

Musculoskeletal Soft Tissue Clinic

Current Awareness Newsletter



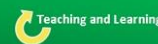
December 2016 (Quarterly)

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Training Sessions 2016/17

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December (12.00)

Fri 16th **Literature Searching**

Mon 20th **Critical Appraisal**

January (13.00)

Tues 10th **Literature Searching**

Wed 18th **Critical Appraisal**

Thur 26th **Statistics**

February (12.00)

Fri 3rd **Literature Searching**

Mon 6th **Critical Appraisal**

Tues 14th **Statistics**

Wed 22nd **Literature Searching**

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[Approach to hip and groin pain in the athlete and active adult](#)

Author: [Rob Johnson, MD](#)

All topics are updated as new evidence becomes available and our [peer review process](#) is complete.

Literature review current through: Nov 2016. | **This topic last updated:** Aug 15, 2016.

The evaluation of hip and groin pain in athletic and active adults is reviewed here, including a general scheme for differentiating among the common causes of such pain based upon the history and key clinical findings. Detailed discussions of some of the specific conditions and injuries that cause hip and groin pain are found separately. (See "[Greater trochanteric pain syndrome \(formerly Trochanteric bursitis\)](#)" and "[Overview of stress fractures](#)" and "[Sports-related groin pain or 'sports hernia'](#)" and "[Osteitis pubis](#)" and "[Hamstring muscle and tendon injuries](#)" and "[Adductor muscle and tendon injury](#)" and "[Quadriceps muscle and tendon injuries](#)" and "[Clinical manifestations and diagnosis of osteoarthritis](#)".)

[Overview of running injuries of the lower extremity](#)

Author: [Lisa R Callahan, MD](#)

All topics are updated as new evidence becomes available and our [peer review process](#) is complete.

Literature review current through: Nov 2016. | **This topic last updated:** May 10, 2016.

INTRODUCTION — Running is one of the world's most popular forms of exercise, with millions of regular participants. In the United States alone, up to 40 million people run regularly, with more than 10 million running at least 100 days a year [1]. Although running is an effective way to achieve many health benefits, it is associated with a high risk of injury; yearly, up to half of runners report an injury [2]. Although some injuries are traumatic, most are due to overuse.

Given the popularity of running and the high rate of associated overuse injuries amenable to nonsurgical management, the primary care physician is likely to manage many injured runners and should be familiar with the diagnosis and treatment of the more common problems. The diagnosis and management of common lower extremity injuries associated with running are reviewed here. Detailed discussions of some specific injuries are found separately. (See ["Ankle sprain"](#) and ["Patellofemoral pain"](#) and ["Hamstring muscle and tendon injuries"](#) and ["Stress fractures of the metatarsal shaft"](#).)

Current Awareness Database Articles related to Musculoskeletal Soft Tissue

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

- **Acute Soft Tissue injuries**
- **Musculoskeletal**
- **Sports Injuries**

If you would like any of the following articles in full text, or if you would like a more focused search on your own topic, then get in touch: library@uhbristol.nhs.uk

Acute soft tissue injuries

A case report of necrotizing fasciitis of the abdominal wall: A rare, life-threatening complication of a common disease process

Author(s): Romanoff A.; Freed J.; Heimann T.

Source: International Journal of Surgery Case Reports; 2016; vol. 28 ; p. 355-356

Publication Date: 2016

Abstract: Introduction Acute appendicitis is one of the most common surgical diseases, but perforated appendicitis resulting in necrotizing fasciitis of the abdominal wall is exceedingly rare. Presentation of case A 71-year-old male presented to the emergency department with one week of severe right-sided abdominal pain. He was hypothermic, hypotensive, and tachycardic. His abdomen was distended, with a large, tender, erythematous region over the right abdominal wall. Laboratory evaluation revealed leukocytosis, acute kidney injury, and lactic acidosis. CT scan revealed large collections of fluid and gas in the right abdominal wall as well as inflammation surrounding the right colon. The patient was resuscitated with intra-venous fluid, started on broad-spectrum antibiotics, and emergently brought to the operating room. The patient underwent an exploratory laparotomy, and was found to have appendicitis, which perforated into his abdominal wall resulting in a necrotizing soft tissue infection. Discussion The diagnosis of perforated appendicitis resulting in necrotizing fasciitis is often delayed due to the unusual presentation of this common disease.

Necrotizing fasciitis is associated with significant mortality and requires immediate intervention. Conclusion It is imperative to maintain a high index of suspicion for intra-abdominal pathology in patients who present with necrotizing infections of the abdominal wall, flank, back, or groin. The importance of recognizing this complication early and proceeding immediately to the operating room cannot be overstated. Copyright © 2016

Soft tissue hematoma of the neck due to thyroid rupture with unusual mechanism

Author(s): Tsukahara K.; Sato K.; Yumoto T.; Iida A.; Nosaka N.; Terado M.; Naito H.; Sugihara M.; Nagao S.; Ugawa T.; Nakao A.; Orita Y.; Naito T.; Miki K.

Source: International Journal of Surgery Case Reports; 2016; vol. 26 ; p. 217-220

Abstract:Introduction Massive bleeding from the thyroid gland causing airway compromise secondary to indirect neck trauma is rare. Presentation of case An 89-year-old woman was transferred to our emergency department due to anterior neck pain after a traffic accident. She had been propelled forward and struck her head on the front mirror during emergency braking. Airway patency was confirmed at the first contact. Although her vital signs were stable at presentation, she gradually suffered from respiratory distress and severe dyspnea, implying airway compression, therefore requiring endotracheal intubation. Computed tomography (CT) revealed a large, encapsulated hematoma in the left thyroid gland lobe extending to the upper mediastinum. Contrast-enhanced CT demonstrated an extravasation of the contrast agent around the left superior thyroid artery. The left thyroid artery was ligated and the hematoma was removed immediately. She had a favorable course without further complications and was discharged 36 days after admission. Discussion Airway management is the most important consideration in patients with thyroid injury. Treatment should be customized depending on the degree of respiratory distress resulting from either involvement of the direct airway or secondary compression. Conclusion Although hemorrhage from the thyroid gland without blunt trauma is rare, emergency physicians should regard possible thyroid gland rupture in patients with swelling of the neck or acute respiratory failure after direct/indirect trauma to the neck. Observation or operative management for limited or expanding hematoma are appropriately based on fundamental neck trauma principles. Copyright © 2016 The Author(s)

An atypical presentation of small bowel obstruction and perforation secondary to sporadic synchronous intra-abdominal desmoid tumours

Author(s): Abdalla S.; Wilkinson M.; Uzkalnis A.; Wilsher M.

