Musculoskeletal Soft Tissue Clinic

Evidence Update

June 2018 (Quarterly)
Your Outreach Librarian Jo Hooper

Whatever your information needs, the library is here to help. Just email us at library@uhbristol.nhs.uk

**Outreach:** Your Outreach Librarian can help facilitate evidence-based practice for all in the team, as well as assisting with academic study and research. We also offer one-to-one or small group training in **literature searching, critical appraisal and medical statistics.** 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. Please email requests to library@uhbristol.nhs.uk
Current Journals: Tables of Contents

Click on journal title (+ Ctrl) for hyperlink

<table>
<thead>
<tr>
<th>Journal</th>
<th>Month</th>
<th>Volume</th>
<th>Issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>The American Journal of Sports Medicine</td>
<td>May</td>
<td>46</td>
<td>6</td>
</tr>
<tr>
<td>British Journal of Sports Medicine</td>
<td>June</td>
<td>52</td>
<td>11</td>
</tr>
<tr>
<td>Emergency Medicine Journal</td>
<td>June</td>
<td>35</td>
<td>6</td>
</tr>
<tr>
<td>Spine</td>
<td>June</td>
<td>43</td>
<td>11</td>
</tr>
</tbody>
</table>

If you require full articles please email: library@uhbristol.nhs.uk

Lunchtime Drop-in Sessions

**July (13.00-14.00)**

- 5th (Thu) Critical Appraisal
- 9th (Mon) Statistics
- 19th (Thu) Literature Searching
- 23rd (Mon) Critical Appraisal

**August (12.00-13.00)**

- 1st (Wed) Statistics
- 6th (Mon) Literature Searching
- 16th (Thu) Critical Appraisal
- 22nd (Wed) Statistics
- 30th (Thu) Literature Searching
Latest Evidence

**Efficacy and safety of extracorporeal shock wave therapy for acute and chronic soft tissue wounds: A systematic review and meta-analysis** Source: PubMed - 19 April 2018 - Publisher: International Wound Journal Read Summary

**Review article: Best practice management of closed hand and wrist injuries in the emergency department (part 5 of the musculoskeletal injuries rapid review series)** Source: PubMed - 24 May 2018 - Publisher: Emergency Medicine Australasia : Ema Read Summary

**SMI B 11: investigation of swabs from skin and superficial soft tissue infections** Source: GOV UK - Source: Public Health England - PHE - 02 May 2018 - Publisher: Public Health England

**Interventions for necrotizing soft tissue infections in adults** Source: Cochrane Database of Systematic Reviews - 31 May 2018

**Recent opioid use and fall-related injury among older patients with trauma** 23 April 2018 - Publisher: Canadian Medical Association Journal Read Summary

**Musculoskeletal Knowledge Portal launched** 25 May 2018 - Publisher: Arthritis and Musculoskeletal Alliance Read Summary

**Prevalence and Risk Factors for Musculoskeletal Pain in Keyboard Musicians: A Systematic Review** Source: PubMed - 26 April 2018 - Publisher: Pm & R : The Journal Of Injury, Function, And Rehabilitation Read Summary

**Opioid prescribing for chronic musculoskeletal pain in UK primary care: results from a cohort analysis of the COPERS trial** 06 June 2018 - Publisher: BMJ Open Read Summary

**Should topical nonsteroidal anti-inflammatory drugs be used to treat acute musculoskeletal conditions?** Source: BestBETS - 10 June 2018

**NHS Choices assessment of press reports about traumatic brain injury (TBI) increasing dementia risk** Source: NHS Choices - 11 April 2018 - Publisher: NHS Choices

**Manual therapy and exercise for lateral elbow pain**
Electrotherapy modalities for lateral elbow pain
Online Publication Date: June 2018

Surgical interventions for patellar tendinopathy
Online Publication Date: May 2018

Canadian C-spine rule and the National Emergency X-Radiography Utilization Study (NEXUS) for detecting clinically important cervical spine injury following blunt trauma
Online Publication Date: April 2018

Percutaneous vertebroplasty for osteoporotic vertebral compression fracture
Online Publication Date: April 2018

Initial management of trauma in adults
- Musculoskeletal
- Summary and recommendations

MANAGEMENT AND REHABILITATION OF MUSCULOSKELETAL INJURIES
Limited efficacy of foot orthoses for plantar heel pain (April 2018)
Literature review current through: May 2018. | This topic last updated: Jun 08, 2018.

PREVENTION AND BIOMECHANICS OF MUSCULOSKELETAL INJURIES
Additional evidence for ACL injury prevention programs (May 2018)
Literature review current through: May 2018. | This topic last updated: Jun 08, 2018.

Management of blunt thoracic aortic injury
- Initial management
- Summary and recommendations
Literature review current through: May 2018. | This topic last updated: May 31, 2018.
Library Clinic

Stop by and find out more about our services. We will be here to answer any questions you may have!

June 6\textsuperscript{th}: Terrace (Level 4, Education Centre) 12.00-14.00

June 19\textsuperscript{th}: Welcome Centre, BRI 10.00-16.00

July 3\textsuperscript{rd}: Welcome Centre, BRI 10.00-16.00

July 4\textsuperscript{th}: Canteen (Level 9, BRI) 12.00-14.00

August 8\textsuperscript{th}: Foyer, Education Centre 12.00-14.00

August 29\textsuperscript{th}: Foyer, St Michael’s Hospital 12.00-14.00

September 5\textsuperscript{th}: Canteen (Level 9, BRI) 12.00-14.00

September 11\textsuperscript{th}: Welcome Centre, BRI 10.00-16.00

October 3\textsuperscript{rd}: Terrace (Level 4, Education Centre) 12.00-14.00

November 7\textsuperscript{th}: Canteen (Level 9, BRI) 12.00-14.00

December 5\textsuperscript{th}: Foyer, Education Centre 12.00-14.00

December 11\textsuperscript{th}: Welcome Centre, BRI 10.00-16.00
Current Awareness Database Articles

Below is a selection of articles recently added to the healthcare databases, grouped in the categories:

- Acute Soft Tissue injuries
- Musculoskeletal
- Sports Injuries

If you would like any of the articles in full text, or if you would like a more focused search on your own topic, please contact us: library@bristol.nhs.uk

Acute Soft Tissue injuries

Conservative treatment of hangman variant fractures

Author(s): Niemeier T.E.; Manoharan S.R.; Mukherjee A.; Theiss S.M.
Source: Clinical Spine Surgery; 2018; vol. 31 (no. 5)
Publication Type(s): Article

Abstract: Study Design: This is retrospective cohort study. Objective: Investigate the stability of patients with hangman variant fractures and outcomes of treatment with external immobilization. Summary of Background Data: Traumatic spondylolisthesis of the axis (C2) with the fracture extending into the vertebral body has been incompletely characterized. Small case series have showed high rates of neurological injury and cite difficulty treating closed due to greater instability secondary to extensive ligamentous injury. Materials and Methods: Retrospectively, all patients admitted to a level 1 trauma center from 2004 to 2015 with acute C2 fractures were identified and classified based on computed tomographic imaging. Study cohort included patients with anterior translation <5 mm and C2-3 angulation <15 degrees that were followed to conclusion of treatment. Results: In total, 107 hangman's variant fractures (14.5%) were identified from a database of 735 acute C2 fractures. In total, 106 of the 107 patients displayed no neurological injury related to the cervical spine at the time of presentation. A total of 63 patients met the inclusion criteria and were followed as outpatients until collar or halo vest removal. All fractures progressed to union without progressive displacement or late neurological injury. No difference was observed in radiographic outcome between patients treated in a hard collar versus halo orthosis. Conclusions: Although widely considered a difficult fracture to treat with closed means, hangman variants are relatively neurologically benign injuries with low incidence of ligamentous injury. Fractures with <5 mm of horizontal translation and 15 degrees of angulation can be treated with external immobilization. Our results suggest no advantage of halo immobilization versus hard collar orthosis.

Abdominopelvic injuries due to road traffic accidents: Characteristics in a registry of 162,695 victims.

Author(s): Monchal, Tristan; Ndiaye, Amina; Gadegbeku, Blandine; Javouhey, Etienne;
**Source:** Traffic Injury Prevention; Jul 2018; vol. 19 (no. 5); p. 529-534

**Publication Type(s):** Academic Journal

**Abstract:** Objective: Road traffic accidents (RTAs) are the first cause of abdominopelvic injuries (APIs). The objective of this study was to describe the characteristics and severity of APIs due to traffic accidents in a large French trauma registry and to identify risk factors for API. Methods: All victims from the French Rhône registry of victims of RTAs were analyzed from 1996 to 2013. This registry contained data that were issued over a 20-year period from 245 medical departments, from prehospital care until rehabilitation, and forensic medicine departments. All APIs, defined as an injury between the diaphragm and the pelvic bone, were extracted and studied. Results: Among 162,695 victims, 10,165 had an API (6.7%). Accidents frequently involved young men and 2 cars. Mean Injury Severity Score (ISS) was 8.7. Mortality rate was 5.6%. Soft tissue injuries largely predominated (n = 6,388; 54.4% of patients). Overall, 2,322 victims had a pelvic bone injury. Internal abdominal organs were involved in 2,425 patients; the most frequent were the spleen, liver, and kidney. Wearing of the seat belt appeared to be a significant protective factor in API, including serious injuries. A partial analysis over the past 2 years among the most severe patients hospitalized in the intensive care unit indicated that nonoperative management was carried out in two thirds of the wounded. In univariable analysis, sex, age, type of user, antagonist, time of occurrence, associated severe lesions, or wearing of the seat belt were statistically associated with the occurrence of API, highlighting a more dangerous user profile. Conclusions: Abdominopelvic injuries concern a minority of road traffic injuries, but they are responsible for significant mortality. Large solid organs are the most frequently affected. Women drivers wearing a seat belt and driving in town during the day appear to be more protected against API.

**Trends and Cost-Analysis of Lower Extremity Nerve Injury Using the National Inpatient Sample.**

**Author(s):** Foster, Chase H; Karsy, Michael; Jensen, Michael R; Guan, Jian; Eli, Ilyas; Mahan, Mark A

**Source:** Neurosurgery; Jun 2018

**Publication Type(s):** Journal Article

**Abstract:** BACKGROUND Peripheral nerve injuries (PNIs) of the lower extremities have been assessed in small cohort studies; however, the actual incidence, national trends, comorbidities, and cost of care in lower extremity PNI are not defined. Lack of sufficient data limits discussion on national policies, payors, and other aspects fundamental to the delivery of care in the US. OBJECTIVE To establish estimates of lower extremity PNIs incidence, associated diagnoses, and cost in the US using a comprehensive database with a minimum of a decade of data. METHODS The National Inpatient Sample was utilized to evaluate International Classification of Disease codes for specific lower extremity PNIs (9560-9568) between 2001 and 2013. RESULTS Lower extremity PNIs occurred with a mean incidence of 13.3 cases per million population annually, which declined minimally from 2001 to 2013. The mean ± SEM age was 41.6 ± 0.1 yr; 61.1% of patients were males. Most were admitted via the emergency department (56.0%). PNIs occurred to the sciatic (16.6%), femoral (10.7%), tibial (6.0%), peroneal (33.4%), multiple nerves (1.3%), and other (32.0%). Associated diagnoses included lower extremity fracture (13.4%), complications of care (11.2%), open wounds (10.3%), crush injury (9.7%), and other (7.2%). Associated procedures included tibial fixation (23.3%), closure of skin (20.1%), debridement of open fractures (15.4%), fixation of other bones (13.5%), and wound debridement (14.5%). The mean annual unadjusted compounded growth rate of charges was 8.8%. The mean ± SEM annual charge over the time period was $64 031.20 ± $421.10, which was associated with the number of procedure codes (β = 0.2), length of stay (β = 0.6), and year (β = 0.1) in a multivariable analysis (P = .0001). CONCLUSION These data describe associations in the treatment of lower extremity PNIs, which are important for considering national policies, costs, research and the delivery of care.
Bidirectional Management of a Transnasal Intracranial Chopstick Transecting Optic Nerve.

**Author(s):** Tsai, Tsung-You; Lee, Li-Ang; Chao, Wei-Chieh; Lee, Yi-Chan

**Source:** The Journal of craniofacial surgery; Jun 2018; vol. 29 (no. 4); p. e398

**Publication Type(s):** Journal Article

**Abstract:** Herein, the authors report a rare patient with a transnasal intracranial penetration injury caused by a chopstick that resulted in optic nerve transection as well as the removal of the chopstick using a bidirectional approach. A 25-year-old male presented to our emergency department with right blindness and bilateral epistaxis. Preoperative computed tomographic angiography demonstrated a transnasal stick-like foreign body causing a skull base fracture and suspected vascular injury. Due to the shape of the chopstick and the high risk of massive bleeding, an exclusively endoscopic or open craniotomy approach is not suitable for removal. A bidirectional method, including both an open craniotomy and transnasal endoscopy, was used to remove the chopstick. After the operation, there were no further neurologic deficits or complications during the treatment course and follow-up. The bidirectional approach may provide an alternative method to address a foreign body when the patient is not a candidate for an exclusively endoscopic or open craniotomy approach management.

The microbiota of traumatic, open fracture wounds is associated with mechanism of injury.

**Author(s):** Bartow-McKenney, Casey; Hannigan, Geoffrey D; Horwinski, Joseph; Hesketh, Patrick

**Source:** Wound repair and regeneration: official publication of the Wound Healing Society [and] the European Tissue Repair Society; May 2018

**Publication Type(s):** Journal Article

**Abstract:** Open fractures are characterized by disruption of the skin and soft tissue, which allows for microbial contamination and colonization. Preventing infection-related complications of open fractures and other acute wounds remains an evolving challenge due to an incomplete understanding of how microbial colonization and contamination influence healing and outcomes. Culture-independent molecular methods are now widely used to study human-associated microbial communities without introducing culture biases. Using such approaches, the objectives of this study were to 1) define the long-term temporal microbial community dynamics of open fracture wounds and 2) examine microbial community dynamics with respect to clinical and demographic factors. Fifty-two subjects with traumatic open fracture wounds (32 blunt and 20 penetrating injuries) were enrolled prospectively and sampled longitudinally from presentation to the emergency department and at each subsequent inpatient or outpatient encounter. Specimens were collected from both the wound center and adjacent skin. Culture-independent sequencing of the 16S ribosomal RNA gene was employed to identify and characterize microbiota. Upon presentation to the emergency department and time points immediately following, sample collection site (wound or adjacent skin) was the most defining feature discriminating microbial profiles. Microbial composition of adjacent skin and wound center converged over time. Mechanism of injury most strongly defined the microbiota after initial convergence. Further analysis controlling for race, gender, and age revealed that mechanism of injury remained a significant discriminating feature throughout the continuum of care. We conclude that the microbial communities associated with open fracture wounds are dynamic in nature until eventual convergence with the adjacent skin community during healing, with mechanism of injury as an important feature affecting both diversity and composition of the microbiota. A more complete understanding of the factors influencing microbial contamination and/or colonization in open fractures is a critical foundation for identifying markers indicative of outcome and deciphering their respective contributions to healing and/or complication. This article is protected by copyright. All rights reserved.
A Prospective Study of Stingray Injury and Envenomation Outcomes.

**Author(s):** Myatt, Toby; Nguyen, Brian J; Clark, Richard F; Coffey, Christanne H; O'Connell, Charles W

**Source:** The Journal of emergency medicine; May 2018

**Publication Type(s):** Journal Article

**Abstract:** BACKGROUND: Stingray injuries result in thousands of emergency department visits annually. OBJECTIVE: This study aimed to assess the complication rate and outcome of field treatment with hot water immersion. METHOD: This was an on-site, prospective, observational study. Subjects were enrolled after having been stung by a stingray. A trained researcher obtained the following information: age, sex, health conditions and medications, and wound description. The efficacy of hot water immersion on pain was recorded. Patients were contacted on postinjury days 3, 7, and 14 for follow-up. RESULT: Twenty-two subjects were included. No obvious foreign bodies were observed in wounds. Ten subjects were treated with hot water immersion and povidone-iodine, 12 with hot water immersion alone. Ongoing symptoms or complications were noted at the 3-day follow-up in 6 of 22 subjects (27.3%). One subject was diagnosed with cellulitis on post-sting day 8 and was treated with antibiotics. Ongoing symptoms or complications were reported more commonly in patients treated with hot water and povidone-iodine compared with those treated with hot water alone (p = 0.056). There was a significant difference in wound size between those with and without ongoing symptoms at the 3-day follow-up (p = 0.0102). No wounds <1 cm developed any complications. Average duration of water immersion was 73.6 min (range 35-145 min). The mean pain score pretreatment was 7.36 and posttreatment was 2.18, with an average decrease of 5.18 (95% confidence interval 4.22-6.15). CONCLUSION: Stingray injuries responded well to hot water immersion for pain control. Skin and soft tissue infection was diagnosed in 1 of 22 patients (4.55%).

Clinical features of Haff disease and myositis after the consumption of boiled brackish water crayfish: a retrospective study of 96 cases at a single centre.

