. There were no significant differences in age, sex, presence of diabetes, smoking history or fracture type between the generic and conventional groups. No difference in operative time, estimated blood loss or intraoperative complication rate was observed. No increase in postoperative infection rate, hardware failure, hardware loosening, malunion, nonunion or need for hardware removal was noted. Overall, our hospital realized a 56% reduction in implant costs, an average savings of \$1197 per case, and a total savings of \$458,080 for the study period. Use of generic orthopaedic implants has been successful at our institution, providing equivalent clinical outcomes while significantly reducing implant expenditures. Based on our data, the use of generic implants has the potential to markedly reduce operative costs as long as quality products are used. Therapeutic Level III.

Is intramedullary nailing applicable for distal tibial fractures with ankle joint extension?

Author(s): Beytemür, Ozan; Albay, Cem; Adanır, Oktay; Yüksel, Serdar; Güleç, Mehmet Akif

Source: Eklem hastaliklari ve cerrahisi = Joint diseases & related surgery; Dec 2016; vol. 27 (no. 3); p. 125-131

Publication Type(s): Journal Article

Abstract: This study aims to evaluate the functional and radiographic results and treatment complications of AO/OTA (Arbeitsgemeinschaft für Osteosynthesefragen/Orthopaedic Trauma Association) type 43C1 and C2 fractures treated with intramedullary nailing. We retrospectively evaluated 35 AO/OTA type 43C1 and C2 patients (26 males, 9 females; mean age 39.8 ± 16.9 years; range 19 to 82 years) treated with intramedullary nailing. Two interfragmentary screws out of nail were applied in 10 patients (29%), while one interfragmentary screw out of nail was applied in 17 patients (49%). Intramedullary nailing was applied in eight patients (23%) without external screws. Fracture union, union time, alignment problems, and complications were evaluated. Clinical evaluation of patients was conducted using the Olerud and Molander score and by measuring the ankle joint range of motion. Union was achieved in all 35 patients. Mean union time was 16.5 ± 2.8 weeks (range 12 to 24 weeks) and mean Olerud and Molander score was 88 ± 8.24 . Varus deformity was detected in one patient, valgus deformity was detected in two patients, and rotation deformity was detected in one patient. Superficial infection was detected in three patients (9%). Deep infection was not detected in any patient. Intramedullary nailing is not contraindicated for simple intra-articular distal tibial fractures. In these fractures, intramedullary nailing performed in accordance with its technique, with an additional percutaneous screw if necessary, is a successful treatment option with high fracture union rates, high functional results, and low complication rates.



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January 18 2017, Volume 99, Issue 2



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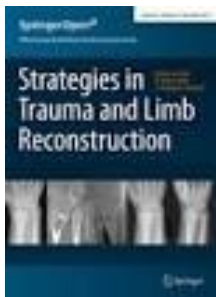
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January 2017, Volume 48, Issue 1



Strategies in Trauma and Limb Construction

November 2016, Volume 11, Issue 3 (triannual)



Clinical Orthopaedics and Related Research

February 2017, Volume 475, Issue 2



Exercise: Creating a search strategy

Scenario: A 64 year old obese male who has tried many ways to lose weight presents with a newspaper article about 'fat-blazer' (chitosan). He asks for your advice.

1. What would your PICO format be?

Population/problem	
Intervention/indicator	
Comparator	
Outcome	

2. What would your research question be?

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PICO: P = obese patients; I = chitosan; C = placebo; O = decrease weight
Research question: In obese patients, does chitosan, compared to a placebo, decrease weight?



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