Source: International Journal of Surgery Case Reports; 2016; vol. 20 ; p. 147-150

Abstract:Introduction Desmoid tumours (DTs) are rare, soft tissue tumours which account for 0.03% of all neoplasms. They are characteristically locally invasive but do not metastasize. There is frequent association with females of reproductive age, a history of abdominal surgery or trauma and a family history of fibromatoses. Intra-abdominal DTs are infrequently sporadic and more commonly associated with inherited disorders such as familial adenomatous polyposis (FAP), attenuated FAP and Gardner's syndrome. Presentation of case The authors report a rare case of small bowel obstruction and perforation secondary to sporadic, synchronous intra-abdominal DTs in a 54-year old man with atypical symptoms and no risk factors or family history. Discussion Intra-abdominal DTs have a worse prognosis as they can cause intestinal bleeding, obstruction and perforation. Due to the rarity of these tumours there are no clear guidelines on their management and this is instead based on small case series from specialist centres. In the non-acute setting patients with sporadic intra-abdominal DTs should be managed in a specialist sarcoma unit by a multidisciplinary team. In the presence of FAP or other polyposis syndromes patients with DTs should be managed at a

specialist colorectal unit. Emergent presentations require emergency surgery in suitable candidates. Conclusion In non-emergency presentations of DTs, it is essential to exclude FAP, AFAP and other hereditary polyposis syndromes since this affects treatment and subsequent follow-up. Copyright © 2016 The Authors. Published by Elsevier Ltd. on behalf of IJS Publishing Group Ltd. This is an openaccess article under the CC BY-NC-ND license.

Role of magnetic resonance imaging in acute spinal trauma: a pictorial review.

Author(s): Kumar, Yogesh; Hayashi, Daichi

Source: BMC musculoskeletal disorders; 2016; vol. 17 ; p. 310

Abstract:Magnetic resonance imaging (MRI) has been playing an increasingly important role in the spinal trauma patients due to high sensitivity for detection of acute soft tissue and cord injuries. More and more patients are undergoing MRI for spinal trauma in the emergency settings, thus necessitating the interpreting physicians to be familiar with MRI findings in spinal trauma. In this pictorial review, we will first describe the normal anatomy of various ligamentous structures. Indications of MRI in spinal trauma as well as the role of MRI in diagnosing spinal cord and soft tissue injuries will then be discussed. Illustrated cases are mainly of cervical spine trauma, but thoracolumbar spine injuries are also included where appropriate in our review.

Implementation of a Shoulder Soft Tissue Injury Triage Service in a UK NHS Teaching Hospital Improves Time to Surgery for Acute Rotator Cuff Tears.

Author(s): Bateman, Marcus; Davies-Jones, Gareth; Tambe, Amol; Clark, David I

Source: BMJ quality improvement reports; 2016; vol. 5 (no. 1)

Abstract:Shoulder problems account for 2.4% of GP consultations in the United Kingdom and of those 70% are related to the rotator cuff. Many rotator cuff tears are of a degenerate nature but they can occur as a result of trauma in 8% of cases. Evidence suggests that patients with traumatic rotator cuff tears gain a better outcome in terms of pain and function if the tear is repaired early after injury. A specialist shoulder soft tissue injury clinic was set up in a large UK NHS teaching hospital with the primary purpose in the first year to halve the length of time patients with traumatic rotator cuff tears had to wait to consult a specialist and double the number of patients undergoing surgical repair within three months. The secondary purpose was to ensure that the new clinic was utilised to capacity by the end of the first year. The clinic was later expanded to manage patients with acute glenohumeral joint (GHJ) or acromioclavicular joint (ACJ) dislocations and identify those patients requiring surgical stabilisation. The new service involved referral of all patients presenting to the Accident & Emergency department with recent shoulder trauma and either an inability to raise the arm over shoulder height with a normal set of radiographs, or a confirmed GHJ or ACJ dislocation; to a specialist clinic run by an experienced upper limb physiotherapist. Patients were reassessed and referred for further imaging if required. Those patients found to have traumatic rotator cuff tears or structural instability lesions were listed for expedited surgery. The clinic ran alongside a consultant-led fracture clinic giving fast access to surgical decision-making. The service was reviewed after 3, 6, and 12 months and findings compared to a sample of 30 consecutive patients having undergone rotator cuff repair surgery via the previous pathway. 144 patients were referred to the clinic in the first year: 62 with rotator cuff symptoms, 38 with GHJ instability, 13 with ACJ instability, and 33 others. 7 missed fractures were identified. 12 patients subsequently underwent rotator cuff repair surgery, 10 GHJ stabilisation, and 1 ACJ stabilisation. Mean referral time to first clinical assessment improved from 37 days to 8 days. For rotator cuff repair: mean referral to surgery time was 86 days compared with 115 days on the old pathway. 58% of patients underwent surgery within 90 days of injury compared with 20% previously.

Our new service resulted in surgical repair of traumatic rotator cuff tears 29 days faster than the traditional system with an extra 38% of patients having surgery within 90 days of injury - a benchmark thought to improve outcome. Future work will aim to improve this percentage further and include long term patient follow up of outcome measures after surgery.

Safety and Appropriateness of Tourniquets in 105 Civilians.

Author(s): Scerbo, Michelle H; Mumm, Jacob P; Gates, Keith; Love, Joseph D; Wade, Charles E; Holcomb, John B; Cotton, Bryan A

Source: Prehospital emergency care : official journal of the National Association of EMS Physicians and the National Association of State EMS Directors; 2016; vol. 20 (no. 6); p. 712-722

Publication Date: 2016

Abstract:The United States military considers tourniquets to be effective for controlling bleeding from major limb trauma. The purpose of this study was to assess whether tourniquets are safely applied to the appropriate civilian patient with major limb trauma of any etiology. Following IRB approval, patients arriving to a level-1 trauma center between October 2008 and May 2013 with a prehospital (PH) or emergency department (ED) tourniquet were reviewed. Cases were assigned the following designations: absolute indication (operation within 2 hours for limb injury, vascular injury requiring repair/ligation, or traumatic amputation); relative indication (major musculoskeletal/soft-tissue injury requiring operation 2-8 hours after arrival, documented large blood loss); and non-indicated. Patients with absolute or relative indications for tourniquet placement were defined as indicated, while the remaining were designated as non-indicated. Complications potentially associated with tourniquets, including amputation, acute renal failure, compartment syndrome, nerve palsies, and venous thromboembolic events, were adjudicated by orthopedic, hand or trauma surgical staff. Univariate analysis was performed to compare patients with indicated versus non-indicated tourniquet placement. A total of 105 patients received a tourniquet for injuries sustained via sharp objects, i.e., glass or knives (32%), motor vehicle collisions (30%), or other mechanisms (38%). A total of 94 patients (90%) had indicated tourniquet placement; 41 (44%) of which had a vascular injury. Demographics, mechanism, transport, and vitals were similar between patients that had indicated or non-indicated tourniquet placement. 48% of the indicated tourniquets placed PH were removed in the ED, compared to 100% of the non-indicated tourniquets ($p < 0.01$). The amputation rate was 32% among patients with indicated tourniquet placement (vs. 0%; $p = 0.03$). Acute renal failure (3.2 vs. 0%, $p = 0.72$), compartment syndrome (2.1 vs. 0%, $p = 0.80$), nerve palsies (5.3 vs. 0%; $p = 0.57$), and venous thromboembolic events (9.1 vs. 8.5%; $p = 0.65$) and were similar in patients that had indicated compared to non-indicated tourniquet placement. After adjudication, no complication was a result of tourniquet use. The current study suggests that PH and ED tourniquets are used safely and appropriately in civilians with major limb trauma that occur via blunt and penetrating mechanisms.