**Author(s):** He, Fei; Ni, Jun; Huang, Jun-Ai; Liu, Yao; Wu, Chao; Wang, Jun

**Source:** Internal and emergency medicine; May 2018

**Publication Type(s):** Journal Article

**Abstract:** The present study describes the difference in clinical features between the patients with Haff disease and crayfish-related myositis (CRM) after crayfish consumption. This was a single-centre, retrospective analysis at the Emergency Department of the Drum Tower Hospital of Nanjing University School of Medicine from July to August of 2016. The baseline information came from the Electronic Medical Record System at the institution. Totally 96 patients were included, of whom 52 patients were confirmed to have Haff disease and 44 patients were CRM. The illness predominately occurs in summer and most of them (55/96) are female. The primary clinical features are myalgia, muscle allodynia and back and body pain. Statistical differences in the baseline CK, CK-MB, myoglobin, and the WBC count exist between the Haff disease and CRM groups (P < 0.05). The serum levels of CK and CK-MB increase in the second (a median time 29.2 ± 7.4 h) or third day (a median time 54.8 ± 9.3 h) of disease course, and then rapidly decreased to normal levels, while the levels of myoglobin peak at the admission (a median time 7.7 ± 6.4 h) and became normal after admission. There were no fatalities or complications during this study. All 96 patients recovered in a week. Of them, 75 were followed-up within 1 month and none had recurrence. The Haff disease and CRM after boiled crayfish consumption reflect a different severity of muscle injury, and reveal similar clinical characteristics and most of the laboratory values. The overall prognosis of both is good.
The protective effect of Montelukast against skeletal muscle ischemia reperfusion injury: An experimental rat model.

Author(s): Bilgiç, Mehmet Ilker; Altun, Güray; Çakıcı, Hüsamettin; Gideroğlu, Kaan; Saka, Gürsel

Source: Ulusal travma ve acil cerrahi dergisi = Turkish journal of trauma & emergency surgery; TJTES; May 2018; vol. 24 (no. 3); p. 185-190

Publication Type(s): Journal Article

Abstract:BACKGROUND Montelukast is a selective leukotriene D-4 receptor antagonist, which specifically and reversibly inhibits cysteinyl leukotriene-1 receptor. The aim of this study was to investigate the protective effect of Montelukast on skeletal muscle reperfusion injury created as acute ischemia-reperfusion (IR) injury in Wistar-albino rats.

METHODS The study comprised 16 male Wistar-albino rats. The rats were randomly separated into two groups as control (IR) and treatment (IR+Montelukast). Ischemia was obtained using a femoral artery clamp. After reperfusion following a 2-hour ischemia, muscle samples were taken for biochemical and histopathological analyses.

RESULTS Malondialdehyde levels were determined to be at statistically higher levels in the control compared with that in the Montelukast group (p=0.002, p<0.01). The superoxide dismutase levels were determined to be at statistically higher level in the Montelukast group compared with that in the control group (p=0.001, p<0.01). In the histopathological examination of the ischemic muscles, edema, polymorph infiltration, and erythrocyte extravasation levels were found to be statistically significant higher in the control group than in the Montelukast group. Edema, polymorphonuclear infiltration, and erythrocyte extravasation levels were observed to be significantly reduced in the treatment group compared with that in the control.

CONCLUSION In this model of skeletal muscle acute IR injury, the protective effect of Montelukast against skeletal muscle reperfusion injury was emphasized. We concluded that Montelukast could accelerate functional recovery in the extremity by limiting the local and systemic complications caused by reperfusion in cases such as extremity trauma with vascular injuries and extremity surgery with prolonged tourniquet application. However, further experimental and clinical studies are required to confirm this effect.

A rare case of traumatic middle cerebral artery thrombosis without internal carotid artery dissection

Author(s): Patterson K.; Gordon P.

Source: European Stroke Journal; May 2018; vol. 3 (no. 1); p. 422

Publication Type(s): Conference Abstract

Abstract:Background and Aims: Trauma is a well-recognised cause of middle cerebral artery (MCA) infarction. Most cases are attributable to arterial dissection, particularly of the internal carotid artery. Here we describe a rare case of localised M1/M2 thrombosis following blunt head trauma.

Method: A 59 year old male presented with facial injuries resulting from blunt head trauma on a building site. Emergency imaging of his head and neck demonstrated skull fractures and extensive soft tissue swelling. His Glasgow Coma Scale (GCS) was 12. He was intubated and ventilated and managed in the intensive care unit (ICU). On day 2 of his admission sedation was weaned. He was noted to be agitated with a dense right hemiparesis. Magnetic resonance (MR) imaging revealed an extensive area of acute infarction in the left MCA territory with associated mass effect. MR Angiography demonstrated partial occlusion of the left MCA at the M1-M2 junction, but no arterial dissection. He underwent emergency decompressive craniotomy. After a prolonged period of rehabilitation residual deficits include severe articulatory and functional dyspraxia, right inattention and reduced upper limb function. Results: Literature review finds similar cases describing localised rupture of the intima and elastic lamina of the vessel at post mortem examination. Other suggested
mechanisms include arterial vasospasm. Conclusion: This case demonstrates the importance of monitoring for stroke syndromes after blunt head trauma.

**Probenecid and cefazolin use in treatment of cellulitis in hospital in the home**

**Author(s):** Dibia U.; Kulasegaran T.; Muller V.; Chapman P.; Hay K.

**Source:** Internal Medicine Journal; May 2018; vol. 48 ; p. 9-10

**Publication Type(s):** Conference Abstract

**Abstract:** Background: Cefazolin in combination with probenecid is used in the treatment of soft tissue infections like cellulitis[1], especially in hospital in the home (HITH) setting. Safe prescribing of this combination must consider glomerular filtration rate (eGFR) and potential drug interactions.

Aims/Objectives: 1) To identify the risk factors for cellulitis in our cohort. 2) Ascertain whether glomerular filtration rate (eGFR) is considered when prescribing probenecid and cefazolin in HITH patients. 3) Determine if potential drug interactions are considered when prescribing probenecid.

Methods: A retrospective analysis of 71 patients who attended a peripheral hospital in the period of 1 year and who satisfied the following inclusion criteria: (a) age >18 years, (b) presented with acute cellulitis, and (c) were suitable for home intravenous antibiotic therapy according to Metro-north hospital and health service (Queensland) guidelines. Results: The study population comprised 71 patients (58% males) who ranged in age from 21 to 93 years (mean 60, SD: 18 years). The mean weight was 107 (SD 36) kg in the 52 patients with recorded values. Risk factors for cellulitis, such as diabetes, ulcers and skin lacerations[2] were seen in 21(30%), 5(7%) and 19 patients (27%) respectively. Only 23 patients (33%) received oral antibiotics prior to hospital presentation. Cefazolin was prescribed in 70(99%) patients but only 62 (87%) had probenecid in addition. Patients with eGFRs above 60 were more likely to receive probenecid, and the mean eGFR was 80. Treatment duration was longer if patients weighed more than 100kg (p=0.029), had bilateral cellulitis (p=0.001), or were discharged from hospital, compared to Emergency discharges, prior to HITH admission (p=0.020). Of the 71 patients in the study, 55(77%) were on medications with the potential for drug interactions with probenecid, 30(42%) being potentially very severe reactions. Of the 55 patients, 1 patient (1.8%) developed severe neutropaenia and was re-hospitalized. Conclusion: Risk factors for cellulitis in our cohort did not differ from already published data. Prescribing Cephazolin and probenecid in HITH patients showed strong consideration for renal function but less so for potential drug interactions, highlighting the need for a local policy guiding prescription. The longer duration of treatment in patients weighing over 100kg may suggest that the usual dose of cefazolin may be inadequate in overweight and obese patients. A prospect study is needed to further elucidate this relationship.

**Falls’ and fallers’ profiles in older patients presenting to an Accident and Emergency (A&E) department**

**Author(s):** Moe T.; Gador-Whyte A.; Scanlon C.; Nightingale P.; Anpalahan M.

**Source:** Internal Medicine Journal; May 2018; vol. 48 ; p. 15-16

**Publication Type(s):** Conference Abstract

**Abstract:** Background: Falls are among the leading causes for which older people present to Accident and Emergency (A&E) departments. However, the clinical profile and outcomes of fallers presenting to A&E Departments are poorly described. This study describes the types and causes of falls, clinical outcomes, patient characteristics and the variables associated with hospitalisation in older fallers presenting to an A & E department. Methods: A retrospective cohort study of fallers aged >= 65 years presenting to the A&E department from 1 January to 31 December 2015, with 12 months follow up was carried out. Results: Of the 187 fallers presented, 182 (mean age (years) 81.5 +/- 8.5,
Females 58%) were included. 156 (85%) patients were community dwellers. 124(68%) were independent in the personal activities of daily living (PADLs) and 142 (78%) received at least one type of Fall Risk Increasing Drugs (FRID). 70(38%) patients had previous falls. The index fall was accidental in 26(15%) and non-accidental in 156(85%) fallers. Of the 156 non-accidental fallers, the fall occurred in the context of syncope in 97(62%), dizziness/vertigo in 26(17%) and without any accompanying symptoms in 33(21%). An attributable cause for the fall was identified in 88(56%) of the non-accidental fallers: postural hypotension 23(27%): vaso-vagal syncope 31(35%); arrhythmias 11(12%); and acute illnesses 23(26%). The cause of the fall remained undetermined in 68(44%). 56(31%) had at least one A&E presentation with recurrence of falls during 12 months follow up, and in 28(50%) the fall type was different to the index fall. The index fall resulted in injuries in 54(30%) patients: 37(69%) soft tissue injuries; 14 (26%) fractures; and 3(5%) intracranial haemorrhage. Older age (adjusted odds ratio (OR) 1.67, 95% confidence interval (CI) 1.12-6.32), use of gait (OR 1.12, 95%, CI 1.04-10.92) and previous falls (OR 1.24, CI 1.11-8.32), but not comorbidities or injuries including fractures, had a significant independent association with hospitalisation. 21(12%) required inpatient rehabilitation and 22(12%) required change in residential care status to a more dependent category following the index admission. Conclusions: Falls are mostly non-accidental, recurrent and characterized by an overlap of symptoms in keeping with the previous studies. A substantive number of falls are unexplained. Although falls are associated with high admission and injury rates, the incidence of fracture is infrequent. Older age and markers of frailty may be more important determinants of hospitalization than comorbidities or injuries.

Can ultrasound identify traumatic knee arthrotomy in a cadaveric model?

Author(s): Kongkatong M.; Thom C.; Moak J.H.

Source: Academic Emergency Medicine; May 2018; vol. 25

Publication Type(s): Conference Abstract

Abstract: Background: Traumatic arthrotomy of the knee (TAK) involves the violation of the knee capsule. TAK differs from simple lacerations in that they require operative irrigation and debridement to prevent septic arthritis and related morbidity. Currently, the diagnostic test of choice in the Emergency Department is the saline load test (SLT). SLT has a wide range of reported sensitivities, 34%-99%, with increasing volume of fluid instilled yielding better results. Computed tomography has been investigated as an alternative test using intra-articular air as a diagnostic marker of TAK. Ultrasound can identify air in various tissues given its highly reflective and echogenic nature. It also lacks ionizing radiation and can be utilized in a much more expeditious fashion when compared to computed tomography. We sought to determine the sensitivity and specificity of ultrasound for detecting intra-articular air in knee joints using a cadaver model. Methods: Soft embalmed cadavers were utilized. The knees were block randomized (www.randomizer.org) to either having 1 milliliter of air injected into capsule or sham skin injection. Ultrasound was then used to confirm that the air was injected into the articular space. Two expert emergency physicians who were blinded to randomization scanned the knees with a high frequency linear transducer and were asked to give an interpretation. Two-by-two tables were used to calculate the sensitivity and specificity. Results: Eighteen unique knees were scanned. None of the cadaver knees had prior dissection or intervention. Ten knees were randomized to be injected with air. The sensitivity was 0.65 (95% CI, 0.41-0.84) and specificity was 0.75 (95% CI, 0.47-0.92). The average time taken was 143 seconds. Conclusion: Ultrasound appears to have utility in evaluation of the knee joint for intra-articular air, which has previously been shown to be a reliable indicator of traumatic arthrotomy of the joint space. There were several limitations. Some knees had effusions with echogenic material present which could have led to false positive results. It is also unknown how much intra-articular air
is typical of TAK, 1 milliliter was used based on previous work with computed tomography. It is likely that larger injuries would lead to more air and be easier to identify. The use of ultrasound in the evaluation of TAK warrants further study.

**Differentiating pathogenic and commensal strains of staphylococcus epidermidis using phenotypic virulence factors**

**Author(s):** Van Epps J.S.; Van Aken S.; Duane N.

**Source:** Academic Emergency Medicine; May 2018; vol. 25

**Publication Type(s):** Conference Abstract

**Abstract:**

**Background:** Intravascular device associated bloodstream infections are becoming the most frequent cause of community acquired bacteremia. Furthermore, emergency physicians must now be cognizant that medical device infections (i.e., central line-associated blood stream infections) are currently viewed as medical errors. Staphylococcus epidermidis is ubiquitous on the skin and many times a harmless contaminate clinically. However, it is also the most common isolate from intravascular device infections. Therefore, a diagnostic that distinguishes pathogenic from commensal isolates would be advantageous. Here we developed a prediction tool that uses antibiotic sensitivity patterns and biofilm forming capacity.

**Methods:** Commensal isolates were taken from healthy volunteers (n=23) via thumbprints on mannitol salt agar plates. Pathogenic isolates (n=52) were gathered from blood cultures in which common colony morphology were shared by organisms recovered contemporaneously from multiple anatomic sites in the setting of acute illness. Antibiotic sensitivity was evaluated via disk-diffusion antibiotic sensitivity testing. Biofilm formatting capacity was evaluated by crystal violet staining and quantified by spectrophotometric absorbance at 570 nm. Statistical comparisons were made using Student’s t-test corrected for multiple comparisons. Logistic regression was performed and sensitivity, specificity, and area under the receiver operator curve were calculated.

**Results:** Antibiotic resistance frequency was higher in pathogenic isolates than commensal isolates for three antibiotics: ciprofloxacin (67% pathogens to 9% commensal), oxacillin (75% pathogens to 9% commensal) and sulfanamides (65% pathogens to 17% commensal). Pathogenic isolates had significantly higher biofilm forming capacity compared to commensal isolates (p=0.01). A logistic regression model using biofilm formation capacity and antibiotic resistance was generated which resulted in an area under the receiver operator curve of 0.94, sensitivity of 0.86, and specificity of 0.90.

**Conclusion:** Previous studies from our laboratory which used multi-locus sequence typing had only 73% accuracy. Using phenotypic characteristics we can increase our accuracy to 85%. Continuing to add virulence phenotypes to this model could further improve this diagnostic tool.

**Changes in opioid prescribing patterns in two urban, academic emergency departments from 2011-2016: A retrospective review**

**Author(s):** Mammen P.E.; Voelker J.; Crawford A.G.; Sabonjian M.; Maio V.

**Source:** Academic Emergency Medicine; May 2018; vol. 25

**Publication Type(s):** Conference Abstract

**Abstract:**

**Background:** In 2011, EM providers were identified as one of the top five opioid prescribers in all age groups under 40 years. Yet EM providers were among the first to address unsafe opioid prescribing practices amidst the growing opioid epidemic and to develop safer clinical practice strategies and guidelines. This study describes the change in annual opioid prescribing rates and associated primary diagnoses for patients discharged from two urban EDs. Methods: This retrospective study used electronic medical records for all patients discharged with and without an opioid prescription from two urban academic EDs from 2011 - 2016 with no exclusion criteria. The
primary ICD-9-CM and ICD-10-CM codes affiliated with each discharge were used to categorize discharge diagnoses. The proportion of discharged patients with an opioid prescription relative to total discharged patients was calculated by year and also by clinical and demographic characteristics. Descriptive statistics including chi-squared tests were performed to describe the change over time in opioid prescribing rates. Results: 56,684 of 469,358 (12.1%) discharged patients received an opioid prescription from 2011-2016. 54.5% were female and mean (SD) age was 44.4 years (16.0). Over time, the proportion of discharged patients receiving an opioid decreased, with the highest in 2011 (23.0%) and the lowest in 2016 (5.7%) (p<0.001). For those receiving an opioid, the top five associated diagnostic categories were: injury, poisoning, and other external causes (36.6%); musculoskeletal system and connective tissue conditions (17.1%); symptoms, signs, abnormal clinical and laboratory findings, and ill-defined conditions (12.7%); digestive system conditions (8.5%); and genitourinary system conditions (7.8%). In 2011, 45.0% and 44.2% of discharges with a diagnosis involving digestive system conditions and musculoskeletal system/connective tissue conditions, respectively, received an opioid compared to 11.8% and 9.1% in 2016 (p<0.001). Conclusion: The proportion of discharged patients who received an opioid prescription from two urban EDs decreased by 75% between 2011 and 2016. The reduction may be due to focused education and increased awareness within the EDs, but further research is warranted to elucidate this trend and determine factors associated with decreased opioid prescribing.

Analyzing skin and soft tissue infections in intravenous drug users
Author(s): Persaud S.; Schrock J.W.
Source: Academic Emergency Medicine; May 2018; vol. 25
Publication Type(s): Conference Abstract
Abstract: Background: Skin and soft tissue infections (SSTIs) are one of the most common complaints in emergency departments (EDs). Intravenous (IV) drug use is a risk factor for SSTIs. Previous research at our institution found that 14.8% of patients admitted for SSTIs were IV drug users. The objective of this study was to determine how SSTI characteristics, including patient demographics, microbial cultures, and admission data, have changed with the recent IV drug use crisis nationwide. Methods: We performed a retrospective analysis of patients presenting to an urban ED in 2013-2014. Characteristics analyzed include drug use status, cultures grown, antibiotics prescribed, resistance patterns, and admission data. Demographic data are reported as frequencies, rates of admission between IV drug users and other patients were compared by logistic regression. Results: Of 1,634 patients presenting to the ED for SSTIs, 871 (53.3%) were male, 17% were admitted to the hospital, and 14% had been treated for SSTIs in the past year. 11% of patients were IV drug users. IV drug users were 2.96 times more likely to be admitted or monitored in the CDU (pStaphylococcus aureus was the most common organism cultured. Less than 2% of cultures demonstrated resistance to the antibiotic the patients were prescribed. Conclusion: Patients with SSTIs who were also IV drug users were less likely to be discharged from the ED, and were more likely to leave AMA or elope. Furthermore, these patients had high recidivism and readmission. Staphylococcus aureus remains the most common organism in SSTI wound cultures. ED physicians are aware of resistance patterns and prescribe appropriate antibiotics the majority of the time.

