

Annual Symposium 2017

SAMEDI 14 JANVIER 2017 - ZATERDAG 14 JANUARI 2017



Update In Trauma

Program
Abstract book

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Word of the President

Dear BeSEDiM Guests,

On behalf of my colleagues of the Belgian Society of Emergency and Disaster Medicine and the scientific committee, I am delighted to extend a warm welcome to all our members and guests alike as well as to wish you all a happy and exciting year 2017.

As usual, our national conference focuses on promoting the specialty of Emergency Medicine and offers a wonderful opportunity for academic/scientific exchange. It is targeting all medical professionals who deal with the complex nature of Emergency Medicine; those engaged in pre-hospital, in-hospital or inter-hospital emergency medical care and disaster planning; and those involved with the training of emergency physicians, nurses and technicians.

This year, we are proud to offer you again a high quality scientific program; the focus will be on “update in trauma”. With a faculty of speakers, researchers and educators who will give outstanding lectures, moderate clinical cases and facilitate discussions. They will bring the best and most up-to-date knowledge to you.

During this congress different issues will be highlighted: trauma management, immobilization, acute wound care, burns, management of bleeding, interactive sessions, poster tour and oral abstracts. Also for the first time this year we will have a hands-on trauma presentation and emphasizing the importance of team work as well as initiation into ‘point of care ultrasound. Also for the first time we will inaugurate a “Scientific Announcement Corner” where scientists will display their upcoming research work and getting others involved.

Outstanding faculty members, extensive educational program and a parallel exhibition featuring leading organizations in the field will ensure an exciting and rewarding experience for all our conference attendees.

We value your feedback and suggestions and we look forward to welcoming you in Brussels and hope you will enjoy the conference.

Kind regards,

Said Hachimi-Idrissi

President of the BeSEDiM and Chairman of the congress

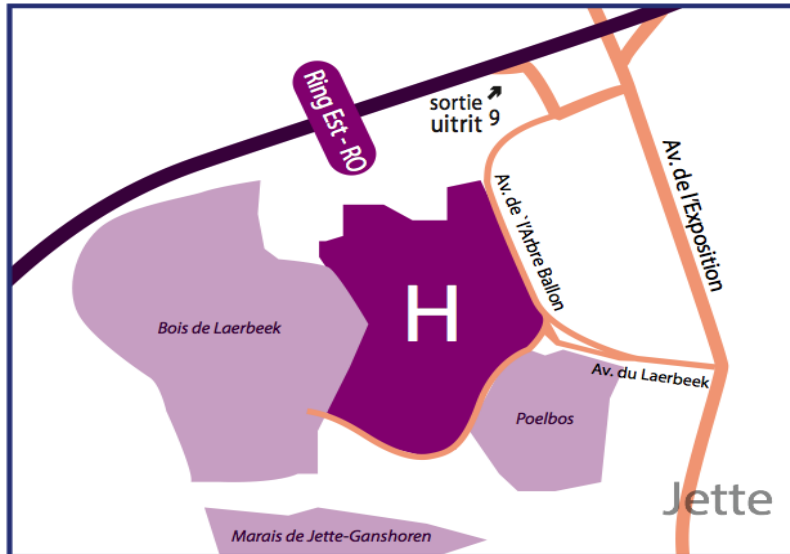
Scientific Committee

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Dr. Adeline Higuët
Prof. dr. Christian Mélot
Dr. Kurt Anseeuw
Dr. Robert Leach
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Prof. dr. K. Monsieurs
Prof. dr. F. Verschuren
Dr. M. Vranckx

Venue



**Auditoire Brouwer Auditorium VUB
Vrije Universiteit Brussel
Campus Jette**

Location & Directions :

Follow the indication "Brussel R0" which is the expressway 'Ring' (RO) around Brussels.
Once you are on this expressway take exit 9
and keep following the signs UZ Brussel (or AZ-VUB).
The railway station of Jette is situated at about 20 minutes walk from the campus.

**STIB : B-13-14-53-84
De LIJN : 245-810-820**

Accréditation demandée / Accreditering aangevraagd

**Inscriptions / Inschrijvingen :
www.besedim.be**

Plan

Campus Jette

Legende

FACULTEIT GENEESKUNDE EN FARMACIE

Agora - vergaderruimte	R
Auditoria	A
Bewaking - Permanente	J
Centraal Onthaal Faculteit	A
Centrum voor Studie en Begeleiding	A
Consulentie	A
Farmaceutisch Instituut	Q/N
Forum	R
Huisvesting (Secretariaat) + Studentenvijk J	J
Geïntegreerd begeleidingslandschap Jette	A
Medische Bibliotheek	A
Practica	B
Research	D/E/F
Restaurant	R
Slijzaal	C
Tandheelkundige kliniek	K
Tempus - studentencafé	R