Pain-induced hypertension causing posterior reversible encephalopathy syndrome

Author(s): Desai R.; Staples A.; Agarwal H.

Source: Critical Care Medicine; Dec 2016; vol. 44 (no. 12); p. 528

Abstract:Learning Objectives: PRES is an under-recognized clinical entity in children. We report PRES in a pediatric patient that was triggered by complex regional pain syndrome (CRPS) induced hypertension. Methods: A 10-year-old male patient presented with brief history of altered mental status, occipital headaches, diplopia and generalized tonic posturing. He was intubated, and his seizures were controlled with midazolam and fosphenytoin. He had elevated BP of 162/118 mmHg and his brain MRI revealed significant edema involving bilateral posterior frontal, parietal and

occipital lobes and EEG revealed focal slowing with no epileptiform discharges. Three weeks prior, he was involved in a sledding accident causing multiple fractures including proximal left femoral fracture requiring fixation, liver, spleen and renal contusions. He was discharged 5 days prior to admission and his blood pressures were normal at discharge. In those 5 days, he presented to the ER twice for left foot pain with elevated BP of 161/108 and 154/105 respectively. Within 18 hours of this presentation, he had normal mentation and no further seizures. Evaluation for hypertension revealed normal echocardiogram, renal ultrasound and doppler, normal urinalysis, renal function and normal renin (upper limit of normal) and aldosterone levels. A CT scan of the abdomen revealed small left upper pole renal infarct. His hypertension was initially treated with calcium channel blockers followed by ACE inhibitors. His persistent left foot pain was without any associated local soft tissue or skeletal injury and was diagnosed as CRPS that was treated with acetaminophen, oxycodone, gabapentin, clonidine, physical and occupational therapy. Results: PRES commonly occurs in patients who experience acute, transient hypertension as seen in our patient. CRPS is associated with dysregulation of central and autonomic nervous system that is precipitated by injury and surgery and requires multi-dimensional therapeutic approaches as seen in our patient. Severe pain may contribute to significant elevation of blood pressure precipitating PRES in children.

Beauty at a cost

Author(s): Siddiqui O.

Source: Critical Care Medicine; Dec 2016; vol. 44 (no. 12); p. 576

Abstract: Learning Objectives: Toxic shock syndrome is a toxin-mediated life-threatening illness, precipitated by infection with either *Staphylococcus aureus* or group A *Streptococcus*. Our case provided an unusual clinical scenario with development of toxic shock syndrome after cosmetic surgery. Methods: A 59-year-old woman was admitted to the hospital with nausea, diarrhea, lethargy, and hypotension. Four days prior, she underwent laser skin resurfacing of her face, neck, trunk, and upper extremities. The next day, she became increasingly lethargic and developed diarrhea. Symptoms progressively worsened over the next three days. Upon arrival in the emergency room (ER), her blood pressure was 54/43 and temperature 103F. Exam was notable for partial thickness burns from the dermatologic procedure across her face, neck, chest, back, and arms. Fluid resuscitation and broad spectrum antibiotics were initiated in the ER. Lab results showed lactic acidosis, acute kidney injury, transaminitis, and CBC showed leukocytosis with bandemia. She was admitted to the critical care unit, and vasopressors were begun. The next day, blood cultures grew methicillin resistant *staphylococcus aureus* (MRSA). The working diagnosis became staphylococcal toxic shock syndrome (TSS) due to the presence of hemodynamic shock, multi-organ dysfunction, and MRSA bacteremia. Despite IV Vancomycin, fluids, and pressors, the patient failed to show clinical improvement. Intravenous immunoglobulin (IVIG) was initiated for staphylococcal TSS, after which the patient started to improve. The patient made a complete and full recovery after a two week hospital course. After discharge, she demonstrated desquamation of her palms, consistent with the diagnosis of Staphylococcal TSS. Results: Although the original description of Staphylococcal TSS is associated with tampon use, the incidence of cases associated with tampon use has steadily declined as cases associated with surgical wound sites, burns, soft tissue infections have increased. MRSA associated TSS cases are uncommon, but the incidence of cases is likely to increase as the prevalence of MRSA increases.

Cranio-cervical junction injuries - Must not miss in emergency radiology

Author(s): Zheng S.W.

Source: Emergency Radiology; Dec 2016; vol. 23 (no. 6); p. 537-538

Abstract: Learning Objectives/Aims: -Review important bony landmarks and ligaments responsible for maintaining integrity of the CCJ -Identify common injury patterns of the CCJ and their implications -Recognize common pitfalls in imaging of the CCJ -Appreciate advantages of CT and MRI and their limitations in imaging of CCJ Background: Craniocervical junction injuries, usually from high speed motor vehicle collisions, at one time lethal injuries, are increasingly being encountered in the Emergency Departments. Despite the advance in the care of trauma, CCJ injuries still carry a high morbidity and mortality. Emergency radiologist plays a crucial role in identifying craniocervical junction injuries and directing appropriate further management. CT of cervical spine is initial imaging to screen for CCJ injuries, followed by MRI if there is suspicion for soft tissue injuries. It is crucial to not only be familiar with the anatomy of the CCJ, but also understand the mechanisms of injuries of CCJ and any associated complications. Content: Common CCJ injuries, such as atlanto-occipital dissociation, occipital condyle fractures, atlas fractures with transverse ligament rupture, atlanto-axial distraction, and traumatic rotatory subluxation, are reviewed. Imaging modalities utilized are: predominantly CT, but also MR, CTA, CR as well. Brief discussion of treatment strategies is also included. Summary: CCJ injuries are "must-not misses" in emergency radiology because they are result of high speed MVC trauma associated with high M/M. The emergency radiologist must be familiar with CCJ anatomy and understand mechanisms of injuries and how they present on imaging. In the acute setting, thin slice multi-detector CT with coronal and sagittal reformats offers fast and reliable detection of CCJ injuries. MRI offers additional advantages of detecting ligamentous and spinal cord injuries, and is indicated in cases of unstable cervical spine, suspected ligamentous injury and altered mental/neurological functions.

Lemierre syndrome: Revisiting a forgotten disease

Author(s): Hansen D.; Aldred W.; Bowes C.; Pressler J.; Mehta A.