Gender differences in safety and efficacy of the sufentanil sublingual tablet 30 mcg for treatment of acute moderate to severe pain in the emergency department
Author(s): Miner J.R.; Zubaid R.; DiDonato K.; Minkowitz H.
Source: Academic Emergency Medicine; May 2018; vol. 25
Publication Type(s): Conference Abstract
**Abstract:**

Background: Pain is the most common reason for visiting the ED. Studies indicate however that provision of adequate analgesia in the ED remains a challenge. Overcrowding and difficulty gaining IV access have been linked to delays in pain relief. A potent and easy to administer analgesic might help facilitate adequate and prompt pain relief. The Sufentanil Sublingual Tablet 30 mcg (SST 30 mcg) is being developed for treatment of moderate-to-severe acute pain in medically supervised settings such as EM. The product is designed to leverage sufentanil’s unique pharmacokinetic and pharmacodynamic properties and could offer potential analgesic advantages in challenging venues. The primary objective of this study was to evaluate safety and efficacy of SST 30 mcg by gender for management of pain in an ED setting. Methods: This was a multicenter, open-label study in 76 adults presenting to the ED with moderate-to-severe acute pain due to trauma or injury. Upon meeting entrance criteria, patients were offered a single dose or multiple doses of SST 30 mcg and remained in the study as needed for safety and efficacy assessments. Patients must have reported a pain score of >=4 on an 11-point numerical rating scale prior to receiving first dose. Primary efficacy variable was the summed pain intensity difference to baseline over the 1-hour study period (SPID1). Safety assessments included adverse events (AEs), vital signs, and a Six-Item Screener (SIS) to assess for cognitive impairment. Results: Forty patients were enrolled in the single-dose cohort and 36 in the multi-dose cohort; mean age 42 years, 61% male. Most common injury types were fracture (33%), sprain/strain (30%), soft tissue injury (17%) and laceration (11%). Mean baseline pain intensity was 7.6/10 for men and 8.8/10 for women (both considered "severe"). Mean (SEM) SPID score at one hour was 2.3 (0.3) for male patients and 1.8 (0.4) for female patients, a reduction from "severe" to "moderate" pain levels after a single dose. Adverse events were reported by 19/79 (21%) patients; nausea and somnolence were most common in both genders. Initial SIS results suggest SST 30 mcg has no effect on memory or cognition. Conclusion: SST 30 mcg has shown benefit as a non-invasive analgesic modality for short-term management of acute pain across a range of trauma presentations for both male and female patients.

**Pulmonary Infarction: Right Upper Quadrant Pain as a Presenting Symptom With Review of Typical Computed Tomography Imaging Features.**

**Author(s):** Fosmire, Steven T; Gibson, Guy N; Copeland, John C; Maydew, Marcus S; Eggers, Christian

**Source:** Military medicine; Jun 2018

**Publication Type(s):** Journal Article

Available at Military medicine - from EBSCO (MEDLINE Complete)

**Abstract:** The purpose of this case presentation is to discuss right upper quadrant pain as an atypical presenting symptom in pulmonary infarction and review the typical computed tomography (CT) imaging features of pulmonary infarction to improve diagnostic accuracy. Pulmonary infarction results from occlusion of distal arterial vasculature within the lung parenchyma leading to ischemia, hemorrhage, and ultimately necrosis. Patients with lung infarction typically present with pleuritic chest pain and may have associated signs or symptoms of pulmonary thromboembolism or deep vein thrombosis. In this case study, a 34-yr-old female devoid of any symptoms indicative of either pulmonary embolism or deep vein thrombosis presented with right upper quadrant pain 1 mo status post open reduction internal fixation for a left ankle fracture. Multiple clinic visits spanning approximately 7 d were significant for a right lower lobe opacity seen on CT of the abdomen which was presumed to represent community acquired pneumonia as a source for the patient’s RUQ pain. The patient presented to the emergency department 1 wk later (6 wk following her initial surgery) complaining of left lower extremity swelling and was subsequently diagnosed with a left lower extremity DVT via ultrasound. CT of the pulmonary arteries was negative for PE but identified a right lower lobe opacity which in retrospect was consistent with pulmonary infarction.
Concurrence of symmetrical peripheral gangrene and venous limb gangrene following polytrauma: a case report.

Author(s): Tan, Jih Huei; Mohamad, Yuzaidi; Tan, Chor Lip Henry; Kassim, Mahazir;

Source: Journal of medical case reports; May 2018; vol. 12 (no. 1); p. 131

Abstract: BACKGROUND Symmetrical peripheral gangrene is characterized as acral (distal extremity) ischemic limb injury affecting two or more extremities, without large vessel obstruction, typically in a symmetrical fashion. Risk factors include hypotension, disseminated intravascular coagulation, and acute ischemic hepatitis ("shock liver"). In contrast, venous limb gangrene is characterized by acral ischemic injury occurring in a limb with deep vein thrombosis. Both symmetrical peripheral gangrene and venous limb gangrene present as acral limb ischemic necrosis despite presence of arterial pulses. The coexistence of symmetrical peripheral gangrene and venous limb gangrene is rare, with potential to provide pathophysiological insights. CASE PRESENTATION A 42-year-old Chinese man presented with polytrauma (severe head injury, lung contusions, and right femur fracture). Emergency craniotomy and debridement of right thigh wound were performed on presentation. Intraoperative hypotension secondary to bleeding was complicated by transient need for vasopressors and acute liver enzyme elevation indicating shock liver. Beginning on postoperative day 5, he developed an acute platelet count fall (from 559 to 250 × 10⁹/L over 3 days) associated with left iliofemoral deep vein thrombosis that evolved to bilateral lower limb ischemic necrosis; ultimately, the extent of limb ischemic injury was greater in the left (requiring below-knee amputation) versus the right (transmetatarsal amputation). As the presence of deep vein thrombosis is a key feature known to localize microthrombosis and hence ischemic injury in venous limb gangrene, the concurrence of unilateral lower limb deep vein thrombosis in a typical clinical setting of symmetrical peripheral gangrene and venous limb gangrene is rare, with potential to provide pathophysiological insights. CONCLUSION Concurrence of unilateral lower limb deep vein thrombosis in a typical clinical setting of symmetrical peripheral gangrene is a potential explanation for greater extent of acral ischemic injury in the limb affected by deep vein thrombosis.

Musculoskeletal

Incidence and risk factors for complications after definitive skeletal fixation of lower extremity in multiple injury patients: A retrospective chart review [version 1; referees: 2 approved]

Author(s): Sangkomkamhang T.; Laohasiriwong W.; Thinkhamrop W.; Thinkhamrop B.

Source: F1000Research; 2018; vol. 7

Abstract: Background: The management of multiple injuries is complex. Type and timing of treatment for lower extremity fractures is a controversial subject. Although many studies have demonstrated the safety and effectiveness of early treatment, others have suggested that early definitive stabilization may cause complications, especially with chest and head injuries. The aim of this study was to determine the complications and effects of timing of fixation, and investigate risk factors for complications in multiple injuries patients with lower extremity fractures. Methods:
Retrospective chart review from Khon Kaen Trauma Registry between 2008 and 2015 were collected. All major complications were identified and collected for example acute respiratory distress syndrome (ARDS), acute kidney injury (AKI) and sepsis. The time to definitive skeletal fixation from initial injury was identified and analyzed with multiple logistic regression. Results: 1224 multiple injuries patients with lower extremity fractures were identified. The mean age was 34 +/- 19.5 years, 74.4% were male and 25.6% female. The mean time from initial injury to definitive operation was 55.7 +/- 53.9 hours. Complications occurred with 178 patients (14.5%), the most common of which were pneumonia, ARDS and AKI. After adjusting for sex, severity of injury, we found that the operation within 24-48 hours complication was 6.67 times less common than in the early treatment group (less than 24 hours) (95% CI: 3.03 to 10.00, P-value< 0.001). Conclusions: About 15% of the multiple injuries patients with lower extremity fracture had major complications. The optimal time for definitive fixation in lower extremity fractures to reduce complications was within 24-48 hours. We found that if we operated too early (before 24 hours) or more than 48 hours after the injury it could increase the morbidity and mortality.

**Review article: Best practice management of closed hand and wrist injuries in the emergency department (part 5 of the musculoskeletal injuries rapid review series).**

**Author(s):** Strudwick, Kirsten; McPhee, Megan; Bell, Anthony; Martin-Khan, Melinda; Russell, Trevor

**Source:** Emergency medicine Australasia : EMA; May 2018

**Publication Type(s):** Journal Article Review

**Abstract:** Acute hand and wrist injuries are a common presentation to the ED and are associated with large individual and societal costs. Appropriate management of these injuries in the ED is crucial given that optimal hand function is essential for daily activities and quality of life. This rapid review investigated best practice for the assessment and management of common closed hand and wrist injuries in the ED. Databases were searched in 2017, including PubMed, CINAHL, EMBASE, TRIP and the grey literature, including relevant organisational websites. Primary studies, systematic reviews and guidelines published in English language in the past 12 years that addressed the acute assessment, management, follow-up plan or prognosis were considered for inclusion. Data extraction of included articles was conducted, followed by quality appraisal to rate the level of evidence. The search revealed 2454 articles, of which 55 were included in the review (n = 23 primary articles, n = 26 systematic reviews and n = 6 guidelines). This rapid review provides clinicians who manage common closed fractures and soft tissue injuries of the hand and wrist in the ED, a summary of the best available evidence to enhance the quality of care for optimal patient outcomes. There is evidence to support taking a thorough history and physical examination with consideration of occupational and functional factors, restoring alignment and immobilising when necessary and referring onwards. Key points regarding the diagnosis and management of these injuries are provided.

**Overuse of computed tomography for minor head injury in young patients: an analysis of promoting factors.**

**Author(s):** Cellina, Michaela; Panzeri, Marta; Floridi, Chiara; Martinenghi, Carlo Maria Andrea;

**Source:** La Radiologia medica; Jul 2018; vol. 123 (no. 7); p. 507-514

**Publication Type(s):** Journal Article

**Abstract:** Aim To assess the amount of computed tomography (CT) scans for minor head injury (MHI) performed in young patients in our emergency department (ED), not indicated by National Institute for Health and Clinical Excellence (NICE) and Canadian Computed Tomography Head Rules (CCHR),
and to analyze factors contributing to unnecessary examinations. Secondary objectives were to calculate the effective dose, to establish the number of positive CT and to analyze which of the risk factors are correlated with positivity at CT; finally, to calculate sensitivity and specificity of NICE and CCHR in our population.

MATERIALS AND METHODS

We retrospectively evaluated 493 CT scans of patients aged 18-45 years, collecting the following parameters from ED medical records: patient demographics, risk factors indicating the need of brain imaging, trauma mechanism, specialty and seniority of the referring physician. For each CT, the effective dose and the negativity/positivity were assessed.

RESULTS

357/493 (72%) and 347/493 (70%) examinations were not in line with the CCHR and NICE guidelines, respectively. No statistically significant difference between physician specialty (p = 0.29 for CCHR; p = 0.24 for NICE), nor between physician seniority and the amount of inappropriate examinations (p = 0.93 for CCHR, p = 0.97 for NICE) was found but CT scans requested by ED physicians were less inappropriate [p = 0.28, odds ratio (OR) 0.562, CI (95%) 0.336-0.939]. There was no statistically significant correlation between patient age and over-referral (p = 0.74 for NICE, p = 0.93 for CCHR). According to NICE, low speed motor vehicle accident (p = 0.009), motor vehicle accident with high energy impact (p < 0.01) and domestic injuries (p = 0.002) were associated with a higher rate of unwarranted CT; according to CCHR only motor vehicle accident with high energy impact showed a significant correlation with unwarranted CT scan (p < 0.001, OR 44.650, CI 33.123-1469.854). 2% of CT was positive. Multivariate analysis demonstrated that factors significantly associated with CT scan positivity included signs of suspected skull fracture (p < 0.001, OR 20.430, CI 2.727-153.052) and motor vehicle accident with high energy impact (p < 0.001, OR 220.650, CI 33.123-1469.854). In our series, CCHR showed sensitivity of 100%, specificity of 74%; NICE showed sensitivity of 100%, specificity of 72%.

CONCLUSION

We observed an important overuse of head CT scans in MHI; the main promoting factor for inappropriate was injury mechanism. 2% of head CT were positive, correlating with signs of suspected skull fracture and motor vehicle accident with high energy impact.

Percutaneous Instrumentation of a Complex Lumbar Spine Fracture with Bilateral Pedicle Dissociation: Case Report and Technical Note.

Author(s): Luther, Evan; Urakov, Timur; Vanni, Steven

Source: Journal of neurological surgery. Part A, Central European neurosurgery; Jun 2018

Publication Type(s): Journal Article

Abstract: BACKGROUND AND STUDY OBJECTIVE Complex traumatic lumbar spine fractures are difficult to manage and typically occur in younger patients. Surgical immobilization for unstable fractures is an accepted treatment but can lead to future adjacent-level disease. Furthermore, large variations in fracture morphology create significant difficulties when attempting fixation. Therefore, a surgical approach that considers both long-term outcomes and fracture type is of utmost importance. We present a novel technique for percutaneous fixation without interbody or posterolateral fusion in a young patient with bilateral pedicle dissociations and an acute-onset incomplete neurologic deficit.

CASE DESCRIPTION A 20-year-old man involved in a motorcycle accident presented with unilateral right lower extremity paresis and sensory loss with intactrectal tone and no saddle anesthesia. Lumbar computed tomography (CT) demonstrated L2 and L3 fractures associated with bilateral pedicle dislocations. Lumbar magnetic resonance imaging showed draping of the conus medullaris/cauda equina anteriorly over the kyphotic deformity at L2 with minimal associated canal stenosis at L2 and L3. He was treated with emergent percutaneous fixation of the fracture segment without interbody or posterolateral fusion. Decompression was not performed because of the negligible amount of canal stenosis and high likelihood of cerebrospinal fluid leakage due to dural tears from the fractures. Surgical fixation of the L2 vertebra was achieved by cannulating the left pedicle with an oversized tap while holding the right pedicle in place with a normal tap and then driving screws into the left and right pedicles, respectively, thus reducing the
free-floating fracture segment. At 18 months after surgery, a follow-up CT demonstrated good cortication across the prior pedicle fractures, and the instrumentation was removed without any obvious signs of instability or disruption of the alignment at the thoracolumbar junction.

CONCLUSION We present a novel technique for percutaneous reduction and fixation of bilateral pedicle fractures with significant dissociation from the vertebral body, associated neural compression from the kyphotic deformity, and minimal spinal canal stenosis. Furthermore, we argue that early fixation and reduction of the fracture prevented irreversible neurologic compromise, and the absence of interbody or posterolateral fusion ultimately preserved the spinal mobility of the patient once the hardware was removed.

Backward Planning a Craniofacial Trauma Curriculum for the Surgical Workforce in Low-Resource Settings.

Author(s): Shaye, David A; Tollefson, Travis; Shah, Irfan; Krishnan, Gopal; Matic, Damir;
Source: World journal of surgery; Jun 2018
Publication Type(s): Journal Article

Abstract:BACKGROUND Trauma is a significant contributor to global disease, and low-income countries disproportionately shoulder this burden. Education and training are critical components in the effort to address the surgical workforce shortage. Educators can tailor training to a diverse background of health professionals in low-resource settings using competency-based curricula. We present a process for the development of a competency-based curriculum for low-resource settings in the context of craniofacial trauma education.

METHODSCMF trauma surgeons representing 7 low-, middle-, and high-income countries conducted a standardized educational curriculum development program. Patient problems related to facial injuries were identified and ranked from highest to lowest morbidity. Higher morbidity problems were categorized into 4 modules with agreed upon competencies. Methods of delivery (lectures, case discussions, and practical exercises) were selected to optimize learning of each competency.

RESULTS A craniofacial trauma educational curriculum (1.5 days event) was tailored to health professionals with diverse training backgrounds who care for CMF trauma patients in low-resource settings. A backward planned, competency-based curriculum was organized into four modules titled: acute (emergent), eye (periorbital injuries and sight preserving measures), mouth (dental injuries and fracture care), and soft tissue injury treatments. Four courses have been completed with pre- and post-course assessments completed.

CONCLUSION Surgeons and educators from a diverse geographic background found the backward planning curriculum development method effective in creating a competency-based craniofacial trauma course for health professionals in low-resource settings, where contextual aspects of shortages of surgical capacity, equipment, and emergency transportation must be considered.


Author(s): Gottlieb, Michael; Schiebout, Jessen
Source: The Journal of emergency medicine; Jun 2018; vol. 54 (no. 6); p. 849-854
Publication Type(s): Journal Article

Abstract:BACKGROUND Elbow dislocations are one of the most common large joint dislocations and they require urgent reduction in the emergency department. Posterior dislocations are the most common type, with anterior dislocations occurring in rare cases.

DISCUSSION Reduction techniques include traction-countertraction, patient-assisted countertraction, the leverage approach, and the modified Stimson technique. Complications can include nerve injury, vascular injury, and compartment syndrome.

CONCLUSION It is important for emergency physicians to be familiar with
several different reduction techniques for elbow dislocations in case the initial reduction attempt is unsuccessful. This article reviews the current evidence for reduction of elbow dislocations and any variations on these approaches.

Increased Morbidity and Mortality Associated with Falls Among Patients with Cirrhosis.