UZ BRUSSEL

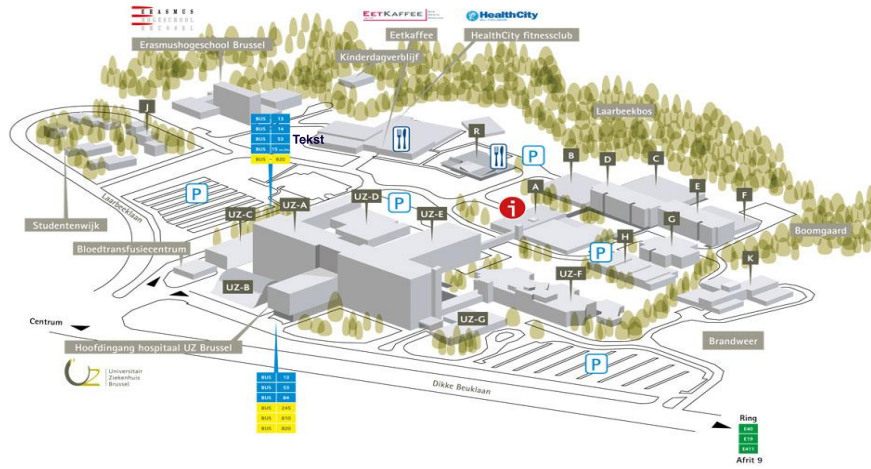
Behandelinggebouw	UZ-E
Centrum voor hart- en vaatziekten	UZ-B
Kinderziekenhuis en	UZ-F
Centrum Reproductieve geneeskunde	UZ-F
Oncologie Cyclotron	UZ-D
Pulkiniek	UZ-C
Spoedopvangdienst	UZ-G
UZ Brussel Hospitalisatie	UZ-A

i Congress Building

U Eet- en/of drankgelegheid

P Parking

Bewaking-Permanente [1] 02 477 41 41



Scientific Program

UPDATE in TRAUMA

08.00 – 09.00 : **POSTER TOUR**
Chair: Christian Melot

09.00 – 09.10: **MOT DU PRESIDENT**
Speaker: Said Hachimi-Idrissi

Room: P. Brouwer

09.10 – 10.00 : **KEYNOTE LECTURE**
Chair: Adeline Higuët

- **Trauma in elderly patients**
 - Speaker: Jacques Boddaert

Room: P. Brouwer

10.00 – 10.30 : **PAUSE – CAFÉ**

10.30 – 12.00 : **POSTER SESSION**
Chair session 1: Christian Melot and Ignace Demeyer

Room: P. Brouwer

Chair session 2: Kurt Anseeuw and Franck Verschuren

Room: R. Vandendriessche

12.00 - 13.30 : **LUNCH**
Chair: Said Hachimi-Idrissi

- **Hands-on Trauma:** Lode Blondeel, François Pitance, Sabine Lemoyne, Ronny Swinnen, Erik Christiaens, Xavier Losfeld and Marjolein Mattheij
- **Point of Care Ultrasound** (initiation): Marc Gillis

13.30 – 15.00 : **SIMULTANEOUSLY SESSIONS**
Chair: Marc Vranckx and Said Hachimi-Idrissi

- **Prehospital Immobilisation (cervical collar, spineboard, vacuum).**
 - Speaker: Francois Pitance
- **ED cast immobilization.**
 - Speaker: Michael Beauprez
- **ED « non cast » immobilization (orthosis, dessault, aircast,..).**
 - Speaker: Claude Hautain

Room: P. Brouwer

Chair: Catheline Depuydt and Françoise Steenebruggen

- **Burns**
 - Speaker: Serge Jennes
- **Acute woundcare:**
 - Speaker: Steven Smet
- **Penetrating injuries**
 - Speaker: Bart Vanderheyden

Room: R. Vandendriessche

15.00 – 15.15 : SHORT BREAK

15.15 - 16.45 : SIMULTANEOUSLY SESSIONS

Chair: Philippe Meert and Nicolas Mpotos

- **The emergency physician's toolbox: FAST echo**
 - Speaker: Nico Muller
- **The radiologist's toolbox: X-ray or CT ?**
 - Speaker: Hans Nieboer
- **Getting it all together: Imaging in real life.**
 - Speaker: Etienne Danse, Maximilien Thoma

Room: P. Brouwer

Chair: Koen Monsieurs and Robert Leach

- **Don't lose your next patient: an interactive workshop on team resource management.**
 - Speaker: Erik Franck