Source: Chest; Oct 2016; vol. 150 (no. 4)

Abstract: INTRODUCTION: We present a case of Lemierre Syndrome to bring awareness of the re-emergence of this clinicopathologic entity. CASE PRESENTATION: A 20-year-old healthy female, three months postpartum, presented with progressive headaches and neck pain after an outpatient diagnosis of presumed viral pharyngitis due to rapid streptococcal antigen negativity. Quickly, she decompensated, arrested, and was intubated. Laboratory data revealed an elevated white blood cell count with left shift, thrombocytopenia, coagulopathy, transaminitis, and acute kidney injury. Chest x-ray revealed diffuse bilateral alveolar infiltrates. Computed tomography (CT) of the chest showed mixed ground glass and soft tissue opacities, concerning for septic emboli. Lumbar puncture was consistent with bacterial meningitis. CT neck demonstrated occlusive thrombosis of the right transverse sinus, sigmoid sinus, and superior right jugular vein with a non-occlusive thrombosis of the left internal jugular vein. CT head showed watershed ischemia throughout the cerebral and cerebellar hemispheres with a 5mm midline shift. Blood cultures grew *Fusobacterium Necrophorum*. This constellation is consistent with Lemierre Syndrome. Despite treatment with broad-spectrum antibiotics and heparin infusion, she progressively declined and life sustaining measures were withdrawn. DISCUSSION: Lemierre Syndrome is characterized by a recent oropharyngeal infection, septic pulmonary emboli, and a suppurative thrombophlebitis of the internal jugular vein. The most common pathogen is *Fusobacterium Necrophorum*, an anaerobic gram-negative rod that typically lines the mucosa of the oropharyngeal, gastrointestinal, and female urogenital tract. The number of reported cases of Lemierre Syndrome is increasing, likely due to restricted antibiotic use for pharyngitis and tonsillitis. CONCLUSIONS: The increasing prevalence of Lemierre Syndrome, combined with the unfamiliarity of clinicians with the characteristic features of the disease, may result in a delay or possible misdiagnosis of a potentially fatal illness. For this reason, we present this case to revisit the key features and treatment options of this syndrome.

Mandatory documentation of pain in the emergency department increases analgesic administration but does not improve patients' satisfaction of pain management

Author(s): Sturesson L.; Falk A.-C.; Castren M.; Niemi-Murola L.; Lindstrom V.

Source: Scandinavian Journal of Pain; Oct 2016; vol. 13 ; p. 32-35

Abstract:Background: Pain is one of the most common symptoms treated in emergency department (ED). Pain may cause suffering and disability for the patient. Inadequate pain management may be associated with increased risk of complications such as sleep disturbance, delirium and depression. Previous studies conclude that pain management in ED is insufficient and inadequate. Yet, little is known about patients' own experience regarding pain management in ED. Objective: The aim of this study was to explore the satisfaction of pain management in patients having acute musculoskeletal injuries before and after implementation of mandatory documentation regarding pain assessment in the ED. Method: An observational pre-post intervention study design was used. The study was conducted on patients having acute musculoskeletal injuries such as soft tissue injury, back pain or wrist/arm/leg/foot fractures in a 24-h adult (>15 years) ED at a public urban teaching hospital in Stockholm, Sweden. Data was collected by an interview based on a questionnaire. Results: A total of 160 patients answered the questionnaire. In the pre- (n = 80) and post-intervention (n = 80) groups, 91/95% experienced pain in the ED. A significant difference ($p < 0.003$) was found during the post-intervention period, with more patients receiving analgesics compared to the pre-intervention group. A significant decline ($p < 0.03$) in patients' own reported pain intensity at discharge was found between the groups. Patients' reported satisfaction on pain management in the ED increased in the post-intervention group, but the difference was not statistically significant. Conclusion: Patients' satisfaction with pain management increased, but not statistically significantly. However, both percentages of patients receiving analgesic drugs increased and pain intensity decrease at discharge were statistically significant after the intervention that made nurses obliged to register pain. Implication: According to the findings of this study, mandatory pain documentation facilitates pain management in the ED, but there is still room for improvement. Additional actions are needed to improve patients' satisfaction on pain management in the ED. Mandatory pain documentation in combination with person-centred care could be a way of improving patients' satisfaction on pain management. Effective pain management is an important quality measure, and should be focused on in acute care in the ED. By routinely asking patients to report the pain intensity at discharge, the ED personnel can have direct feedback about the factual pain management. RNs may also be encouraged to use intravenous analgesics in higher extent when the patients have very severe pain. Copyright © 2016 Scandinavian Association for the Study of Pain.

Topical Ketoprofen Versus Placebo in Treatment of Acute Ankle Sprain in the Emergency Department

Author(s): Serinken M.; Eken C.; Elicabuk H.

Source: Foot and Ankle International; Sep 2016; vol. 37 (no. 9); p. 989-993

Abstract:Background: Topical agents have been shown to be effective in soft tissue injuries and commonly used in outpatient clinics. However, the data regarding topical agents in the emergency department is insufficient, and they are not used often in the emergency department setting. The present study aimed to compare the effect of 2.5% topical ketoprofen (gel form) to placebo in patients presenting with ankle sprain to the emergency department. Methods: Patients presenting with ankle sprain composed the study population. Study patients were randomized into 2 study arms: 2.5% ketoprofen gel and placebo administered over a 5-cm area locally. Pain alleviation was measured by visual analog scale at 15 and 30 minutes. A total of 100 patients were included in the final analysis. Results: The median pain reduction in ketoprofen and placebo groups at 15 minutes was 27 (19.8-33.4) and 9 (7.6-17), respectively. The median pain reduction at 30 minutes for both

groups was 42 (36-50.8) and 20 (17.6-24.4), respectively. Pain improvement either at 15 minutes (median difference: 16 [9-22]) or 30 minutes (median difference: 21 [15-27]) was better in the ketoprofen group than placebo. There were no adverse effects in either group. Conclusion: Ketoprofen gel was superior to placebo at 30 minutes in alleviating pain secondary to ankle sprain in the ED with a high safety profile. Further studies are needed concerning the effect of ketoprofen gel for long-term effects. Level of Evidence: Level I, high quality prospective randomized study. Copyright © The Author(s) 2016.

Musculoskeletal

Comparing patient outcomes for care delivered by advanced musculoskeletal physiotherapists with other health professionals in the emergency department-A pilot study.

Author(s): Schulz, Peter; Prescott, Jonathan; Shifman, Janine; Fiore, Julio; Holland, Anne; Harding, Paula

Source: Australasian emergency nursing journal : AENJ; Nov 2016; vol. 19 (no. 4); p. 198-202

Abstract: To compare advanced musculoskeletal physiotherapists with other health professionals by measuring outcomes for patients presenting to the emergency department with lower limb soft tissue injuries or acute low back pain. A prospective study was conducted (Lower limb soft tissue injury cohort, n=88), (Acute low back pain cohort, n=29) at the emergency departments of two urban hospitals. A univariate analysis was completed for a number of outcome measures: Lower Extremity Functional Scale, Roland Morris Disability Questionnaire, imaging requirements, Patient Satisfaction Questionnaire, Numerical Pain Rating Scale and medication use. Data was obtained at discharge, two weeks and six weeks post-discharge. Advanced musculoskeletal physiotherapists ordered less imaging, had less opioids (lower limb soft tissue injury) administered to patients, and patients' described equal or more satisfaction when compared to another health professional (p0.05). Advanced musculoskeletal physiotherapists are less likely to order imaging, obtain similar outcomes regarding pain medications and display equal or more patient satisfaction when compared to other health professionals for patients presenting to the emergency department with lower limb soft tissue injuries or acute low back pain. Copyright © 2016 College of Emergency Nursing Australasia. All rights reserved.