Author(s): Ezaz, Ghideon; Murphy, Susan L; Mellinger, Jessica; Tapper, Elliot B

Source: The American journal of medicine; Jun 2018; vol. 131 (no. 6); p. 645

Abstract: BACKGROUND Injuries are more morbid and complicated to manage in patients with cirrhosis. However, data are limited regarding the relative risk of injury and severity of injury from falls in patients with cirrhosis compared with those without cirrhosis. METHODS We examined the nationally representative National Emergency Department Sample, an all-payer database including all patients presenting with falls, 2009-2012. We determined the relative risks for and clinical associations with severe injuries. Outcomes included hospitalization, length of stay, costs, and in-hospital death. Outcomes were compared with those of patients with congestive heart failure. RESULTS We identified 102,977 visits involving patients with cirrhosis and 26,996,120 involving patients without cirrhosis who presented with a fall. Overall and compared with patients with congestive heart failure, the adjusted risk of severe injury was higher for patients with cirrhosis. These included intracranial hemorrhage (2.33; 95% confidence interval [CI], 2.02-2.68), skull fracture (1.75; 95% CI, 1.53-2.00), and pelvic fracture (1.71; 95% CI, 1.56-1.88). Risk was lower for less-severe injuries, such as concussion (0.95; 95% CI, 0.86-1.06) and lower-leg fracture (0.86; 95% CI, 0.80-0.91). Risk factors significantly positively associated with severe injury on multivariate analysis were hepatic encephalopathy, alcohol abuse, and infection. Cirrhosis was associated with increased risk of in-hospital death, longer length of stay, and higher costs after a fall. All outcomes were worse compared with those for patients with congestive heart failure. CONCLUSION: Falls are common in patients with cirrhosis, and they are more likely to incur severe injuries, with increased hospital costs and risk of death. Poor outcomes are most associated with ascites, hepatic encephalopathy, alcohol abuse, and infection, highlighting the subgroups at highest risk and most likely to benefit from preventative interventions.

An audit of complications of fiberglass cast and hybrid cast for fractures of the foot, ankle and forearm in a Swedish emergency department.

Author(s): Ekwall, Anna; Carlberg, Eva; Palmberg, Gunilla; Sloberg, Rut

Source: International journal of orthopaedic and trauma nursing; Jun 2018

Abstract: Patients of all ages present to the Emergency Department (ED) with fractures that require immobilization using a cast. Various casting materials are used, all with advantages and disadvantages and there are considerable risks associated with fracture management using cast immobilization. The frequency and severity of complications from fiberglass or hybrid casts applied in the emergency setting has not previously been studied. The aim of this audit was to describe all the complications that occurred within 30 days in patients who had a fiberglass cast applied for immobilization of uncomplicated, non-angulated fractures of the foot, ankle or forearm. A retrospective care record audit was conducted that included 430 patients. RESULTS The most common complications found were skin complications and cast related problems. No severe complications (e.g. compartment syndrome, venous thromboembolism or infection) were found. CONCLUSION Fiberglass casts did not cause severe complications in this group of patients with uncomplicated fractures of the extremities. However, 25% of the patients experienced some form of
complication. Interventions are needed that minimize the frequency of complications. As with all healthcare interventions, it is crucial that staff applying casts and providing follow-up care are competent. If casts are applied correctly and the patient is well informed and concordant, complications can be avoided.

**Intra-articular Hematoma Block Compared to Procedural Sedation for Closed Reduction of Ankle Fractures.**

**Author(s):** MacCormick, Lauren M; Baynard, Taurean; Williams, Benjamin R; Vang, Sandy; Xi, Min

**Source:** Foot & ankle international; Jun 2018 ; p. 1071100718780693

**Publication Type(s):** Journal Article

**Abstract:** BACKGROUND Initial treatment for a displaced ankle fracture is closed reduction and splinting. This is typically performed in conjunction with either an intra-articular hematoma block (IAHB) or procedural sedation (PS) to assist with pain control. The purpose of this study was to compare the safety of IAHB to PS and evaluate the efficiency and efficacy for each method.

METHODS A retrospective chart review for ankle fractures requiring manipulation was performed for patients seen in a level I trauma center from 2005 to 2016. The primary outcome was rate of successful reduction. Several secondary outcome measures were defined: reduction attempts, time until successful reduction, time spent in the emergency department (ED), rate of hospital admission, and adverse events. The analysis included 221 patients who received IAHB and 114 patients who received PS.

RESULTS The demographics between the 2 groups were similar, with the exception that more patients with a dislocation received PS, which prompted a subgroup analysis. This analysis demonstrated that patients with an ankle fracture and associated tibiotalar joint subluxation underwent closed reduction in a shorter period of time with the use of an IAHB compared with those receiving PS. In patients sustaining a tibiotalar fracture dislocation, patients receiving PS were successfully reduced with 1 reduction attempt more frequently than those receiving IAHB. Orthopedic surgeons also had higher rates of success on first attempt compared with ED providers.

CONCLUSION Both IAHB and PS were excellent options for analgesia that resulted in high rates of successful closed reduction of ankle fractures with adequate safety. IAHB can be considered a first-line agent for patients with an ankle fracture and associated joint subluxation.

LEVEL OF EVIDENCE Level III, retrospective comparative series.

**Isolated greater tuberosity fractures of the proximal humerus: anatomy, injury patterns, multimodality imaging, and approach to management.**

**Author(s):** White, Eric A; Skalski, Matthew R; Patel, Dakshesh B; Gross, Jordan S;

**Source:** Emergency radiology; Jun 2018; vol. 25 (no. 3); p. 235-246

**Publication Type(s):** Journal Article

**Abstract:** The greater tuberosity is an important anatomic structure and its integrity is important for shoulder abduction and external rotation. Isolated fractures of the greater tuberosity are often subtle and may not be detected on initial radiographs. Clinically, these patients display symptoms which mimic a full thickness rotator cuff tear. It is important to differentiate these two entities, as their treatment is different (typically nonsurgical management for minimally displaced fractures versus rotator cuff repair for acute full thickness rotator cuff tears). When greater tuberosity fractures are significantly displaced and allowed to heal without anatomic reduction, they can lead to impingement. This article will review greater tuberosity anatomy and function, as well as the clinical presentation and multimodality imaging findings of greater tuberosity fractures. Imaging optimization, pitfalls, and clinical management of these fractures will also be discussed.
Managing Shoulder Injuries in the Emergency Department: Fracture, Dislocation, and Overuse.

Author(s): Pescatore, Richard; Nyce, Andrew

Source: Emergency medicine practice; Jun 2018; vol. 20 (no. 6); p. 1-28

Publication Type(s): Journal Article

Abstract: The complex structures of the shoulder can be injured by fracture, dislocation, and overuse, and correctly identifying and classifying injury is essential to avoiding pain, disability, and life- and limb-threatening complications. This issue presents a systematic approach to classifying shoulder injuries based on the mechanism of injury and clinical presentation, choosing appropriate imaging, and determining the best strategies for treatment, including reduction, surgical consultation, or outpatient referral. Newer recommendations on intra-articular versus intravenous analgesia are presented to increase patient comfort and improve reduction outcomes.

Bundle of care for blunt chest trauma patients improves analgesia but increases rates of intensive care unit admission: A retrospective case-control study.

Author(s): Carrie, Cédric; Stecken, Laurent; Cayrol, Elsa; Cottencceau, Vincent; Petit, Laurent;

Source: Anaesthesia, critical care & pain medicine; Jun 2018; vol. 37 (no. 3); p. 211-215

Publication Type(s): Journal Article

Abstract: INTRODUCTION This single-centre retrospective case-control study aimed to assess the effectiveness of a multidisciplinary clinical pathway for blunt chest trauma patients admitted in emergency department (ED). PATIENTS AND METHODS All consecutive blunt chest trauma patients with more than 3 rib fractures and no indication of mechanical ventilation were compared to a retrospective cohort over two 24-month periods, before and after the introduction of the bundle of care. Improvement of analgesia was the main outcome investigated in this study. The secondary outcomes were the occurrence of secondary respiratory complications (pneumonia, indication for mechanical ventilation, secondary ICU admission for respiratory failure or death), the intensive care unit (ICU) and hospital length of stay (LOS). RESULT Sixty-nine pairs of patients were matched using a 1:1 nearest neighbour algorithm adjusted on age and indices of severity. Between the two periods, there was a significant reduction of the rate of uncontrolled analgesia (55 vs. 17%, P<0.001). A significant increase in the rate of primary ICU transfer during the post-protocol period (23 vs. 52%, P<0.001) was not associated with a reduction of secondary respiratory complications or a reduction of ICU or hospital LOS. Only the use of non-steroidal anti-inflammatory drugs appeared to be associated with a significant reduction of secondary respiratory complications (OR=0.3 [0.1-0.9], P=0.03). CONCLUSION Implementation of a multidisciplinary clinical pathway significantly improves pain control after ED management, but increases the rate of primary ICU admission without significant reduction of secondary respiratory complications.

Motorcycle helmets and cervical spine injuries: A 5-year experience at a level 1 trauma center

Author(s): Page P.S.; Wei Z.; Brooks N.P.

Source: Journal of Neurosurgery: Spine; Jun 2018; vol. 28 (no. 6); p. 607-611

Publication Type(s): Article

Abstract: OBJECTIVE Motorcycle helmets have been shown to decrease the incidence and severity of traumatic brain injury due to motorcycle crashes. Despite this proven efficacy, some previous reports and speculation suggest that helmet use is associated with a higher likelihood of cervical spine injury (CSI). In this study, the authors examine 1061 cases of motorcycle crash victims who were treated during a 5-year period at a Level 1 trauma center to investigate the association of helmet use with the incidence and severity of CSI. The authors hypothesized that wearing a
motorcycle helmet during a motorcycle crash is not associated with an increased risk of CSI and may provide some protective advantage to the wearer. METHODS The authors performed a retrospective review of all cases in which the patient had been involved in a motorcycle crash and was evaluated at a single Level 1 trauma center in Wisconsin between January 1, 2010, and January 1, 2015. Biometric, clinical, and imaging data were obtained from a trauma registry database. The patients were then divided into 2 distinct groups based on whether or not they were wearing helmets at the time of the accident. Baseline and functional characteristics were compared between the 2 groups. The Student t-test was used for continuous variables, and Pearson's chi-square analysis was used for categorical variables. RESULTS In total, 1061 patient charts were examined containing data on 738 unhelmeted (69.6%) and 323 helmeted (30.4%) motorcycle riders. On average, helmeted riders had a much lower Injury Severity Score (p < 0.001). Cervical spine injury occurred in 114 unhelmeted riders (15.4%) compared with only 24 helmeted riders (7.4%) (p < 0.001), with an adjusted odds ratio of 2.3 (95% CI 1.44-3.61, p = 0.0005). In the unhelmeted group, 10.8% of patients were found to have a cervical spine fracture compared with only 4.6% of patients in the helmeted group (p = 0.001). Additionally, ligamentous injury occurred more frequently in unhelmeted riders (1.9% vs 0.3%, p = 0.04). No difference was found in the occurrence of cervical strain, cord contusion, or nerve root injury (all p > 0.05). CONCLUSIONS The results of this study demonstrate a statistically significant lower likelihood of suffering a CSI among helmeted motorcyclists. Unhelmeted riders sustained a statistically significant higher number of vertebral fractures and ligamentous injuries. The study findings reported here confirm the authors' hypothesis that helmet use does not increase the risk of developing a cervical spine fracture and may provide some protective advantage.

Copyright © AANS 2018, except where prohibited by US copyright law.

Computed tomography - derived normative values of the critical shoulder angle

Author(s): Hussami M.; Goetti P.; Terrier A.; Farron A.; Omoumi P.; Becce F.

Source: Skeletal Radiology; Jun 2018; vol. 47 (no. 6); p. 902

Publication Type(s): Conference Abstract

Abstract: Purpose: An increased or decreased critical shoulder angle (CSA) has recently been associated with rotator cuff tendon tears and glenohumeral osteoarthritis, respectively. While originally measured on anteroposterior shoulder radiographs, computed tomography (CT) has been shown to be a highly reliable alternative imaging technique. Most previous studies on the CSA were performed on patients or cadavers with shoulder disorders, yet data on the normative CSA values in the general “healthy” population are scarce. The aim of our study was to determine the normative values of the critical shoulder angle (CSA) in a large patient cohort with healthy shoulders, and evaluate the influence of patient gender, age, height, as well as the side-to-side symmetry. Methods and Materials: We retrospectively reviewed whole-body CT scans of polytrauma patients, who were managed in our emergency department over a 6-year period. We selected 50 patients per decade for 5 consecutive decades (patients born from 1950 to 9 to 1990-9), choosing 35 male patients per decade, thus yielding 250 patients overall with 175 males (40.4 +/- 14.0 years, 177.1 +/- 6.7 cm) and 75 females (42.8 +/- 19.1 years, 165.6 +/- 6.3 cm). Exclusion criteria were: incomplete CT coverage of both scapulae, CT signs of glenohumeral osteoarthritis and/or acromial enthesophytes, scapular fractures, and previous shoulder surgery. Two independent observers, blinded to all patient characteristics, measured the CSAs of both shoulders using CT-derived maximum intensity projection views. Results: There were no significant differences in patient height between the various birth decades (p = 0.457). Overall, mean CSA (n = 500) was 32.1 +/- 3.4 degree. CSAs were comparable between right (32.1 +/- 3.4 degree) and left (32.1 +/- 3.4 degree) shoulders (p = 0.809). There were no significant differences in CSAs between males (32.0 +/- 3.2 degree) and females (32.3 +/- 3.8 degree) (p = 0.395). CSA was very weakly but significantly positively correlated with patient age (r = 0.113, p = 0.013). However, there was no significant correlation between CSA and patient height (r = -0.042, p
= 0.360). Interobserver reliability of measurements was excellent (ICCs>=0.812). Conclusion: We report CT-derived normative values of the CSA in a large polytrauma patient cohort with healthy shoulders. There are no significant differences in CSA in relation to patient gender, height, and shoulder side. The CSA is very weakly correlated with patient age. We confirm the excellent interobserver reliability of CT-derived CSA measurements. Establishment of normative CSA values in shoulders of healthy subjects might represent a valuable tool when considering lateral acromioplasty as an adjunct to rotator cuff tendon repair.

Selective Prereduction Radiography in Anterior Shoulder Dislocation: The Fresno-Quebec Rule.

Author(s): Émond, Marcel; Gariepy, Charles; Boucher, Valérie; Hendey, Gregory W
Source: The Journal of emergency medicine; May 2018
Publication Type(s): Journal Article

Abstract: BACKGROUND Shoulder dislocation is one of the most frequent dislocations encountered by emergency physicians. Typical emergency care usually includes performing both prereduction and postreduction radiography. However, selective radiography has the potential benefits of reducing emergency department (ED) time and radiation exposure. OBJECTIVE To refine and combine two existing clinical decision rules for selective radiography in the ED management of anterior shoulder dislocation, thus creating the Fresno-Quebec rule (FQR). METHODSPatients presenting to the ED with an anterior shoulder dislocation were enrolled in a prospective cohort study in two university-affiliated EDs. Patients with a clinically important fracture-dislocation were compared with those with an uncomplicated dislocation. We refined our new decision rule to detect all fracture-dislocations while maximizing specificity. RESULTSA total of 207 patients were included in this study, of which 24 (11.8%) had a clinically important fracture-dislocation. The refined rule consisting of three criteria had a sensitivity of 100% (95% confidence interval [CI] 87.5-100%), specificity of 50% (95% CI 42.5-57.5%), negative predictive value of 100% (95% CI 96-100%), and a negative likelihood ratio of 0.21 (95% CI 0.14-0.30). No patient with an atraumatic, recurrent dislocation had a fracture. Patients over age 35 years had an increased risk of fracture-dislocation if they sustained blunt injury or had a first episode of dislocation. Using this rule could have reduced prereduction radiographs by 44%. CONCLUSION The refined Fresno-Quebec shoulder dislocation rule detected all clinically important prereduction fracture-dislocations and could have reduced prereduction films by 44%. Prospective validation is warranted.

Asymptomatic ST elevation myocardial infarction.

Author(s): Anderson, Kenton L; Shah, Neel A; Gallegos, Moises; Chiang, I-Hui
Source: Heart & lung: the journal of critical care; May 2018
Publication Type(s): Journal Article

Abstract: BACKGROUND 71-year-old non-smoking female with a history of diabetes, hypertension, hyperlipidemia and end-stage renal disease presented to the emergency department for right leg pain due to an ankle fracture. CASEThe patient’s initial electrocardiogram (ECG) revealed ST segment elevations in the anterior leads. She denied any chest pain, shortness of breath, fatigue, lightheadedness, palpitations, nausea or diaphoresis. Her initial laboratory Troponin I resulted 35.9 ng/mL. Coronary catheterization demonstrated 99% occlusion of the left anterior descending (LAD) coronary artery. The patient had 2 drug eluting stents placed in the LAD with 10% residual stenosis. CONCLUSION Although witnessing an ongoing asymptomatic ST elevation myocardial infarction (STEMI) is rare, this case highlights the importance of early revascularization when the ECG demonstrates a STEMI, even in the absence of symptoms for patients at risk for silent myocardial infarctions.
Use of Ultrasound-Guided Superficial Cervical Plexus Block for Pain Management in the Emergency Department.