Room: R. Vandendriessche

16.45 – 17.00 : SHORT BREAK

17.00 – 17.45 : KEYNOTE LECTURE

Chair: Marc Sabbe

- **Stop the bleeding**
 - Speaker: Peter Verhamme

Room: P. Brouwer

17.45 – 19.00 : GENERAL ASSEMBLY

BeSEDiM: Current status and challenges

Speaker: Said Hachimi-Idrissi and members of the Bureau

BeCEP :”Warm greetings from planet Mars”

Speaker: Jan Stroobants and the members of the Bureau

Room: P. Brouwer

Abstracts Sessions

Place: Poster Tour

Time schedule: 08.00-09.00

Topic: Studies

- Trampoline induced injuries admitted to a Belgian emergency department
S. De Coninck, W. Buylaert, P. De Paepe
- Ocular surface disorders after out-of hospital cardiac arrest: a pilot study
C. Duchatelet, S. Van Nuffel, S. Hachimi-Idrissi
- Lessons learned from the terrorist attacks on March 22, 2016: the experiences of the Brussels Military Burn Center.
L. Bruyninckx, S. Jennes
- A descriptive analysis of a national survey about the use of prophylactic low molecular weight heparin in the ED
L. Mestdagh, E. Verhoeven, I. Hubloue
- Work-stress in emergency medical centre: does the profit of one man the loss of the other?
M. Gabriel, C. Stassart, S. Stipulante, A.M. Etienne, A. Ghuysen
- Efficiency of vagal manoeuvres for supraventricular tachycardia at emergency department
D. Van Olmen, D. De Meirsmen, F. Somville, G. Van der Mieren
- Stem cell therapy for ischemic stroke: from bench to bedside
J. De Pryck, S. Hachimi-Idrissi
- How to perform the care of the acute ophthalmological case coming in A and E ?
E. Thijs, A. Higuët, S. Thijs
- Should we set a limit for total RBC transfusion ?
R. Slappendel, M. Leysen
- Knowledge and Attitudes of Emergency Department Caregivers Regarding Occupational Infectious Risk
O.Revin, A.Simon, F.Verschuren
- Non-invasive ventilation in a pre-hospital and in-hospital setting
J. Van der Mullen, M. Gillis

Abstracts Sessions

Place: Poster Tour

Time schedule: 08.00-09.00

Topic: Case reports

- Sigmoid volvulus: a common cause of abdominal pain in the elderly but presented in adolescents.
K.Haeck, G.Vandermieren, K.Valgaeren, F.Somville
- The use of intravenous baclofen as therapy for the γ -hydroxybutyric acid withdrawal syndrome.
F. Desmet, S. De Winter, M. Sabbe
- Essential oil poisoning in adults: a case report.
T. Desmet, P. De Paepe
- A catch of the eye
P. Verdonck, H. Raemen, K. Monsieurs
- Methemoglobinemia induced by oral ingestion of poppers: a case report.
T. Thomas, A. De Wolf, P. De Paepe, N. Mpotos
- Direct and indirect signs of the rupture of an abdominal aortic aneurysm: caught by ultrasound.
K. Peeters, H. Raemen, K. Monsieurs
- Another horned viper bites the dust?
D. Demaeght, P. Verdonck, K. Monsieurs
- Severe epigastric pain, emesis and increased lipase ... diagnose please!
D. Van Olmen, F. Somville, G. Van der Mieren
- An uncommon case of otalgia
M. Joillet, E. Bakelants, D. De Meirsman, F. Somville, G. Van der Mieren
- Not just a simple food poisoning
N. De Tommaso, P. Stammel, C. Werer, J. Colling, C. Ferretti
- An extraordinary intoxication with white spirit
A. Sturtewagen, S. Bogaerts, C. Vandycke, S. Depuydt
- Abdominal pain and shock? Check the thorax!
E. Bakelants, M. Joillet, D. De Meirsman, F. Somville, G. Van der Mieren
- Acupuncture induced haemopneumothorax
H. Baeten, J. Ball, K. Monsieurs
- The impact of the European migration crisis on the reasoning of an Emergency medicine specialist
S. Golmarvi, A. Meersman, P. Messiaen
- Intracompartmental pressure measurement using a needle and an arterial pressure monitoring device in acute compartment syndrome of the calf
E. Verwulgen, H. Raemen, S. Lemoyne, K. Monsieurs