Emergency Magnetic Resonance Imaging of Musculoskeletal Trauma

Author(s): Kumaravel M.; Weathers W.M.

Source: Magnetic Resonance Imaging Clinics of North America; 2016

Abstract: Musculoskeletal (MSK) trauma is commonly encountered in the emergency department. Computed tomography and radiography are the main forms of imaging assessment, but the use of magnetic resonance (MR) imaging has become more common in the emergency room (ER) setting for evaluation of low-velocity/sports-related injury and high-velocity injury. The superior soft tissue contrast and detail provided by MR imaging gives clinicians a powerful tool in the management of acute MSK injury in the ER. This article provides an overview of techniques and considerations when using MR imaging in the evaluation of some of the common injuries seen in the ER setting. Copyright © 2015 Elsevier Inc.

Lesser Trochanter Avulsion Fracture in an Adolescent after Seizure.

Author(s): McMillan, Tristan; Rehman, Haroon; Mitchell, Martin

Source: The Journal of emergency medicine; Oct 2016; vol. 51 (no. 4); p. 457-460

Abstract: Injury secondary to epileptic seizure is widely documented in the literature. In particular, uncontrolled muscular contractions generated during a seizure can lead to a variety of musculoskeletal injuries. We present the case of a 16-year-old male who presented on two separate occasions after a tonic-clonic seizure with hip pain, an antalgic gait, and marked discomfort on hip flexion. Radiologic investigation revealed an acute isolated fracture of the lesser trochanters. Such fractures in adolescents are normally secondary to athletic injury and in adults are mainly associated with the presence of metastatic bone disease. **WHY SHOULD AN EMERGENCY PHYSICIAN BE AWARE OF THIS?:** We present this case with its previously undocumented mechanism to highlight the injury to frontline emergency medical teams, create awareness of its presentation, and to discuss its potential mechanism and treatment. Copyright © 2016 Elsevier Inc. All rights reserved.

Methoxyflurane: A Review in Trauma Pain

Author(s): Blair H.A.; Frampton J.E.

Source: Clinical Drug Investigation; Dec 2016; vol. 36 (no. 12); p. 1067-1073

Abstract: Methoxyflurane (Penthrox) is a halogenated ether first used clinically as a volatile inhalational anaesthetic. It has been used as an analgesic in Australia and New Zealand for the past 30 years. In the UK and Europe, methoxyflurane has been approved for the emergency relief of moderate to severe trauma pain in conscious adult patients. Methoxyflurane is self-administered using a hand-held inhaler. This article reviews the pharmacological properties of methoxyflurane and its clinical efficacy and tolerability in these patients. In the phase III STOP! trial, methoxyflurane was effective and generally well tolerated for the management of acute pain due to minor trauma, with a rapid onset of analgesia. In a prospective study, methoxyflurane was more effective than intramuscular tramadol when administered for the treatment of acute musculoskeletal pain in the pre-hospital setting (i.e. by paramedics). Methoxyflurane had a more rapid onset of action than tramadol when administered for the treatment of pain related to ankle injuries in the emergency department. Although methoxyflurane is known to be potentially nephrotoxic at anaesthetic doses, the much lower doses used for pain relief were not associated with nephrotoxicity or an increased risk of renal disease. Inhaled methoxyflurane may offer advantages over other analgesics administered via the intravenous, intramuscular or intranasal routes in terms of its non-invasive self-administration, ease of use and/or rapid onset of action. As such, it is a useful additional treatment option for the management of trauma pain in the pre-hospital or emergency department setting. Copyright © 2016, Springer International Publishing Switzerland.

MR imaging of the acute painful hip: A comprehensive exam

Author(s): Wilson B.; Habra G.

Source: Emergency Radiology; Dec 2016; vol. 23 (no. 6); p. 578-579

Abstract: Learning Objectives/Aims: 1. Review common etiologies of hip pain other than fracture that are most readily diagnosed by MRI after inconclusive clinical exam and indeterminate radiographs. 2. Summarize the characteristic imaging findings of the more common acute hip pathologies in instances where hip fracture was initially suspected. 3. Highlight the utility of pelvis and hipMRI as a comprehensive imaging exam in the emergency setting which aids in earlier and accurate diagnoses, guides treatment and improves patient outcomes. Background: In cases of suspected hip fracture in a middle aged or elderly patient where initial radiographs are unrevealing, the next best imaging investigation is an MRI of the pelvis and affected hip according to the American College of Radiology Appropriateness Criteria (Rating of 9 compared to a rating of 6 for CT). The radiologist reviewing a hip MRI for suspected occult fracture must remain vigilant as a host

of other pathologies can mimic hip fracture clinically. There are many case examples where MR imaging of the hip adds for a more complete assessment, even in younger adults and cases where radiographs were positive, as it is more sensitive in detecting clinically relevant injuries to tendons, muscles and osteochondral structures. Content: A brief introduction and review of standard MRI protocols of the hip and pelvis in the emergency setting will be included. MR imaging findings of common causes of hip pain that are radiographically occult and/or may mimic hip fracture clinically including muscle tears/sprains, tendon injuries, osteomyelitis, septic hip, post-traumatic hematoma, atypical fractures and some musculoskeletal neoplasms will be illustrated. Summary: The more common etiologies and presentations of acute hip pathology with an emphasis on pathologies which may clinically mimic fracture on initial presentation will be presented. The aim of this presentation will be to illustrate the utility of MRI of the hip and pelvis in the emergency setting as it can more completely demonstrate the entire spectrum of pathologies which may cause acute hip pain. As such, MRI allows for early patient triage, guides appropriate therapy earlier after patient presentation allowing for improved patient outcomes and overall reduces healthcare costs.

New-onset gout in a young adult diagnosed via sonography: A case report

Author(s): Finney J.N.; Onishi K.

Source: PM and R; Sep 2016; vol. 8 (no. 9)

Abstract:Case/Program Description: The patient presented to an emergency room (ER) with three days of acute-onset, atraumatic left lateral knee pain and swelling. He had no associated fever, chills, or malaise. Landmark-guided aspiration was attempted seven times by ER physicians, but was unsuccessful. Orthopedic consultants recovered hemorrhagic joint aspirate. Fluid studies and left knee MRI were ordered. MRI revealed extensive enhancement of subcutaneous area overlying the anterolateral knee. An infectious disease physician was subsequently consulted and deemed the enhancement not to be infectious. He was eventually discharged with diagnosis of spontaneous hemarthrosis. Pain persisted for weeks, and he was referred for diagnostic ultrasound. Examination revealed a limp, tenderness and swelling over lateral proximal patellar tendon. Sonography did not reveal joint effusion, but did identify a non-compressible, hyperemic subcutaneous mass with heterogenic consistency at proximal, lateral edge of patellar tendon. Using sonography, two milliliters of buffered 1% lidocaine were delivered to this hyperemic mass, which was then aspirated, recovering blood-tinged yellow fluid. Setting: Outpatient musculoskeletal clinic. Results: Studies of this subcutaneous fluid revealed uric acid crystals. Subsequent follow-up with a rheumatologist confirmed the diagnosis of gout. After anesthetic period, he noted marked improvement in pain, and he remained asymptomatic. Discussion: Subcutaneous tophus is a rare initial presentation of gout. Atraumatic knee swelling can be easily assumed to be intra-articular in nature. However, clinicians must recognize that subcutaneous swelling can clinically mimic joint effusion. Musculoskeletal ultrasound allows precise localization of swelling (intra- vs extra-articular), and would have spared this patient myriad intra-articular needling attempts. Furthermore, in those with symptomatic gouty tophus, sonographically-guided tophus aspiration could be therapeutic. Conclusions: Just as it is useful for evaluating a traumatic knee injury, musculoskeletal ultrasound can aid in localizing and characterizing lesions of atraumatic knee swelling.