Author(s): Ho, Ben; De Paoli, Michael
Source: The Journal of emergency medicine; May 2018
Publication Type(s): Journal Article

Abstract: BACKGROUND Although use of the superficial cervical plexus block (SCPB) by anesthesia for perioperative indications is well described, there is a paucity of research on use of SCPB in the emergency department (ED). OBJECTIVE This prospective observational study aims to prospectively characterize the feasibility, potential for efficacy, and safety of ultrasound-guided SCPB in a convenience sample of ED patients presenting with painful conditions of the "cape" distribution of the neck and shoulder. METHODS Data were gathered prospectively on a convenience sample of 27 patients presenting to a community ED with painful conditions involving the distribution of the SCPB: para-cervical muscle spasm/pain (n = 8), clavicle fractures (n = 7), acromioclavicular joint injuries (n = 3), radicular pain (n = 3), and rotator cuff disorders (n = 6). Pre- and post-block 11-point verbal numeric pain scores (VNPS) were recorded, as was the incidence of any immediate complications. A retrospective chart review looked for delayed complications in the 14-day post-block period. RESULTS The mean 11-point VNPS reduction was 5.4 points (62%). There were no early serious complications and one case each of self-limiting vocal hoarseness and asymptomatic hemidiaphragmatic paresis. No delayed block-related complications were found. CONCLUSIONS While limited by the fact that this was a nonrandomized observational experience with no control group, our findings suggest that SCBP may be safe and have potential for efficacy, and warrants further evaluation in a randomized controlled trial.

Surgical plate fixation of multiple rib fractures: a case report.

Author(s): Mitev, Konstantin; Neziri, Dashurie; Stoicovski, Emil; Mitrev, Zan
Source: Journal of medical case reports; May 2018; vol. 12 (no. 1); p. 150
Publication Type(s): Journal Article

Abstract: BACKGROUND The healthcare system in developing countries is limited; particularly, medical specialties such as emergency and trauma medicine are underdeveloped. Consequently, trauma injuries sustained in traffic accidents result in chronic morbidity more often than similar cases in developed countries. Multiple rib fractures induce significant patient morbidity. Current international guidelines recommend a multidisciplinary, surgery-based treatment approach to achieve optimal clinical benefit. CASE PRESENTATION We admitted a 41-year-old Albanian man to our emergency department following a pedestrian-vehicle accident 5 days earlier. He presented with severe upper thoracic pain, chest deformity, dyspnea, tachycardia, subcutaneous emphysema, and hematoma. Chest radiography pointed to hypoventilated lung fields and a minor pleural effusion. Computed tomographic scans indicated displaced fractures of right lateral ribs 5-11, hyperdensity regions from bone fragments, and pulmonary contusion. The treatment consisted of surgical fixation of ribs 7-10 using titanium reconstruction plates and cortical locking screws. The patient’s clinical condition rapidly improved postoperatively. Follow-up at 6 weeks confirmed a full return to preoperative daily activities and a high quality of life. CONCLUSIONS In this case report, we present a novel and promising development in the field of trauma medicine in the Republic of Macedonia. Trauma injuries can be treated via advanced multidisciplinary medical care according to international standards, allowing optimal health recovery.
Specific spinal pathologies in adult patients with an acute or subacute atraumatic low back pain in the emergency department.

Author(s): Reito, Aleksi; Kyrölä, Kati; Pekkanen, Liisa; Paloneva, Juha

Source: International orthopaedics; May 2018

Abstract: PURPOSE The primary aim in the evaluation of patients presenting with acute or subacute low back pain (LBP) is to exclude a possible specific spinal pathology. Literature on the population-based incidences of these pathologies is scarce. The aim of our study was to investigate the population-based incidence of specific spinal pathologies as a cause of atraumatic acute or subacute LBP. METHODS From our institutional database, we identified all patients with a relevant LBP-related ICD-10 code during a visit to our emergency department (ED) in a level II/III teaching hospital between January 2012 and December 2014. Patients with a possible specific spinal pathology (cauda equina syndrome, spondylodiscitis, vertebral fracture, and cancer) were assessed in detail. RESULTS A total of 900 visits were due to atraumatic low back pain. Of these 284 (31.6%) were due to nonspecific LBP, and 583 (64.8%) due to radicular pain suggesting nerve root compression. In 33 (3.7%) cases, the LBP was caused by a specific spinal pathology. The annual incidences per 100,000 were 0.60 for CES, 2.1 for spondylodiscitis, 0.76 for cancer and 1.2 for compression fracture. CONCLUSIONS The incidences of specific spinal pathologies were low. Given that LBP is a very common symptom, it is not surprising that the accuracy of red flag symptoms is poor. Each patient should be considered individually, and we advocate a low threshold for referral and advanced imaging in cases where a specific spinal pathology is suspected.

Early neurological care of patients with spinal cord injury.

Author(s): Kessler, Thomas M; Traini, Luca R; Welk, Blayne; Schneider, Marc P; Thavaseelan, Jeffrey

Source: World journal of urology; May 2018

Abstract: PURPOSE Considering the major clinical challenges of managing patients with spinal cord injury (SCI), we summarized the relevant aspects of the early (within 1 year after SCI) neurological care emphasizing common standards. METHODS This review was performed according to the methodology recommended by the Joint SIU-ICUD International Consultation. Embase and Medline databases were used to identify literature relevant to the early neurological care of SCI patients. Recommendations were developed by consensus and graded using a modified Oxford system which identifies level of evidence (LOE) and grade of recommendation (GOR). RESULTS Emergency health care providers must address altered mental status, evidence of intoxication, suspected extremity fracture/distracting injury, focal neurological deficit and spinal pain/tenderness to determine the risk of SCI in a trauma patient [LOE 1, GOR A]. Neurogenic shock must be recognized and treated [LOE 3, GOR A]. Spine surgeons should consider early decompression and spine fixation/stabilization, where indicated, and should promote early active rehabilitation to improve functional recovery [LOE 2, GOR B]. Clinicians should refer SCI patients to specialized SCI rehabilitation centers [LOE 4, GOR B], must apply interventions to prevent venous thromboembolism (i.e., compression devices and low-molecular weight heparin/unfractionated heparin) after acute SCI respecting contraindications [LOE 1, GOR A]. Contemporary guidelines to manage pain must be employed [LOE 1, GOR A] and methods to reduce the risk of pressure ulcers should be used [LOE 3, GOR B]. CONCLUSIONS Early treatment, prevention of associated complications and individualized patient-targeted rehabilitation programs provided by a specialized interdisciplinary team are crucial to optimize the outcome after SCI.
Effect of home-based rehabilitation for hip fracture: A meta-analysis of randomized controlled trials.

**Author(s):** Wu, Desheng; Zhu, Xiulan; Zhang, Shaowei

**Source:** Journal of rehabilitation medicine; May 2018

**Publication Type(s):** Journal Article

Available at *Journal of Rehabilitation Medicine* - from EBSCO (MEDLINE Complete)

**Abstract:** BACKGROUND Home-based rehabilitation following hip fracture may be beneficial; however, the evidence is controversial. The aim of this systematic review and meta-analysis was to evaluate the effectiveness of home-based rehabilitation in patients with hip fracture. METHOD PubMed, Embase, Web of Science, EBSCO, and Cochrane Library databases were searched systematically. Randomized controlled trials (RCTs) assessing the effect of home-based rehabilitation for patients with hip fracture were included. Two investigators independently searched articles, extracted data, and assessed the quality of included studies. Primary outcomes were mobility and daily activity. Meta-analysis was performed using the random-effect model. RESULT Nine RCTs involving 887 patients were included in the meta-analysis. Overall, compared with control intervention for hip fracture, home-based rehabilitation was found to significantly improve mobility (standard mean difference (SMD) 0.56; 95% confidence interval (95% CI) 0.24-0.87; p = 0.006), daily activity (SMD 0.72; 95% CI 0.12-1.33; p = 0.02), instrumental activity (SMD 0.85; 95% CI 0.06-1.64; p = 0.03) and balance (SMD 0.89; 95% CI 0.06-1.73; p = 0.04), but resulted in no significant influence on walking outdoors (risk ratio (RR) 1.36; 95% CI 0.74-2.49; p = 0.32), usual gait speed (SMD 0.28; 95% CI -0.33 to 0.90; p = 0.37), fast gait speed (SMD 0.34; 95% CI -0.54 to 1.22; p = 0.45), and emergency department visit (RR 0.69; 95% CI 0.11-4.32; p = 0.69). CONCLUSION The results of the meta-analysis showed that home-based rehabilitation has considerable positive effects on physical functioning after hip fracture. Home-based rehabilitation is therefore recommended for hip fracture.

Asymmetrical traumatic bilateral hip dislocations with hemodynamic instability and an unstable pelvic ring: Case report and review of literature.

**Author(s):** Huang, Kai; Giddins, Grey; Zhang, Jian-Fang; Lu, Jian-Wei; Wan, Jun-Ming; Zhang, Peng-Li

**Source:** World journal of clinical cases; May 2018; vol. 6 (no. 5); p. 94-98

**Publication Type(s):** Journal Article

Available at *World Journal of Clinical Cases* - from PubMed Central

**Abstract:** Simultaneous anterior and posterior traumatic dislocations of both hips are very rare. Only 33 cases have been previously reported in the English language literature. Although they were all due to high-energy injuries, they were hemodynamically stable and had a stable pelvic ring. We report a unique case of asymmetrical hip dislocations with an unstable pelvic ring and hemodynamic instability. A 40-year-old man was injured in a high-energy motor vehicle accident. He was hemodynamically unstable when he presented in the emergency department. Radiographs showed asymmetrical dislocations of both hips with an unstable pelvic ring. Under general anesthesia, he had closed reduction of the dislocations of both hips, followed by temporary stabilization with an external fixator. Transcatheter arterial embolization was performed to stop active pelvic bleeding. Delayed open reduction and internal fixation was performed 12 days later with anterior and posterior plates. The patient recovered well with an uneventful post-operative course. Asymmetrical bilateral hip dislocations with pelvic ring instability caused by trauma, as presented in this case, is very rare and potentially life threatening. Prompt treatment can give a good outcome.

**Author(s):** Grabel, Zachary J; Armaghani, Sheyan J; Vu, Catphuong; Jain, Amit; Yoon, S Tim

**Source:** World neurosurgery; May 2018; vol. 113 ; p. e535

**Publication Type(s):** Journal Article

**Abstract:** BACKGROUND The optimal form of treatment for C2 spine fractures is controversial. This investigation analyzed the variations in treatment of C2 fractures over time, by age group, and by geographic location. METHODSThe Nationwide Emergency Department Sample database was queried to identify patients 18 years and older who sustained C2 fracture without neurologic injury from 2006 to 2012. Subsequently, patients were further filtered based on the intervention they received: collar, halo, and surgery. Regions of hospital used in analysis were defined as Northeast, Midwest, South, and West. Linear regression models were used to analyze trends for C2 incidence rates and treatment type. Analysis of variance tests were used to determine differences among procedure groups when stratified by regions and age groups. RESULTSSurgical intervention for C2 fracture increased from 36.5% in 2006 to 55.7% in 2012 ($r = 0.116$, $P < 0.001$). In contrast, the rate of halo use decreased from 57.8% in 2006 to 37.1% in 2012 ($r = -0.139$, $P < 0.001$). Surgery displayed increasing trend across all age groups. A greater proportion of patients in the Northeast were treated by collar compared with all other regions ($P < 0.001$). In contrast, halo use was significantly lower in the Northeast than the other 3 regions ($P < 0.001$). CONCLUSIONSThis investigation demonstrated that surgical management of C2 fractures is increasing in frequency over time and at all age groups. Furthermore, the treatment of these fractures varies by region—the Northeast had the highest incidence of collar use and lowest rate of halo use.

Cardiac findings of sternal fractures due to thoracic trauma: A five-year retrospective study.

**Author(s):** Uluşan, Ahmet; Karakurt, Özgür

**Source:** Ulusal travma ve acil cerrahi dergisi = Turkish journal of trauma & emergency surgery : TJTES; May 2018; vol. 24 (no. 3); p. 249-254

**Publication Type(s):** Journal Article

**Abstract:** BACKGROUND This study mainly aimed to determine the frequency of sternal fractures in thoracic trauma patients and to assess the differences in surgical need, cardiac findings, and treatment processes between patients with fracture on different sternal zones and displaced and non-displaced sternal fractures. METHODSWWe analyzed the data of patients with sternal fracture due to thoracic trauma admitted to a state hospital between January 2011 and December 2015. Patient data comprised demographics, trauma characteristics, clinical findings, and treatment process. RESULTSSof the 2764 thoracic trauma patients admitted during the study period, 72 (2.6%) had sternal fracture. The median age was 52 (inter quartile range: 61-38) years; the patients were predominantly male (F/M: 18/54). The most common causes of sternal fractures were motor vehicle accident, fall, and work accident. Of all the patients, 15 had displaced fracture. Abnormal echocardiogram findings were significantly more frequent in patients having fractures on the manubrium than in those having fractures on the corpus of the sternum. Patients who had fracture on the corpus had significantly lesser surgery need than those who had fracture on the manubrium of the sternum. Also, there was statistically significant difference between displaced and non-displaced sternal fracture cases in terms of surgery need (p<0.005). CONCLUSIONAbnormal echocardiography findings were more frequent in patients with sternal fracture on the manubrium and displaced fracture.

Traumatic Lingual Hematoma Resulting in Bilateral Temporal Mandibular Joint Dislocations.
Background: Lingual hematoma (LH) is a relatively uncommon entity seen after both medical and traumatic etiologies. Regardless of the cause, the feared complication is acute airway obstruction.

Case Report: Our case involves a 39-year-old man who presented to the Emergency Department via emergency medical services with an enlarging LH after an unwitnessed fall, suspected to be an alcohol withdrawal seizure. The bleeding was likely exacerbated by previously undiagnosed thrombocytopenia. Airway stabilization was rapidly established via nasotracheal intubation after standard intubation techniques were deemed unfeasible. Despite correction of the coagulopathy, the LH continued to expand, resulting in bilateral tympanomandibular joint (TMJ) dislocations. To our knowledge, this complication has not been previously reported as a complication of LH.

Why Should an Emergency Physician Be Aware of This?: Despite being a relatively uncommon condition, LH has the potential to result in life-threatening airway obstruction with limited airway options. Prompt airway stabilization should be the first priority upon diagnosis. A rapidly evolving LH can limit standard orotracheal rapid sequence intubation options, and may require alternative airway procedures. Additionally, ongoing lingual swelling after airway stabilization has now been shown in our case to result in bilateral TMJ dislocations. Concurrent management of reversible coagulopathy may help prevent this complication or reduce its severity.

An Impaled Potential Unexploded Device in the Civilian Trauma Setting: A Case Report and Review of the Literature.

Background: The management of patients with impaled unexploded devices is rare in the civilian setting. However, as the lines of the traditional battlefield are blurred by modern warfare and terrorist activity, emergency providers should be familiar with facility protocols, plans, and contact information of their local resources for unexploded devices.

Case Report: A 44-year-old male sustained a close-proximity blast injury to his lower extremities while manipulating a mortar-type firework. He presented to the regional trauma center with an open, comminuted distal femur fracture and radiographic evidence of a potential explosive device in his thigh. His management was coordinated with the local Explosive Ordinance Disposal and the fire department.

Why Should an Emergency Physician Be Aware of This?: Explosive devices pose a grave threat when encountered. Familiarization with protocols to manage these patients can mitigate disaster. Emergency providers should expect and be prepared to coordinate care for these patients.

An incidental image of a patient with chest pain after fall from a tree: Swyer-James-MacLeod syndrome?

Background: Unilateral hyperlucent lung was firstly described by Swyer and James 1950s. After that, some patients with same disease were detected by Macleod. Then this syndrome was named as Swyer-James-MacLeod syndrome (SJMS), and this syndrome includes a smaller or normal sized unilateral hyperlucent lung. The diagnosis of SJMS includes a detailed evaluation and the exclusion
of other reasons of unilateral hypertranslucency. In literature, small groups of patients with this syndrome have been described. This paper reports a 45-year-old male presented to our emergency department with chest pain after fall from height 24 h ago. In his computed tomography no rib fracture, pneumothorax and hemothorax. But an abnormal image (5.5 cm hyperlucent area) was seen in his left lung. This report aims to present one of incidentally diagnosed rare case of SJMS.

**Isolated avulsion fracture of the first metatarsal base at the peroneus longus tendon attachment: a case report.**

**Author(s):** Weinberg, Maxwell W; Krähenbühl, Nicola; Davidson, Nathan P; Hanrahan, Christopher J

**Source:** Skeletal radiology; May 2018; vol. 47 (no. 5); p. 743-746

**Publication Type(s):** Journal Article

**Abstract:** Avulsion fractures of the first metatarsal (MT1) base at the peroneus longus (PL) tendon attachment are rare and may be undiagnosed during an emergency visit. If the injury is not treated properly, chronic pain or persistent impairment for inversion and plantar-flexion of the first ray may occur. This case report presents a 30-year-old woman who presented 10 weeks post trauma to a foot and ankle surgeon due to a swollen right midfoot with diffuse tenderness over the medial Lisfranc joint. Further evaluation showed an isolated avulsion fracture of the first metatarsal, which was undiagnosed during the emergent visit following the accident. In this case, the patient was successfully treated conservatively. The goal of this article is to raise awareness of this rare injury for radiologists and orthopedic surgeons.

**Role of CT scan in theranostic and management of traumatic spinal cord injury.**

**Author(s):** Fatehi, Daryoush; Dayani, Mohammad Ali; Rostamzadeh, Ayoob

**Source:** Saudi journal of biological sciences; May 2018; vol. 25 (no. 4); p. 739-746

**Publication Type(s):** Journal Article

**Available at** Saudi Journal of Biological Sciences - from PubMed Central

**Abstract:** Traumatic spinal cord injury (TSCI) is a condition with suffering of neural structures from acute trauma with short-term or permanent sensory and motor problems. This study was conducted with the aim of determining the prevalence of TSCI in Tehran with emphasis on demographic characteristics of patients and to evaluate the effect of computed tomography (CT) in determining fracture type and severity grade of injury among TSCI patients. In a cross-sectional study, all TSCI and spinal fracture patients (N = 520) who referred to the main trauma center in Tehran, Iran, in 2013 and 2014 were selected. Radiography and CT scan were prepared and reported blindly by two radiologists. Majority of the patients was 21-30 years male, married and their most common occupation was car driver. A significant difference was observed between gender and etiology (P = 0.001). The main etiology was traffic accident followed by falling from height. While the most common location of injury for males was thoracic vertebrae followed by lumbar vertebrae; for females it was lumbar followed by thoracic. Majority of patients had ASIA (American Spinal Injury Association) impairment scale of E (normal), followed by B (sensory incomplete). Most of the cases were hospitalized less than one week. Age of the patient and duration of hospitalization had a significant association (P = 0.015). The results showed that in traumatic spinal cord events, traffic accident and falling from height are the main etiologies; hence, authorities in Iranian health system could consider preventive policies to decline the load and TSCI effects in hospitals and population.

**The Radiographic Quality of Distal Radius Fracture Reduction Using Sedation Versus Hematoma Block.**
Author(s): Koren, Lior; Ginesin, Eyal; Elias, Shahem; Wollstein, Ronit; Israelit, Shlomo
Source: Plastic surgery (Oakville, Ont.); May 2018; vol. 26 (no. 2); p. 99-103
Publication Type(s): Journal Article
Abstract: Distal radius fractures (DRFs) are treated in the emergency department (ED) with a closed reduction in order to decrease neurovascular and soft tissue injury and as a first definitive step in conservative treatment. The type of anesthesia used may affect the ability to reduce the fracture and remains controversial. Objective: The purpose of this study was to compare the quality of radiographic reduction achieved in the ED of DRF reduced using sedation anesthesia to those reduced with hematoma block anesthesia. Methods: A retrospective case-control study of 240 DRF reductions, 30 treated with sedation and 210 with a hematoma block, was performed. Complications and time spent in the ED were documented. Pre- and postreduction radiographs were reviewed for volar tilt, radial angulation, radial height, and ulnar variance. Results: Both groups were similar in gender, background illnesses, concomitant injuries, surgeon experience, and fracture radiographic classification. Postreduction values of volar tilt were better in the sedation group (P = 0.03). Volar tilt and ulnar variance improved more in the sedation group (P = 0.001). The sedation group spent more time in the ED (P = 0.001). Discussion: Sedation seemed to be more efficient than hematoma block in supporting closed reduction of distal radius fractures in the ED. However, this method requires specialized personnel and more time spent in the ED. Conclusion: We suggest using this method when the patient is planned to continue with conservative treatment.

Treatment of tibial nonunion with bone defect using a heterotopic ossification as autologous bone graft: literature overview and case report.
Author(s): Schlumberger, Michael; Mayr, Raul; Koidl, Christian; Eichinger, Martin; Roth, Tobias
Source: European journal of orthopaedic surgery & traumatology : orthopedie traumatologie; May 2018; vol. 28 (no. 4); p. 741-746
Publication Type(s): Journal Article Review
Abstract: Nonunion after open fracture of the lower leg is a frequent complication with a prevalence of up to 40%. In cases with major bone defects, revision of the osteosynthesis with bone grafting is commonly performed. Until today, there is no report on treatment of a tibial nonunion with transplantation of a heterotopic ossification. Presentation of Case: We present a case of a 27-year-old male patient, who suffered from a paragliding accident with major injuries. An open fracture of the lower leg (Gustilo-Anderson IIIB) was initially treated with external fixation and vacuum-assisted closure, followed by reamed intramedullary nailing. The tibia resulted in a bone defect situation with nonunion. It was successfully treated with revision, fibular osteotomy and transplantation of a heterotopic ossification, harvested from the ipsilateral hip. Conclusion: In special cases, autologous transplantation of a mature heterotopic ossification is an attractive bone graft option in treating nonunion defects.

Use of high-dose intermittent systemic glucocorticoids and the risk of fracture in patients with chronic obstructive pulmonary disease.
Author(s): Oshagbemi, Olorunfemi A; Burden, Andrea M; Shudofsky, Kimberly N;
Source: Bone; May 2018; vol. 110 ; p. 238-243
Publication Type(s): Journal Article
Abstract: Chronic obstructive pulmonary disease (COPD) is characterised by persistent airflow obstruction and respiratory symptoms. While short course systemic GCs are prescribed in patients with acute COPD exacerbations, little is known of the risk of fractures with
intermittent exposure to high-dose GC and the effect of proxies of disease severity. METHODSA case-control study was conducted using the Danish National Hospital Discharge Registry (NHDR) between January 1996 to December 2011. Conditional logistics regression models were used to derive adjusted odds ratios (OR) risk of fractures in subjects with COPD stratified by intermittent high-dose, and proxies of disease severity. RESULTA total of 635,536 cases and the same number of controls were identified (mean age 67.5±13.8, 65% female). COPD patients with intermittent use of high average daily dose oral glucocorticoids did not have an increased risk of any, osteoporotic, hip or clinically symptomatic vertebral fracture compared to non-COPD patients (adj. OR 0.65; 95% CI: 0.50-0.86, 0.70; 95% CI: 0.70-0.99, 1.17; 95% CI: 0.59-2.32, 1.98; 95% CI: 0.59-6.65 respectively). We identified an elevated risk of osteoporotic fracture among patients who visited the emergency unit (adj. OR 1.47; 95% CI 1.20-1.79) or were hospitalised in the past year for COPD (adj. OR 1.76; 95% CI 1.66-1.85). Current GC use among COPD patients was associated with an increased risk of osteoporotic, hip and clinically symptomatic vertebral fractures compared to patients without COPD. CONCLUSION Intermittent high-dose GCs was not associated with an increased risk of any, osteoporotic, hip or clinically symptomatic vertebral fractures in patients with COPD. Current GC use was however associated with an increased risk of hip and clinically symptomatic vertebral fractures. Therefore, emphasis on prophylactic treatment of fractures may not be essential in patients with COPD receiving intermittent dose of GCs, whereas this should be considered for high-dose long-term users with advanced COPD disease stage, postmenopausal women and men over 40 years.

Comparison of autopsy findings and injury severity scores in deaths due to traumatic asphyxia (Perthes syndrome).

Author(s): Arslan, M.N.; Kertmen, Ç.; Esen Melez, İ.; Melez, D.O.; Esen Melez, I
Source: Journal of Forensic & Legal Medicine; May 2018; vol. 56 ; p. 42-47
Publication Type(s): Academic Journal

Abstract: Traumatic asphyxia is a rare clinical syndrome usually caused by sudden and severe thoracic and/or thoracoabdominal compression. It presents with craniofacial cyanosis, petechiae, and subconjunctival haemorrhages. The present study employed a postmortem retrospective methodology to analyse autopsy findings and accompanying injuries in cases of death due to traumatic asphyxia. Four years of case files from a morgue department at a forensic medicine institute were searched and 53 cases of lethal traumatic asphyxia were found. These cases were then classified into groups and compared using the Injury Severity Score (ISS) and New Injury Severity Score (NISS) indices to measure trauma. Results: The individuals had died due to occupational (n = 28; 52.8%), farm (n = 10; 18.9%), traffic (n = 9; 17.0%) or household (n = 6; 11.3%) accidents. At the external examination, conjunctival petechiae (60.4%) and petechiae on the face/neck (52.8%); at the autopsy, subpleural petechiae (58.5%) and petrous ridge hemorrhage (without skull base fracture) (56.6%) were the most common findings. A finding of petrous ridge hemorrhage was very common in the cases without any accompanying injuries (Group A in which mean Injury Severity Score was 0.83 ± 0.98). Traumatic asphyxia is usually suspected from the given circumstances before an autopsy is performed. In cases without hospitalisation, any of the following signs may lead the physician to diagnose traumatic asphyxia as the cause of death: petechiae on the upper parts of the body and conjunctiva, petechiae on serous membranes (including subpleural regions), signs of petrous ridge haemorrhage without skull base fracture.

The association between type of spine fracture and the mechanism of trauma: A useful tool for identifying mechanism of trauma on legal medicine field.

Author(s): Aghakhani, Kamran; Kordrostami, Roya; Memarian, Azadeh; Asl, Nahid Dadashzadeh
Abstract: Background: Determining the association between mechanism of trauma, and the type of spine column fracture is a useful approach for exactly describing spine injury on forensic medicine field. We aimed to determine mechanism of trauma based on distribution of the transition of spinal column fractures. Methods: This cross-sectional survey was performed on 117 consecutive patients with the history of spinal trauma who were admitted to emergency ward of Rasoul-e-Akram Hospital in Tehran, Iran from April 2015 to March 2016. The baseline characteristics were collected by reviewing the hospital recorded files. Results: With respect to mechanism of fracture, 63.2% of fractures were caused by falling, 30.8% by collisions with motor vehicles, and others caused by the violence. Regarding site of fracture, lumbosacral was affected in 47.9%, thoracic in 29.9%, and cervical in 13.7%. Regarding type of fracture, burst fracture was the most common type (71.8%) followed by compressive fracture (14.5%). The site of fracture was specifically associated with the mechanism of injury; the most common injuries induced by falling from height were found in lumbosacral and cervical sites, and the most frequent injuries by traffic accidents were found in thoracic site; also the injuries following violence were observed more in lumbar vertebrae. The burst fractures were more revealed in the patients affected by falling from height and by traffic accidents, and both burst and compressive fractures were more observed with the same result in the patients injured with violence (p = 0.003). Conclusion: The type of spine fracture due to trauma is closely associated with the mechanism of trauma that can be helpful in legal medicine to identify the mechanism of trauma in affected patients.

Implementation of an orthogeriatric hip fracture program in "Infermi" Rimini's hospital: Adherence to guidelines and impact on mortality

Author(s): Pula B.; Bianchini G.; Garcia L.F.; Rinaldi M.; Cancelliere R.; Franco A.

Abstract: Introduction: E with HF are a burden for health service and they represent the paradigm of frailty for whom comprehensive geriatric assessment(CGA) is the ideal approach(1). From 2013 to 2017 in Rimini's "Infermi" hospital an orthogeriatric pathway(OP) based on CGA has been applied to E inpatients with HF from access in Emergency Department to discharge. The outcomes were: to evaluate if treatment of HF is online with recommendations and to estimate if mortality rate is under national average (2.5%)(1). Materials and Methods: In this analysis 876 E with HF were submitted to OP in orthopedic ward by a multiprofessional team composed by geriatricians, internists, orthopaedists, anesthesists and geriatric nurses. OP is based on access on orthopaedic room within 48 hours, perioperative CGA (ADL, IADL, Cumulative Index Rating Scale-CIRS-and Comorbidity Complex Index-ICC) and daily assessment to encourage mobility, to reduce complications/mortality and to help fast discharge. Results: Median length of stay 12 days, middle age 85, median ADL-CIRS-ICC, respectively, 3.2-33.7-6.6. Surgery within 48h in 73.6% E while conservative therapy in 2%. Mortality rate 0.9% Discussion: In our analysis E with HF are very old with disabilities and comorbidities. Surgery within 48hs is applied in an high percentage of cases. Complications are under control by multiprofessional team and reciving CGA while hospitalized is associated with a low risk of mortality.

The impact of patient nonclinical factors on emergency department hospitalization practices

Author(s): Kocher K.E.; McCammon R.; Langa K.M.

Source: Academic Emergency Medicine; May 2018; vol. 25
**Publication Type(s):** Conference Abstract

**Abstract:** Background: ED hospitalization decisions may require balancing acute medical care needs with a patient's social support and functional capacity. We therefore evaluated to what extent patient non-clinical factors explained ED hospitalization practices. Methods: Using survey data from the 1999-2014 Health and Retirement Study (HRS) linked to Medicare files, we identified 52,733 ED visits, of which 43.7% were hospitalized as either inpatient or observation status. We excluded visits ending in transfers or ICU admissions as these are less discretionary decisions. We constructed regression analyses predicting the probability of hospitalization from the ED adjusting for patient demographic and clinical characteristics. We then estimated differences in the explanatory power of the model operationalized as percent change in C-statistic before vs after adjusting for additional non-clinical factors across several domains available from HRS: socioeconomic support, functional status, cognition. We examined the influence of these non-clinical factors across common conditions using the principal diagnosis ICD9 code by Clinical Classification Software categories. Results: After accounting for clinical factors, patient non-clinical factors such as widow status (vs married; OR 1.12, 95% CI, 1.05-1.29) and mobility scores (highest level difficulties vs none; OR 1.32, 95% CI, 1.24-1.41) were independent predictors of overall ED hospitalization. The influence of non-clinical factors on ED hospitalization varied across conditions but was most notable for: delirium/dementia (27.7% change in C-statistic attributable to non-clinical factors), femur fracture (24.0%), nausea/vomiting (20.6%), malaise/fatigue (16.2%), stroke (12.3%). Conditions for which ED hospitalization was less likely influenced by non-clinical factors were: cardiac dysrhythmias (3.7%), COPD (4.6%), skin/soft tissue infections (4.9%), pneumonia (5.0%), syncope (5.6%). In general, socioeconomic support had a larger magnitude of impact than functional status. Conclusion: Patient non-clinical factors explain substantial predicted probability in hospitalization from the ED. For some conditions, changing ED hospitalization practices likely requires accounting for a patient’s ability to function independently on discharge.

Routine proximal imaging in distal forearm fractures may be excessive

**Author(s):** Negaard M.; Vakkalanka P.; Thomsen T.; Whipple T.; Hogrefe C.; Bobb M.R.; Harland K.K.; Mathiasen R.; Motwani B.; Van Heukelom J.; Mohr N.M.

**Source:** Academic Emergency Medicine; May 2018; vol. 25

**Publication Type(s):** Conference Abstract

**Abstract:** Background: Distal forearm fractures (DFF) account for 1.5% of ED visits in the United States. Some advocate for additional imaging to rule out associated proximal fractures (APF). The objective of our study was to determine the incidence of APF in the setting of DFF and to evaluate the imaging practices in a nationally representative sample of Emergency Departments (ED). Methods: The 2013 National Emergency Department Sample (NEDS) was utilized to perform a cross-sectional study, which included 134,869,015 U.S. ED visits. The incidence of DFF and proportion with an APF (i.e. elbow, forearm, humerus) were identified through International Classification of Disease (ICD)-9 diagnostic codes. Imaging to detect APF, identified by Current Procedural Technology (CPT) codes, included x-rays of the elbow, forearm, or humerus. National estimates were calculated using a weighted analysis of patient and hospital-level characteristics associated with APF and imaging practices. A preliminary cost analysis was performed using the 2017 Medicare Physician Fee Schedule. Results: In 2013, an estimated 297,755 ED visits were associated with a DFF diagnosis, of which only 1.6% (4,764 cases) had an APF. APF incidence was decreased among females (uOR: 0.76; 95% CI: 0.64-0.91) but increased in metropolitan teaching hospitals compared to metropolitan non-teaching hospitals (uOR: 2.39; 95%CI: 1.43-3.99) and Level 1 Trauma Centers (OR: 3.9; 95%CI: 1.91-7.96). Approximately 40% (weighted n = 117,948) of those with only DFF had non-wrist radiographs and 19% (weighted n = 55,236) had non-wrist/non-forearm imaging performed. Factors associated
with additional imaging included gender, insurance payer, patient and hospital rurality, hospital region, teaching status, ownership, and trauma center level. Nearly $3.6 million (USD 2017) was spent on this additional imaging. Conclusion: The incidence of APF in the setting of DFF was low. However, radiographic images performed proximal to the site of DFFs were substantially higher. Further study to identify risk factors for APF based on mechanism and physical examination may result in reduced imaging and decrease avoidable healthcare spending.

**Variability of emergency physician prescribing of opioids upon emergency department discharge**

**Author(s):** Hosain F.; Chang A.; Ata A.; Lord S.J.; White N.

**Source:** Academic Emergency Medicine; May 2018; vol. 25

**Publication Type(s):** Conference Abstract

**Abstract:** Background: Guidelines for prescribing opioids in the ED limit the usage either by the number of days (3 days or less) or the total morphine milligram equivalents (MME) per day (up to 50 MME/day). Opioids can be dosed in 9 or more different combinations. Our objective was to describe the preferred opioid dosing regimens for acute pain, to determine whether such dosing regimens exceeded 50 MME/day, and to determine the total number of tablets being dispensed in two case scenarios. Methods: An online survey conducted via Qualtrics was sent to emergency medicine faculty, residents, fellows, physician assistants (PA), and nurse practitioners (NP) at 20 institutions. Opioid prescribing questions were based on two clinical scenarios: a 25 y/o male with ankle fracture (scenario 1) and an 80 y/o female with wrist fracture (scenario 2). The analysis was primarily descriptive. Results: Total responses for scenario 1 and 2 were 473 and 451 respectively. Attendings comprised 51%, residents/fellows 26% and PAs/NPs 23% of respondents. The mean age was 39 years (SD=11) and 60% were male. For scenario 1, almost 90% respondents prescribed 5 mg oxycodone (55%) or hydrocodone (34%). Preferred dosing regimens were: 1 tab Q 6 hrs prn (33%), 1-2 tabs Q 6 hrs prn (25%), 1 tab Q 4-6 hrs prn (17%), 1-2 tabs Q 4-6 hrs prn (12%), 1-2 tabs Q 4 hrs prn (7.6%), 1 tab Q 4 hrs prn (5%), and any combination of 2 tabs per dose (0.5%). The total dose of 89% of the above regimens resulted in less than 50 MME/day. For a 3 day follow up, respondents prescribed an average of 13 tablets (SD = 4.7) For scenario 2, respondents prescribed 5mg of oxycodone (44%), hydrocodone (35%), and tramadol 11%). Preferred dosing regimens were: 1 tab Q 6 hrs prn (68%), 1 tab Q 4-6 hrs prn (17.4%), 1-2 tabs Q 6 hrs prn (6.2%), 1 tab Q 4 hrs prn (5.4%), 1-2 tabs Q 4-6 hrs prn (2.4%), 1-2 tabs Q 4 prn (1%), and 2 tabs per dose in any combination (0%). The total dose of 97% of the above regimens resulted in less than 50 MME/day. For a 3 day follow up respondents prescribed an average of 12 tablets (SD = 4.4). Conclusion: The most common dosing regimen in both younger and older patient scenarios was 1 tab Q 6 hrs prn. This would translate to 12 tablets over a 3- day period and this corresponds closely to the number of tablets respondents chose given patient scenarios in both young and old patients. Total tablet recommendations may, therefore, be a more practical guideline for emergency physicians.