Pain as a Barrier to Human Performance: A Focus on Function for Self-Reporting Pain With the Defense Veterans Pain Rating Scale.

Author(s): Buckenmaier, Chester C; Galloway, Kevin T; Polomano, Rosemary C; Deuster, Patricia A

Source: Journal of special operations medicine : a peer reviewed journal for SOF medical professionals; 2016; vol. 16 (no. 2); p. 82-87

Abstract:The intense physical demands and dangerous operational environments common to Special Operations Forces (SOF) result in a variety of painful conditions, including musculoskeletal pain, headaches, and acute and chronic pain from combat injuries. Pain is a wellaccepted barrier to human performance. The Pain Management Task Force and the development of the Defense Veterans Pain Rating Scale (DVPRS) are discussed to provide a framework for changing the culture of pain management away from intensity of pain to interference with function and performance. The emergence of complementary and integrative pain management (CIM) practices is briefly reviewed as viable alternatives to the traditional reliance on opioids and other prescription medications. The SOF community can be the change agent for the DVPRS and CIM approaches to pain management, which will in the end serve to accelerate recovery and return SOF operators to duty faster and with an enhanced ability to perform with less pain. 2016.

The Traumatic Injuries Distress Scale: A New Tool That Quantifies Distress and Has Predictive Validity With Patient-Reported Outcomes.

Author(s): Walton, David M; Krebs, Dan; Moulden, Dianna; Wade, Peter; Levesque, Lenerdene; Elliott, James; MacDermid, Joy C

Source: The Journal of orthopaedic and sports physical therapy; Oct 2016; vol. 46 (no. 10); p. 920-928

Abstract:Study Design Observational cohort. Background Outcomes for acute musculoskeletal injuries are currently suboptimal, with an estimated 10% to 50% of injured individuals reporting persistent problems. An early risk-targeted intervention may hold value for improving outcomes. Objectives To describe the development and preliminary concurrent and longitudinal validation of the Traumatic Injuries Distress Scale (TIDS), a new tool intended to provide the magnitude and nature of risk for persistent problems following acute musculoskeletal injuries. Methods Two hundred participants recruited from emergency medicine departments and rehabilitation clinics completed the TIDS and a battery of other self-reported questionnaires. A subcohort (n = 76) was followed at 1 week and at 12 weeks after the inciting event. Exploratory factor analysis and concurrent and longitudinal correlations were used to evaluate the ability of the TIDS to predict acute presentation and 12-week outcomes. Results Exploratory factor analysis revealed 3 factors explaining 62.8% of total scale variance. Concurrent and longitudinal associations with established clinical measures supported the nature of each subscale. Scores on the TIDS at baseline were significantly associated with variability in disability, pain intensity, satisfaction, anxiety, and depression at 12 weeks postinjury, with adequate accuracy to endorse its use as part of a broader screening protocol. Limitations to interpretation are discussed. Conclusion We present the initial psychometric properties of a new measure of acute posttraumatic distress following musculoskeletal injury. The subscales may be useful as stratification variables in subsequent investigations of clinical interventions. J Orthop Sports Phys Ther 2016;46(10):920-928. Epub 3 Sep 2016. doi:10.2519/jospt.2016.6594.

Sports Injuries

A practical approach to Events Medicine provision

Author(s): Smith S.P.; Cosgrove J.F.; Driscoll P.J.; Smith A.; Butler J.; Goode P.; Vallis C.J.; Waldmann C.; Topham F.; Mythen M.M.

Source: Emergency Medicine Journal; Sep 2016

Abstract:In the past three decades, mass casualty incidents have occurred worldwide at multiple sporting events and other mass gatherings. Organisational safety and healthcare provision can consequently be scrutinised post-event. Within the UK, such incidents in the 1980s provided incentives to improve medical services and subsequent high profile UK-based international sporting events (London Olympics and Paralympics 2012, Glasgow Commonwealth Games 2014, Rugby World Cup 2015) added a further catalyst for developing services. Furthermore in the aftermath of the abandoned France versus Germany association football match at the Stade de France (Paris Terrorist Attacks, November 2015) and the 2016 UK report from HM Coroner on the Hillsborough Inquest, medical cover at sporting events is being further reviewed. Doctors providing spectator cover therefore need to have an awareness of their likely roles at sporting venues. Formal guidance exists in many countries for the provision of such cover but remains generic even though Events Medicine is increasingly recognised as a necessary service. The current evidence base is limited with best practice examples often anecdotally cited by acute care specialists (eg, emergency medicine) who provide cover. This article is therefore intended to present an overview for doctors of the knowledge and skills required to treat ill and injured spectators and enable them to adequately risk-assess venues in cooperation with other health and safety providers, including preparation for a major incident. It also gives guidance on how activity can be adequately assessed and how doctors can have management roles in Events Medicine. Copyright © 2016 BMJ Publishing Group Ltd and the College of Emergency Medicine.

Assessment of acute head injury in an emergency department population using sport concussion assessment tool - 3rd edition.

Author(s): Bin Zahid, Abdullah; Hubbard, Molly E; Dammavalam, Vikalpa M; Balser, David Y; Pierre, Gritz; Kim, Amie; Kolecki, Radek; Mehmood, Talha; Wall, Stephen P; Frangos, Spiros G; Huang, Paul P; Tupper, David E; Barr, William; Samadani, Uzma

Source: Applied neuropsychology. Adult; Nov 2016 ; p. 1-10

Abstract:Sport Concussion Assessment Tool version 3 (SCAT-3) is one of the most widely researched concussion assessment tools in athletes. Here normative data for SCAT3 in nonathletes are presented. The SCAT3 was administered to 98 nonathlete healthy controls, as well as 118 participants with head-injury and 46 participants with other body trauma (OI) presenting to the ED. Reference values were derived and classifier functions were built to assess the accuracy of SCAT3. The control population had a mean of 2.30 (SD = 3.62) symptoms, 4.38 (SD = 8.73) symptom severity score (SSS), and 26.02 (SD = 2.52) standardized assessment of concussion score (SAC). Participants were more likely to be diagnosed with a concussion (from among healthy controls) if the SSS > 7; or SSS ≤ 7 and SAC ≤ 22 (sensitivity = 96%, specificity = 77%). Identification of head injury patients from among both, healthy controls and body trauma was possible using rule SSS > 7 and headache or pressure in head present, or SSS ≤ 7 and SAC ≤ 22 (sensitivity = 87%, specificity = 80%). In this current study, the SCAT-3 provided high sensitivity to discriminate acute symptoms of TBI in the ED setting. Individuals with a SSS > 7 and headache or pressure in head, or SSS ≤ 7 but with a SAC ≤ 22 within 48-hours of an injury should undergo further testing.