**Early decompression for spinal cord injury: The faster the better**

**Author(s):** Qutteineh B.; Kaplan L.; Hasharoni A.; Itshayek E.; Josh S.

**Source:** Global Spine Journal; May 2018; vol. 8 (no. 1)

**Publication Type(s):** Conference Abstract

**Abstract:** Introduction: There is preclinical data indicating that early decompression in spinal cord injury (SCI) can improve outcome. Fehlings et al has shown in the STASCIS study the there is an advantage in decompression under 24 hours in cervical spine fractures. Our objective was to evaluate the relative effectiveness of surgery done under 12 hours from traumatic SCI. Material and
Methods: A retrospective review of all patients admitted to a level one trauma center with SCI between 01/ 2006 to 02/2017, we included patients who were surgically treated within 48 hours of admission with 6-month or more follow up. Patients' medical records were reviewed for location of vertebra fracture, presence of acute spinal cord injury, mechanism of injury, associated injuries, time to surgery (group A: less than 12 hours, group B: 12-24 hours, group C: 24-48 hours), length of hospital stay, ASIA impairment scale before surgery, after surgery, and at long term follow up. The neurological outcome was compared to the results present in the STASCIS study. Results: 49 patients (35 males: 14 females) with SCI were admitted and surgically treated within 48 hours of admission. Mean age at admission was 36 years (range 15-79 years). The mean follow up was 30 months (range 7-110 months). 50% were injured in motor vehicle accident while 48% due to falls. 37 were operated within 12 hours (average- 5.5 hours (range 1.5-11), 7 were operated between 12-24 hours and 5 were operated after 24 hours. At long term follow up after surgery, 55% of patients with acute spinal cord injury had been improved in their ASIA scale. After Surgery, in group A 67.5% of patients improved in their ASIA score (P = 0.06 when compared to under 24 hours in the STASCIS study) with 41% with a 2 grade or more improvement in their ASIA scores (P < 0.01 when compared to under 24 hours in the STASCIS study), in group B 44% of patients improved in their ASIA, while in group C only 40% of patients improved in their ASIA score (none of them had 2 grade improvement in their ASIA scores). Conclusion: Early surgical intervention should be advised for patients with acute spinal cord injury. Surgery under 12 hours from the trauma should be recommended at as it is associated with improved outcome.

Percutaneous instrumentation plus mini-opening for the treatment of thoracolumbar fractures. August 2015 to August 2017. Hospital Santo Tomas, Panama

Author(s): De Leon A.; Hermida J.; Altafulla J.

Source: Global Spine Journal; May 2018; vol. 8 (no. 1)

Publication Type(s): Conference Abstract

Available at Global Spine Journal - from Europe PubMed Central - Open Access

Abstract: Introduction: Hospital Santo Tomas is the most important trauma center in Panama. Spine trauma is common and represent one of the main causes of disability. Thoracolumbar fractures is traditionally treated by open instrumentation and fusion. In recent years minimally invasive spine instrumentation surgery has emerged as a tool for the treatment of many spine disorder because it reduces postoperative pain, blood loss and quicker recovery times therefore leading to decrease length of stay. In this case study we present our data in the treatment thoracolumbar trauma.

Materials and Methods: 113 patients were included. All were first evaluated and admitted thru the emergency department. All patients were male. The average age was 22. None of the patients present comorbidities. The trauma mechanics were motor vehicle accidents (57%), falls (22%) and been hit by a car (21%). The patient's neurological evaluation present as follow: Asia A 15% Asia B 34% Asia C 23% Asia D 12% Asia E16%. The affected leves were T11 9%, T12 9%, L1 11%, L2 12%, L3 9%, L4 21% and L5 22%. We use the AOSpine thoracolumbar fracture classification. Most of the Fractures were A3 and A4 but we also include B Fractures. After proper work up and informed consent was signed the patients were taken the OR. Antibiotics were apply one hour prior to the procedure. During general anesthesia the patient went to prone position and rolls were allocated under the thorax and abdomen. Alcohol plus chlorhexidine was apply twice. Sterile drapes were apply. The fluoroscopy is brought in and the affected leves identified. From the site of the fracture two leves up and two leves down were operated and the instrumentation was extended if it ended at T11 or L5. In AP views the pedicles are located and in the external border the skin is marked. Approximately 2.5cm skin wound is performed and through an standard technique the screws are inserted and united by a posterior bar. At the site of the fracture the fascia is open and a standard
laminectomy is preform. The retropulsion fragment is ether push forward or a transpedicular
osteotomy is preformed and the fragment is remove. We did not use bone matrix or bone
surrogates. All patients were treated with sodium hypochlorite. The patient is then evaluated by a
physical therapy physician and discharge in the first 48 hours. Results: The follow up period it is up a
year. 16 patients were lost in the follow up. Three of this patients died for unrelated causes. The
blood loss was minimally. The kyphosis was reduced with this approach. Most patients required only
one drug for pain control. No patients had worsened of symptoms in the post op period. Only 3% of
the ASIA A went to B but 39% of the ASIA B went to become ASIA C or D specially those how had two
point discrimination. No ASIA B or C became A. 3 patients presented one month later for
spondilodiscitis and were treated accordingly. 9 patients present with post surgical kyphosis and
needed a second surgery all of them went to an open procedure and fusion. 6 patients had a failed
back syndrome and went to persist with axial pain although the mri and electromyography were
normal. One patient had screw extrusion and had to be remove. Conclusions: Minimally invasive
technique represent an option for the thoracolumbar fractures. Post op kyphosis and
instrumentation extrusion is similar to the conventional treatment.

Imaging modalities for the acutely traumatized spine patient with ankylosing spinal disorders: The
utility of MRI beyond baseline CT

Author(s): Bransford R.; Ghaffar S.; Bellabarba C.

Source: Global Spine Journal; May 2018; vol. 8 (no. 1)

Publication Type(s): Conference Abstract

Abstract:Introduction: Ankylosing spinal disorder (ASD) patients are at a greater risk for spinal
fractures due to osteoporosis and rigidity of the spinal column. The estimated incidence is four times
that of the normal population, with neurologic compromise resulting from delayed or missed
diagnoses due to difficulty of diagnosing contiguous fractures. Many propose that a MRI is
mandatory in addition to a CT in ASD patients to identify fractures, ligamentous injury, and cord
signal abnormalities. Studies have also shown that MRIs can cause further neurological injury due to
positioning. The purpose of our study was to assess the frequency with which an MRI identified an
injury NOT previously identified on CT, and whether this affected the management and outcome of
the patient. Material and Methods: After obtaining IRB approval, a retrospective assessment of the
radiology database at a level I institution was undertaken from 2005 to 2015 to identify patients
with ASD who sustained an acute fracture. Patients were included if they had a CT and MRI upon
admission. Final radiology reports were assessed to determine presence and type of fracture(s) from
CT. MRI report was then reviewed to assess if additional fractures or injuries were identified beyond
that already known from the CT. Neurologic status upon admission, mode of injury, type of fracture
and final intervention was determined by inpatient notes and/or operative reports. Results: In the
designated time frame, 124 patients were identified. Neurologic status was classified as follows: 14
ASIA A, 5 ASIA B, 3 ASIA C, 12 ASIA D, and 70 ASIA E. Twenty had an unknown neurological status
due to exams unable to be performed due to head injury or mental status issues. Six patients (4.8%)
had additional injuries on MRI that had not been identified on CT. Four of these six patients had a
change in treatment plan based off of subsequent MRI findings. These included a 1) C3-4 extension
injury, 2) C6-7 extension injury, 3) C5-T4 epidural hematoma, and 4) C5-C6 extension injury treated
in a brace. Two of the six patients that had additional injuries identified on MRI had no change in
their treatment plan. One patient had an additional lumbar extension injury noted above previously
identified injury on CT, which was managed in the original TLSO plan. The last patient died due to a
cord transection with no treatment. Conclusion: In this study, 3.2% (4/124) of patients with ASD who
presented to a level I trauma center with an acute fracture had treatment plans that changed based
Blunt trauma to the cervical spine with brown-sequard syndrome presenting as a cerebrovascular stroke

**Author(s):** Movrin I.; Kunej T.

**Source:** Global Spine Journal; May 2018; vol. 8 (no. 1)

**Publication Type(s):** Conference Abstract

**Abstract:** Introduction: We present a case of incomplete spinal cord injury after C6 lamina fracture that initially presented as a suspected cerebrovascular stroke (CVS). Material and Methods: An 80-year old female patient presented to the ED as a candidate for thrombolysis after a suspected CVS. CT and CTA of the head and neck showed no ischaemic lesions in the brain, instead a fracture of the posterior part of the body and the right lamina of C6 with suspected dissection of the right vertebral artery was discovered. Detailed neurologic exam showed ipsilateral hemiparesis and contralateral change in pain and temperature perception-Brown-Sequard syndrome. Emergency MRI of the head and cervical spine showed oedema of the spinal cord at the C6 level with a suspected rupture of the anterior longitudinal ligament. Results: At the time of diagnosis methylprednisolone was given. Emergency surgery with laminectomy, posterior fixation, anterior discectomy, partial corpectomy and fusion with a cortico-cancellous graft and locking plate was performed 5 hours after presentation. Postoperatively marked improvement in neurological status was seen, with nearly normal motor function of the lower extremity, some muscle weakness in the right arm remained. Pain and temperature perception deficits did not improve. 35 days after surgery the patient was mostly independent in day-to-day activities and was transferred to a non-acute care institution. Conclusion: Blunt trauma to the cervical spine with hemiparesis can mimic the symptoms of a CVS. We suggest that a cervical spine CT and/or MRI should be performed in cases of ambiguous imaging findings. The best management for such injuries is spinal cord decompression with stabilisation as necessary.

Evaluation and management of back pain admissions to hospital medical units

**Author(s):** Kyi L.; Morand E.; Roberts L.; Kandane-Rathnayake R.

**Source:** Internal Medicine Journal; May 2018; vol. 48 ; p. 30

**Publication Type(s):** Conference Abstract

**Abstract:** Aim. Hospital admissions for patients with back pain are increasing. Despite their significant contribution to the health-care burden they remain largely unstudied. This study aims to investigate the management and clinical outcomes of patients with acute back pain admitted to hospital under general medicine units when compared to a rheumatology unit. Methods. A 36-month retrospective, observational study on patients presenting to the Emergency Department with back pain who were subsequently admitted to 1 of 3 General Medicine Units (GM) or a Rheumatology Unit (RU). Differences in patient demographics, management and clinical outcomes were assessed using Chi-Squared tests for categorical variables and Kruskall Wallis tests for continuous variables. Multivariate associations of two primary outcomes, length of stay (LOS) and complications were examined using generalised estimating equations. Results. Data from 712 admissions from 594 patients across the 4 inpatient units were used for this study. Common discharge diagnoses were
musculoskeletal/nonspecific back pain (41%), disc related illness (22%), crush fracture (14%) and sciatica (14%). Non-English speaking background, age >=80 years, disc related disease, crush fracture and sciatica were statistically significantly associated with both increased LOS and complications. The presence of comorbidities was associated with more complications. GM admission was associated with a longer LOS and more complications than RU admission. Conclusion. Multiple factors associated with an increased LOS and complications were identified, including older patients, patients of non-English speaking background. Given the observed variations in back pain management between general and specialty units, strategies to standardise care should be considered.

Indications for CT-Angiography of the Vertebral Arteries after Trauma

Author(s): Drain J.P.; Weinberg D.S.; Ramey J.S.; Moore T.A.; Vallier H.A.

Source: Spine; May 2018; vol. 43 (no. 9)

Abstract: Study Design. Retrospective. Objective. The purpose of this project is to identify factors that predict vertebral artery injury (VAI) in an effort to assess risks and benefits of computed tomography angiography (CT-A) of the neck in the trauma setting. We seek to develop guidelines for practitioners to stratify patients at medium/high risk of VAI from those who are at low risk. Summary of Background Data. VAI and blunt carotid injury (BCI) together comprise blunt cerebrovascular injury (BCVI). More is known about risk factors for BCI than for VAI, but the neurovascular complications associated with VAI are similarly disastrous. With increasing frequency, trauma providers are using CT-A to screen for BCVI; this test carries risks that include radiation exposure and nephrotoxicity, in addition to higher cost of treatment and longer hospital stay. Methods. Trauma patients seen over 4 months at an urban, level 1 trauma were analyzed. BCVI screening was conducted in 144/1854 (7.77%) patients. Presence of VAI and several clinical characteristics were recorded. Univariate analysis and binomial logistic regression analysis were conducted at a 95% significance level. Results. VAI was diagnosed in 0.49% of the study population. Univariate analysis determined six factors associated with positive VAI screening. Regression analysis showed four factors that independently predicted VAI: female sex, decreased Glasgow Coma Scale, cervical spine (c-spine) fracture, and concurrent BCI. A positive c-spine physical examination trended toward predicting VAI without achieving significance. Conclusion. Several independent predictors of VAI were identified. This study highlights the importance of identifying patients at a higher risk for VAI and indicating CT-A of the neck versus those who are at low risk and can be evaluated without undergoing advanced imaging, as CT-A appears unnecessary for most trauma patients. Copyright © 2018 Wolters Kluwer Health, Inc. All rights reserved.

Sports Injuries

Chest Ultrasonography in Modern Day Extreme Settings: From Military Setting and Natural Disasters to Space Flights and Extreme Sports

Author(s): Feletti F.; Aliverti A.; Mucci V.

Source: Canadian Respiratory Journal; 2018; vol. 2018

Available at Canadian respiratory journal - from EBSCO (MEDLINE Complete)

Abstract: Chest ultrasonography (CU) is a noninvasive imaging technique able to provide an immediate diagnosis of the underlying aetiology of acute respiratory failure and traumatic chest injuries. Given the great technologies, it is now possible to perform accurate CU in remote and
adverse environments including the combat field, extreme sport settings, and environmental disasters, as well as during space missions. Today, the usage of CU in the extreme emergency setting is more likely to occur, as this technique proved to be a fast diagnostic tool to assist resuscitation manoeuvres and interventional procedures in many cases. A scientific literature review is presented here. This was based on a systematic search of published literature, on the following online databases: PubMed and Scopus. The following words were used: "chest sonography," "thoracic ultrasound," and "lung sonography," in different combinations with "extreme sport," "extreme environment," "wilderness," "catastrophe," and "extreme conditions." This manuscript reports the most relevant usages of CU in the extreme setting as well as technological improvements and current limitations. CU application in the extreme setting is further encouraged here. Copyright © 2018 Francesco Feletti et al.

Collision of the glass shards with the eye: A computational fluid-structure interaction model.

Author(s): Karimi, Alireza; Razaghi, Reza; Biglari, Hasan; Sera, Toshihiro; Kudo, Susumu

Source: Journal of chemical neuroanatomy; Jul 2018; vol. 90; p. 80-86

Publication Type(s): Journal Article

Abstract: The main stream of blunt trauma injuries has been reported to be related to the automobile crashes, sporting activities, and military operations. Glass shards, which can be induced due to car accident, earthquake, gunshot, etc., might collide with the eye and trigger substantial scarring and, consequently, permanently affect the vision. The complications as a result of the collision with the eye and its following injuries on each component of the eye are difficult to be diagnosed. The objective of this study was to employ a Three-Dimensional (3D) computational Fluid-Structure Interaction (FSI) model of the human eye to assess the results of the glass shards collision with the eye. To do this, a rigid steel-based object hit a Smoothed-Particle Hydrodynamics (SPH) glass wall at the velocities of 100, 150, and 200 m/s and, subsequently, the resultant glass shards moved toward the eye. The amount of injury, then, quantified in terms of the stresses and strains. The results revealed the highest amount of stress in the cornea while the lowest one was observed in the vitreous body. It was also found that increasing the speed of the glass shards amplifies the amount of the stress in the components which are located in the central anterior zone of the eye, such as the cornea, aqueous body, and iris. However, regarding those components located in the peripheral/posterior side of the eye, especially the optic nerve, by increasing the amount of velocity a reduction in the stresses was observed and the optic nerve is hardly damaged. These findings have associations not only for understanding the amount of stresses/strains in the eye components at three different velocities, but also for providing preliminary information for the ophthalmologists to have a better diagnosis after glass shards (small objects impact) injuries to the eye.

Characteristics of patients with ankle sprain presenting to an emergency department in the south of England (UK): A seven-month review.

Author(s): Al Bimani, Saed A; Gates, Lucy S; Warner, Martin; Ewings, Sean; Crouch, Robert

Source: International emergency nursing; Jun 2018

Publication Type(s): Journal Article

Abstract: INTRODUCTION There is lack of evidence about ankle sprain patients presenting to emergency department (ED) in the UK. The study aim was to determine prevalence, demographic and clinical characteristics of patients attending to one ED. Knowing those characteristics may help setting prevention strategies and inform effective clinical practice. METHODS A retrospective review of records from patients’ database system was conducted between May and November 2015 (inclusive). RESULTS 909 new patients with ankle sprain were recorded during the study period.
Patients had a median age of 27 years (IQR 20). Men aged between 14 and 37 years had higher percentage of injuries compared to women of a similar age. Overall prevalence of injury was equally distributed between men and women. Most patients were sent to radiography department for ankle/foot X-ray (89%). Over half of patients (58%) were sent home with no follow-up treatment. A subsample (n = 106) from the original sample (n = 909) showed a variety of causes of injury such as tripping (29%), non-specific injury (26.4%), sports (26%), walking (12.2%) and other accidental causes (6%). Football was the most prevalent sport (13%).

CONCLUSIONS Prevention strategies, appropriate assessment tools and tailored rehabilitation programs are warranted to reduce number of patients and potential chronic symptoms.

Hospital-Treated Snow Sport Injury in Victoria, Australia: A Summary of 2003-2012.

Author(s): Siesmaa, Emma J; Clapperton, Angela J; Twomey, Dara

Source: Wilderness & environmental medicine; Jun 2018; vol. 29 (no. 2); p. 194-202

Publication Type(s): Journal Article

Abstract: INTRODUCTION To determine the incidence rate and changes over time for ice and snow sports injury in Victoria, Australia, from 2003 to 2012 and describe the most common types and causes of these injuries. METHODS Retrospective data from the Victorian Injury Surveillance Unit describing hospital admissions and emergency department presentations were extracted for the 10-year period of 2003 to 2012 for all ice- and snow-related injury. Descriptive injury data and participation-adjusted trend analyses using log-linear regression modelling of data (statistical significance, P<0.05) from the Exercise, Recreation and Sport Survey 2003 to 2010 are presented. RESULTS Overall, there were 7387 ice- and snow-related injuries, with a significant increase in hospital-treated snowboard injuries and a (nonsignificant) decline in hospital-treated ski injuries over the 10 years. Skiing (39%) and snowboarding (37%) had the highest incidence of hospital-treated injury, with males aged 15 to 24 years injured most frequently in both sports. Falls were the most common cause of injury in both skiing (68%) and snowboarding (78%). CONCLUSIONS Patterns of snow sports injury in Australia during 2003 to 2012 remain similar to findings of national studies conducted decades earlier. More importantly, however, Australian injury patterns are comparable to international statistics and thus may be generalizable internationally. Head injuries, although infrequent, are associated with great injury severity due to a high frequency of hospitalization. Furthermore, research into the use of personal protective equipment and other injury prevention measures among Australian participants, particularly by young, male snowboarders, is required. Given the similar injury patterns, injury prevention measures implemented internationally could reasonably translate to an Australian setting.

11.361 sports injuries in a 15-year survey of a Level I emergency trauma department reveal different severe injury types in the 6 most common team sports.

Author(s): Krutsch, Werner; Krutsch, Volker; Hilber, Franz; Pfeifer, Christian; Baumann,

Source: Sportverletzung Sportschaden : Organ der Gesellschaft fur Orthopadisch-Traumatologische Sportmedizin; Jun 2018; vol. 32 (no. 2); p. 111-119

Publication Type(s): Journal Article

Abstract: INTRODUCTION Severe sports-related injuries are a common affliction treated in Level I trauma departments. Detailed knowledge on injury characteristics from different medical settings is essential to improve the development of injury prevention strategies in different team sports. METHODS Team sport injuries were retrospectively analysed in a Level I trauma department registry over 15 years. Injury and treatment data were compared with regard to competition and training exposure. Injury data such as "time of visitation", "type of injury", "multiple injured body
regions" and "immediate hospitalisation" helped to define the severity level of each team sports injury.RESULTS At the Level I trauma department, 11.361 sports-related injuries were seen over 15 years, of which 34.0% were sustained during team sports. Soccer injuries were the most common injuries of all team sports (71.4%). The lower extremity was the most affected body region overall, followed by the upper extremity. Head injuries were mainly seen in ice hockey and American football and concussion additionally frequently in team handball. Slight injuries like sprains or contusions occurred most frequently in all team sports. In soccer and team handball, injuries sustained in competition were significantly more severe (p < 0.001) than those sustained in practice. Volleyball and basketball had a trend to higher rate of severe injuries sustained during practice sessions.CONCLUSION Depending on the specific injury profile of each team sports, injury prevention strategies should address competitive as well as training situations, which may need different strategies.

Traumatic peroneal split lesion with retinaculum avulsion: Diagnosis and post-operative multimodality imaging.

Author(s): Fischetti, Aldo; Zawaideh, Jeries P; Orlandi, Davide; Belfiore, Stefano; Silvestri, Enzo

Source: World journal of radiology; May 2018; vol. 10 (no. 5); p. 46-51

Publication Type(s): Journal Article

Available at World Journal of Radiology - from PubMed Central

Abstract: Tears of peroneus brevis tendon represent a cause of underdiagnosed lateral ankle pain and instability. The typical clinical presentation is retro-malleolar pain, in some cases associated with palpable swelling around the fibular malleolus, pain during activities and difficulty in walking. We present a case of peroneus brevis split lesion with superior peroneal retinaculum avulsion in a young athlete who referred to the emergency ward of our hospital for left ankle pain after an inversion injury. An early diagnosis allowed treating the injury and promptly resuming sport activity, after rehabilitation training. Surgical reconstruction key-points and post-surgical follow-up were also discussed. A late diagnosis would have caused a symptomatology worsening and an increased recovery time.

Primary Assessment of the Patient With Orbital Fractures Should Include Pupillary Response and Visual Acuity Changes to Detect Occult Major Ocular Injuries.

Author(s): Chow, Jeffrey; Parthasarathi, Krishnan; Mehanna, Patrick; Whist, Eline

Publication Type(s): Journal Article

Abstract: PURPOSESight-threatening injuries associated with orbital fractures are of major concern to maxillofacial surgeons whom are often the first asked to assess these patients. Eliciting signs and symptoms that are predictive of these injuries would allow expedited ophthalmic consultation and appropriate management. We hypothesized that abnormal pupillary response is predictive of major ocular injuries.PATIENTS AND METHODSA retrospective cohort study of patients with facial fractures was instituted with review of all associated ophthalmic injuries. The primary predictor variables were the presence or absence of post-traumatic ocular symptoms and signs (visual acuity change, diplopia, flashes and floaters, pain on globe movement, abnormal pupillary response, restriction of eye movement, and visual field defects). Secondary predictors were pattern of fracture and mechanism of fracture. The primary outcome variable was the presence or absence of major ocular injury assessed during formal ophthalmology consultation. Descriptive statistics were calculated as categorical values. Correlation between the presence or absence of predictors and outcome (major ocular injury) was calculated using $\chi^2$ analysis, with the significance value set at $P \leq .01$.RESULTSThe study included 75 patients (25% of whom were female patients) with a mean age of 41 ± 22 years.
We recorded 165 minor ocular injuries and 43 major ocular injuries. The mechanisms of injury included assault (48%, n = 36), motor vehicle accident (21%, n = 16), fall (17%, n = 13), sport (11%, n = 8), and occupational (3%, n = 2). The fracture pattern included zygomaticomaxillary (36%, n = 27), isolated orbital floor (25%, n = 19), complex (20%, n = 15), and isolated orbital nonfloor (19%, n = 14). Of the primary outcome predictors, only abnormal pupillary response (odds ratio, 36; P < .001) and subjective visual acuity changes (odds ratio, 10; P < .001) were predictive of major ocular injury. The mechanism of injury and pattern of fracture were not predictive of major ocular injury.

CONCLUSIONS
During primary assessment of the patient with orbital fractures, abnormal pupillary response and subjective visual acuity changes are key predictors of occult major ocular injury.

Utility of X-ray for shoulder dislocations: It's past time for a change

Author(s): Milzman D.; Paik M.; Floyd R.; Johnson D.; McCormick B.; Murphy J.

Source: Academic Emergency Medicine; May 2018; vol. 25

Publication Type(s): Conference Abstract

Abstract: Background: Nearly 50% of acute shoulder dislocation are sport-related. Emergency Physicians routinely delay reduction attempts until radiographs to identify Hill-Sachs or Bankart fracture/lesions. Prior studies of CT/MRI imaging and arthroscopic repairs, of anterior shoulder dislocations, have reported ranges for diagnosis of Hill-Sachs or Bankart lesions at 47-100% and 83-100%, respectively. This multicenter study reports on the value of obtaining pre/post-reduction plain radiographs. Data from operative repair, CT, and/or US/MRI was used to report the true determination of fracture presence. Methods: Retrospective reviews of charts from ED patients from 7 acute care hospitals presenting with isolated anterior shoulder dislocations from 2000-2015 were reviewed. Relevant variables included age, sex, handedness, sedation, presence/absence of Hill-Sachs or Bankart lesions on pre/post-reduction radiographs, admission status, history of dislocations, failed reductions and associated fractures. IRB waiver for retrospective analysis of data was obtained. Results: There were 3,901 anterior dislocations pts presenting to one of study E.D. 1,830 patients met inclusion criteria. 84% of pts had pre-reduction radiographs. 95% had post-reduction radiographs. 91.7% of patients had no initial Hill-Sachs or Bankart lesion on pre-reduction radiographs. 4.83% had either a Hill-Sachs or Bankart lesion identified on post-reduction plain radiographs that was not previously identified on pre-reduction radiographs: Students t-Test, p < 0.01. No significant changes to clinical management including operation or admission resulted from any of these fracture/lesion findings. Of the 450 pts (24.7%) of study group, 39% of these pts had Neg X-ray but had lesion/FX finding on Follow up CT or operation. Conclusion: Compared to data published using MRI and arthroscopy, it appears plain radiographs grossly underestimate the frequency of both lesions. While there was a statistically significant rate of new lesions identified on post-reduction radiographs, the total was exceedingly small and failed to change management of the patient. Removing need for pre-reduction improves ease of reduction by removing delays and associated costs without sacrificing patient care or creating significant long-term complications.

Outcome of early surgical intervention in spinal trauma patients, an overview of 109 spinal trauma

Author(s): Dogar A.; Hussain H.; Ahmad A.; Aziz A.; Javed S.; Akram R.

Source: Global Spine Journal; May 2018; vol. 8 (no. 1)

Publication Type(s): Conference Abstract

Available at Global Spine Journal - from Europe PubMed Central - Open Access

Abstract: Introduction: The prognosis for spinal cord injuries varies depending on the severity of the injury. There is always hope of recovering some function with spinal cord injuries. The completeness
and location of the injury will determine the prognosis. The sooner treatments are implemented to strengthen muscles below the level of the spinal cord injury, the better the prognosis. The first year of recovery is the hardest as the patient is just beginning to adjust to his or her condition. The use of physical and occupational therapy during this time is the key to recovery. The extent of the function fully returning is typically seen in the first two years after the initial injury. To determine the neurological outcome of patients who presented early with those whose presented late.

Materials and Methods: It is a descriptive case series done in the Department of Orthopaedics and Spine between Jan 2014 to Dec 2016. 109 patients who presented to ER or OPD with spinal trauma were included. Those patients who were operated else where or having trauma of more than 10 days or those who were managed conservatively were excluded. After admission, history, examination and investigations surgical intervention was done on same day. Every patient was followed regularly for 2 years to assess the neurology. The data was analyzed using SPSS 17.00 Version. Results: There were 109 total patients that presented with spine trauma. 74 (67.9%) were male and 35 (32.1%) were females. Male to female ratio was 2.11:1. of the 109 total patients that presented 78 (71%) were below 40 years of age and 41(28.5) patients were above 40.17 (15.6%) had trauma to the cervical spine, 34 (31.2%) to the thoracic spine, 3 (2.8%) to the thoracolumbar spine and 55 (50.5%) to the lumbar spine. 79 (72.5%) patients had a fall from height. 26 (23.9%) were involved in road traffic accidents. 1 (.9%) had assault and 3 (2.8%) had sports injuries. At the time of presentation out of 109 patients, 97 (89%) had their neurology involved while 12 (11%) had intact neurology. 18 (16.5%) presented within the first 24 hrs while 91 (83.5%) presented after 24 hrs. All the patients were operated on the same day of admission. Among the 18 patient who presented with in 24 hours, 17 patients having full recovery with in 12.66 + 1.2 months. While the late presenters only 15 patients got fully recovered after 2 years follow up while 42 patients having partial neurology recovery and 24 having just sensory improvement and 28 having no improvement after two years follow up. Conclusion: Spinal trauma is an emergency and having high morbidity and mortality rate. Early presentation and surgical intervention in spinal trauma patients having good neurological outcome as compared to delayed presentation and surgery.

Spine fractures due to SKI and other winter sports in the chilean andes during the 2017 season: Injury profile and treatment

Author(s): Yurac R.; Zamorano J.J.; Novoa F.; Silva A.; Merello B.; Marre B.; Aviles C.; Torrens J.P.

Source: Global Spine Journal; May 2018; vol. 8 (no. 1)

Publication Type(s): Conference Abstract

Available at Global Spine Journal - from Europe PubMed Central - Open Access

Abstract:Introduction: During the last years, we have detected a progressive increase in the number of patients treated in our center for spine injuries due to winter sports accidents. Currently, no nationwide registry of these injuries has been established in Chile, so there is no information regarding their national incidence and prevalence. We present a case series of patients with spine fractures after a winter sport-related accident treated in a single center, focusing on the injury profile and treatment. Materials and Methods: Medical records and imaging of patients treated in our center for a spine fracture due to a winter sport-related accident during the 2017 season were reviewed. We recorded demographics, expertise level, injury mechanism, use of protective gear, type of spine fracture, associated injuries and treatment modality. Results: Case series of nine patients (77.8% female, median age 21 years [7-55]), with a total of 17 spine fractures. Four patients (44.4%) were experts (one snowboarder and three skiers), four skiers had an intermediate level and one patient (11.1%) was injured while using a sled. None of the patients were using spine protective gear at the time of the accident. Regarding the injury mechanism, four patients (44.4%) had a same-level fall, one patient (11.1%) was hit by another skier and four (44.4%) had a fall from a height.
Most of the accidents (8/9, 88.9%) occurred in regulated tracks and only one patient (11.1%) was injured while skiing off-track. All the accidents occurred between 10AM and 4 PM (five (55.6%) between noon and 4 PM). The thoracolumbar spine (T11-L2) was the most frequently affected segment (6 patients, 66.7%), followed by the thoracic spine (T1-T10) with two patients (22.2%), while only one patient (11.1%) presented an L5-S1 injury. Six patients (66.7%) had AO type A fractures (three subtype A1, two subtype A3 and one subtype A4), while the other three (33.3%) had AO type B2 injuries. Only one patient (11.1%) presented neurologic impairment (cauda equina syndrome), which resolved completely after surgery. None of the patients had associated injuries. Regarding the treatment modality, four patients (44.4%) required surgery for a posterior instrumented fusion (AO subtype A4 and type B2 injuries), while the other five patients (55.6%) were treated conservatively with a spine brace (AO subtype A1 and A3 fractures). Conclusions: Spine fractures must be ruled out in patients reporting back pain after a ski-related accident, even in the case of a same-level fall. In our series, compression injuries (AO type A) were more frequent, neurologic impairment was rare and some patients required surgical treatment. The incidence of these injuries is progressively increasing, so further, nationwide, research is needed to determine their real extent and develop local prevention measures.

The Mild Traumatic Brain Injury Rest and Activity Questionnaire (MTBI-RAQ): A Pilot Study

Author(s): Sullivan K.A.; Cox R.
Source: Brain Impairment; May 2018 ; p. 1-12
Publication Type(s): Article In Press

Abstract: Objective: To develop a tool for assessing intentions to continue or change activities for recovery following mild traumatic brain injury (mTBI) and determine if they are dependent on injury context or activity type. Method: Adult volunteers with no (or no recent) history of mTBI were randomly allocated to one of two vignette conditions, each with a different injury context. The vignette described an mTBI due to a motor vehicle accident (MVA, n = 76) or sport (SPORT, n = 89). Volunteers reported their rest or activity plans for 39 behaviours comprising three behaviour types (cognitive, physical, and restful). Results: Compared to a cut-score representing no change, on average there was a significant (p <= .001) planned decrease in physical and cognitive behaviours (MVAphysical t(53) = 7.373; SPORTphysical t(41) = 9.281; MVAcognitive t(41) = 9.367; SPORTcognitive t(51) = -3.521) and a significant planned increase in restful behaviours, such as sleep (MVArestful t(72) = 10.006; SPORTrestful t(86) = 9.566). An overall within-group effect for behaviour-type was not identified and there was no effect of condition (MVA vs. SPORT). Conclusion: The acute rest and activity plans for a simulated mTBI are behaviour specific and not dependent on context. An expectation for blanket-rest was not was observed but rest was planned for specific behaviours. This tool could be used to guide discussions with mTBI patients about their recovery so that their plans align with advice, and it could aid further research into the relation between intended and actual rest and activity and the effect on eventual outcomes.Copyright © Australasian Society for the Study of Brain Impairment 2018
# Departmental News

<table>
<thead>
<tr>
<th>News, Research, Conferences, Training etc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please contact us with any departmental news you wish to share with your colleagues in your Evidence Update bulletin.</td>
</tr>
<tr>
<td><a href="mailto:library@uhbristol.nhs.uk">library@uhbristol.nhs.uk</a></td>
</tr>
</tbody>
</table>
Library Opening Times

Staffed hours: 8am-5pm, Monday to Friday
Swipe-card access: 7am-11pm, seven days a week

Level Five, Education and Research Centre
University Hospitals Bristol

Contact your Outreach Librarian:

Jo Hooper
library@uhbristol.nhs.uk
Ext. 20105