Case report: Traumatic unilateral testicular rupture.

Author(s): Bauer, Natasha J G

Source: International journal of surgery case reports; 2016; vol. 25 ; p. 89-90

Abstract:Testicular trauma is classified aetiologically as blunt, penetrating or degloving. Blunt testicular trauma, caused by interpersonal violence, sporting injuries and RTAs account for the majority of cases, typically affecting males aged 15-40 [1]. Approximately 98.5% of blunt trauma

resulted in unilateral testicular injury; about 12-15% involving cyclists or motorcyclists (Cass and Luxenberg, 1988) [2]. A 48-year-old male motorcyclist presented to the accident and emergency department with an acute scrotum following collision with an oncoming vehicle. On arrival, he was fully conscious, tachycardic and hypertensive. Examination of his genitalia revealed ecchymosis of the right hemi-scrotum and perineal bruising. The right hemi-scrotum was grossly swollen but the left testis was normal. Ultrasound revealed gross haematoma and ruptured capsule of the right testicle. Intraoperatively, emergency exploration of the right hemiscrotum revealed evidence of lower pole rupture. Clot evacuation and debridement of necrotic testicular tissue preceded closure of the tunica albuginea. The majority of all testicular ruptures are diagnosed secondary to sport-related injuries [3] and motor vehicle or motorbike accidents. However, analysis of the literature has revealed a total of five cases of rupture, which have been linked to testicular tumours, the most recent of which was reported in 2014 (Lunawat et al., 2014) [5]. In two out of these five cases, trivial trauma preceded the diagnosis. It raises the question whether the presence of malignancy decreases the threshold of suffering a blunt testicular injury hence increasing the likelihood of testicular rupture. Emergency assessment and diagnosis as well as scrotal exploration are important components of the management of acute testicular rupture. Analysis of the literature proves that timely surgical intervention is crucial; early intervention results in higher rates of preservation and avoids the need for an orchidectomy. Copyright © 2016 The Author. Published by Elsevier Ltd.. All rights reserved.

Differential effects of glucocorticoid and mineralocorticoid antagonism on anxiety behavior in mild traumatic brain injury.

Author(s): Fox, Laura C; Davies, Daniel R; Scholl, Jamie L; Watt, Michael J; Forster, Gina L

Source: Behavioural brain research; Oct 2016; vol. 312 ; p. 362-365

Abstract: Mild traumatic brain injuries (TBIs) comprise three-quarters of all TBIs occurring in the United States annually, and psychological symptoms arising from them can last years after injury. One commonly observed symptom following mild TBI is generalized anxiety. Most mild TBIs happen in stressful situations (sports, war, domestic violence, etc.) when glucocorticoids are elevated in the brain at the time of impact, and glucocorticoids have negative effects on neuronal health following TBI. Therefore, blocking glucocorticoid receptors might prevent emergence of anxiety symptoms post-injury. Adult male rats received mifepristone (20mg/kg) or spironolactone (50mg/kg) to block glucocorticoid and mineralocorticoid receptors, respectively, 40min prior to being exposed to acute social defeat stress followed immediately by mild TBI. In defeated rats with concomitant mild TBI, mifepristone restored time spent in the open arms of an elevated plus maze to control levels, demonstrating for the first time that glucocorticoid receptors play a critical role in the development of anxiety after mild TBI. Future treatments could target these receptors, alleviating anxiety as a major side effect in victims of mild TBI sustained in stressful situations. Copyright © 2016 Elsevier B.V. All rights reserved.

Incidence of Concussion in Patients With Isolated Mandible Fractures.

Author(s): Sobin, Lindsay; Kopp, Robert; Walsh, Ronald; Kellman, Robert M; Harris, Tucker

Source: JAMA facial plastic surgery; 2016; vol. 18 (no. 1); p. 15-18

Abstract: This study examines the association between isolated mandible fractures and mild traumatic brain injury (mTBI). To determine the rates of mTBI in patients who have sustained isolated mandible fractures. A prospective study was conducted among patients who sustained isolated mandible fractures within 24 hours of presentation. Patients were administered the Military Acute Concussion Evaluation (MACE). Recorded data included demographics, time since injury, use

of alcohol or illicit drugs, nonfacial pain, and mechanism of injury. All patients were evaluated in the emergency department of a level I trauma center between June 20, 2013, and June 20, 2014. In addition, discharge data from the Nationwide Inpatient Sample database was analyzed to identify current rates of patients with a diagnosis of both mandible fractures and concussions. Rates of concussion. Patients with a MACE score of less than 25 were considered to have mTBI. Sixteen patients met the study criteria over a 1-year period. Fourteen patients (88%) were male, and mean age was 27.5 years. The mean time since injury was 11.25 hours (range, 3-21 hours). The mechanism of injury was assault in 12 patients (75%), sports in 2 patients (13%), all-terrain vehicle crash in 1 patient (6%), and biking in 1 patient (6%). Eight patients (50%) admitted to the use of alcohol, and none reported the use of illicit drugs. Eleven patients (69%) reported loss of consciousness. Twelve patients (75%) met criteria for concussion according to the MACE. Among these 12 patients, 7 (58%) admitted to the use of alcohol at the time of injury. There was no relationship between the rates of concussion and the use of alcohol. Mandible fractures are often sustained after high-force impacts during altercations between men. In our study, a 75% (12 of 16) rate of concussions associated with isolated mandible fractures was identified. Patients with isolated mandible fractures may benefit from being screened for concussion and referred to a concussion clinic. 4.

Database: Medline

Misdiagnosis of Talar Body or Neck Fractures as Ankle Sprains in Low Energy Traumas.

Author(s): Young, Ki-Won; Park, Young-Uk; Kim, Jin-Su; Cho, Hun-Ki; Choo, Ho-Sik; Park, Jang-Ho

Source: Clinics in orthopedic surgery; Sep 2016; vol. 8 (no. 3); p. 303-309

Available in full text at [Clinics in Orthopedic Surgery](#) - from National Library of Medicine

Abstract:The talus has a very complex anatomical morphology and is mainly fractured by a major force caused by a fall or a traffic accident. Therefore, a talus fracture is not common. However, many recent reports have shown that minor injuries, such as sprains and slips during sports activities, can induce a talar fracture especially in the lateral or posterior process. Still, fractures to the main parts of the talus (neck and body) after ankle sprains have not been reported as occult fractures. Of the total 102 cases from January 2005 to December 2012, 7 patients had confirmed cases of missed/delayed diagnosis of a talus body or neck fracture and were included in the study population. If available, medical records, X-rays, computed tomography scans, and magnetic resonance imaging of the confirmed cases were retrospectively reviewed and analyzed. In the 7-patient population, there were 3 talar neck fractures and 4 talar body fractures (coronal shearing type). The mechanisms of injuries were all low energy trauma episodes. The causes of the injuries included twisting of the ankle during climbing (n = 2), jumping to the ground from a 1-m high wall (n = 2), and twisting of the ankle during daily activities (n = 3). A talar body fracture and a talar neck fracture should be considered in the differential diagnosis of patients with acute and chronic ankle pain after a minor ankle injury.

Neuroepidemiology of traumatic brain injury.

Author(s): Gardner, A J; Zafonte, R

Source: Handbook of clinical neurology; 2016; vol. 138 ; p. 207-223

Abstract:Traumatic brain injury (TBI) is a significant public-health concern. TBI is defined as an acute brain injury resulting from mechanical energy to the head from external physical forces. Some of the leading causes of TBI include falls, assaults, motor vehicle or traffic accidents, and sport-related concussion. Two of the most common identified risk factors are sex (males are nearly three times more likely to suffer a TBI than females); and a bimodal age pattern (persons 65 years and older, and children under 14 years old). It is estimated that approximately 1.5-2 million Americans suffer from

TBI annually. TBIs account for around 1.4 million emergency room visits, 275 000 hospital admissions, and 52 000 deaths in the USA each year. TBI contributes to approximately 30% of all deaths in the USA annually. In Australia, it is estimated that approximately 338 700 individuals (1.9% of the population) suffer from a disability related to TBI. Of these, 160 200 were severely or profoundly affected by acquired brain injury, requiring daily support. In the UK, TBI accounted for 3.4% of all emergency department attendances annually. An overall rate of 453 per 100 000 was found for all TBI severities, of which 40 per 100 000 (10.9%) were moderate to severe. TBI often results in residual symptoms that affect an individual's cognition, movement, sensation, and/or emotional functioning. Recovery and rehabilitation from TBI may require considerable resources and may take years. Some individuals never fully recover, and some require lifetime ongoing care and support. TBI has an enormous social and financial cost, with estimates of the annual financial burden associated with TBI ranging between 9 and 10 billion US dollars. © 2016 Elsevier B.V. All rights reserved.

The experimental study on exercise rats' CK, SCR and MB in different temperature

Author(s): Yuanyuan L.; Wei J.; Zhao J.; Huang Y.; Wu X.; Han X.; Zeng X.

Source: Journal of the American College of Cardiology; Oct 2016; vol. 68 (no. 16)

Available in full text at [Journal of the American College of Cardiology](#) - from ProQuest

Abstract: OBJECTIVES Rhabdomyolysis rhabdomyolysis syndrome is a medical emergency, with a complex etiology, sudden onset, complex diagnostic procedures that can lead to clinical features of multiple complications. In recent years, its presence is gradually coming into view, appeared in a variety of medical events in the news. Corresponding rock climbing, mountaineering, skiing, surfing and extreme sports related to the outside temperature, leading to rhabdomyolysis cases is also increasing. This experiment analyzed various index of swimming rats under different temperature, aims to further explore the mechanism of temperature exercise-induced rhabdomyolysis syndrome, we can provide reference for rhabdomyolysis events which leaded by different environmental. METHODS This study selected 40 SD rats after feeding in their natural environment adaptability week, the rats were randomly divided into four groups: normal control group, the low exercise group swimming, swimming group at room temperature, heat swimming group. In addition to the experimental group started the other three groups adaptive swimming training once a day, the time increments from 5 minutes to 30 minutes, then began a formal swimming. 50cm x 50cm x50cm training conducted sink, static depth 40cm, once started swimming every morning. The experiment was conducted 12 weeks, during which rats were measured immediately after every experiment rectal temperature, body weight was measured once every 3 days, after 12 weeks for the three groups of rats sacrificed immediately after exhaustive exercise, peritoneal venous blood of kidney and indicators gastrocnemius organizations rat blood creatine kinase (CK) levels, serum creatinine (SCR) level and myoglobin (MB) levels. RESULTS 1. When the core temperature of hot and cold environment movement in rats with changes in the external environment changes, the ambient temperature affect the body's core temperature by increasing the degree of rhabdomyolysis syndrome. 2. Hot and cold environment than the normal temperature environment, the more impact CK and MB level, large temperature environments intensity exercise the same muscle tissue damage. 3. Serum creatinine level indicates the degree of kidney damage, extreme environments significantly elevated serum creatinine movement, the environmental movement, said the cold damage the kidneys, may cause acute renal failure. All test indicators, data were processed by statistical methods. CONCLUSIONS The movement of the body temperature environment in muscle tissue damage and renal function. The thermal environment in the body from exercise-induced rhabdomyolysis syndrome highest probability. At room temperature, high-intensity exercise will also cause damage, but a lesser degree of injury. Induced rhabdomyolysis syndrome produce large

intensity exercise dominant, but in extreme environments Exacerbate rhabdomyolysis syndrome generation.

Transient unilateral ptosis in collegiate hockey player due to concussion: A case report

Author(s): Tekmyster G.; Minaie A.

Source: PM and R; Sep 2016; vol. 8 (no. 9)

Abstract:Case/Program Description: Patient is a 19-year-old female collegiate ice hockey goalie who was struck in the left temple area with a puck during practice. She was wearing her usual protection, including a helmet. The patient has a history of one previously diagnosed sports related concussion (SRC). Immediately after impact, patient felt the onset of a headache, pressure behind her left eye, and blurry vision. A CT of the head was taken in the emergency department (ED) and was noted as negative for fractures and hemorrhage. Examination by an ophthalmologist revealed 20/50 visual acuity in the left eye. MRI was ordered and was negative for any acute abnormalities. An incidental finding of T2 hyperintense lesion within the pituitary gland was found. A Neurologist examination several days later noted a normal physical exam with the exception of left eye ptosis. Three weeks after injury, all concussion symptoms were resolved with persistent unilateral left eye ptosis. The patient, at this point, had returned to a full academic schedule, but was still restricted from athletic activity. Six weeks after initial injury the patient had resolution of all symptoms, including ptosis, and after negative repeat MRI and MRA was cleared to return to full athletic participation by both the neurologist and team physician. Setting: Outpatient multi specialty sports medicine practice. Results: N/A. Discussion: Cranial nerve palsies are rarely seen in minor head trauma and are even less commonly seen in patients with normal brain imaging. When evaluating athletes for SRC, clinicians need to be vigilant to rule out any potential brain injury, especially with focal neurologic findings. Several cases of concussion related cranial nerve palsy have been reported in the literature with no clear etiology. Conclusions: To the best of our knowledge, concussion related third cranial nerve palsy without internuclear ophthalmoplegia and normal imaging has not been previously described in the literature.

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Exercise: Systematic Review

There are 7 key steps that need to be taken when carrying out a Systematic Review. Can you put them in order?

A. Quality assessment

B. Study selection

C. Synthesis

D. Data extraction

E. Define the question

F. Literature search

G. Writing up

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