Abstracts Sessions

Place: Room P. Brouwer

Time schedule: 10.30-12.00

Topic: Trauma

- Overtriage of major trauma patients: a burden for trauma centres?
K. Schoeters, P. Verdonck, S. Lemoyne, K. Monsieurs
- CT overuse in adult traumatic brain injury.
S. Adam, G. van Berlaer, I. Hubloue
- S100 β in ruling out intracranial injury in pediatric mild traumatic brain injury: A meta-analysis
J. De Meyer, S. Hachimi-Idrissi
- Feasibility and reliability of the ultrasound measurement of the optic nerve sheath diameter in an emergency room.
P.A. Rogghe, B. Kerzmann, P.A. Poncelet, F. Verschuren.
- One-year management of fractures of the fifth metacarpal at the emergency department
F. Pieret, X. Libouton, F. Verschuren
- Application of the Ottawa Ankle Rules at a tertiary teaching hospital Emergency Department
N. Eggermont, J. Rottiers, G. Van Berlaer, I. Hubloue
- Ankle distortion and work disability: a comparative study between general practitioners, emergency practitioners and surgeons.
S. Hauglustaine, B. Teuwen, M. Dubois
- Knowledge of risk factors for venous thromboembolisms and the use of low molecular weight heparin in the emergency department.
A. Vandewege, L. Mestdagh, T. Schmitz, E. Verhoeven, I. Hubloue
- Breaking Bad News: the Take five program.
I. Van Cauwenberge, A. Gillet, I. Bragard, A. Ghuysen

Abstracts Sessions

Place: Room R. Vandendriessche

Time Schedule: 10.30-12.00

Topic: Medical

- Adequacy of bystander actions and dispatcher advice in unconscious patients: an audit in the Ghent region
I. Lamote, P. Van de Voorde, P. Calle, B. Deturck, T. Desmedt
- Risk stratification during ED nurse triage for patients with transient loss of consciousness: a pilot study
P. Vanbrabant, L. Hombroux, S. Keunen, N. Gregoire, P. Crijns, S. Verelst
- Elderly patients admitted to the Emergency Department: A 5-year epidemiology study in Liege University Hospital Centre.
J. Jobé, M. Diez, S. Allepaerts, A. Ghuysen
- Emergency admissions for adverse drug reactions related to the use of direct oral anticoagulants and vitamin K antagonists: a prospective study
A.L. Sennesael, A.S. Larock, B. Devalet, V. Mathieux, X. Muschart, O. Dalleur, J.M. Dogné, A. Spinewine, F. Verschuren
- Acute otitis media in children at the Emergency Department: is the guideline being followed?
J. Heuvelmann, E. Versele, G. Van Berlaer, R. Buyl, I. Hubloue
- Blood sampling through systematic peripheral intravenous catheter placement in the Emergency Department: compulsion or reasonable practice?
J. Jobé, A. Mathot, A. Ghuysen
- Lactate and lactate clearance as marker for tissue hypoperfusion: a retrospective observational study
M. Verhaeghe, S. Hachimi-Idrissi
- Hyponatremia at admission in the emergency department: a case - control study
P. Bola Mionga, C. Melot
- Performance of clinical scores and routine laboratory tests as potential biomarkers in the diagnosis of acute appendicitis
C. Iloaie, M. Vranckx

Abstracts Book

Overtriage of major trauma patients: a burden for trauma centres?

K. Schoeters, P. Verdonck, S. Lemoyne, K. Monsieurs

Introduction

Overtriage of major trauma is the subject of growing concern as it can be a burden for trauma centres. This study aims to investigate if our major trauma triage tool performs in accordance with the literature.

Materials and Methods

Observational, retrospective cohort study. Over the period of one year (01/10/2015 - 30/9/2016) all patients for which the major trauma protocol was activated as defined by the major trauma triage tool, were included (n=148). This triage tool consists of a cascade of prehospital physiological criteria, anatomical injuries, mechanism of injury and other risk factors (e.g. age, coagulopathy). Data were retrieved from the trauma register and from electronic patient records. Trauma team activation was evaluated against the Injury Severity Score (ISS) calculated afterwards. Overtriage was defined as the activation of the major trauma protocol for patients with an ISS lower than 15. Values are reported as mean (standard deviation, range).

Results

The calculated mean ISS was 22 (13, 0-57) for the 59 patients triaged by physiological criteria, 15 (9, 0-34) for the 22 patients triaged by anatomical injuries, 11 (10, 0-41) for the 57 patients triaged by mechanism of injury and 8 (8, 0-24) for the 10 patients triaged by other risk factors. Patients triaged by physiological criteria had a higher ISS score than patients triaged by the other categories (P=0.002). The overtriage rate was 31% when physiological criteria were used, 55% for anatomical injuries criteria, 67% for mechanism of injury criteria and 80% for other risk factors criteria. The overall overtriage rate was 50%. Eliminating mechanism of injury or other risk factors as trauma protocol activation triggers would result in an unacceptable undertriage rate of 33% and 20% respectively.

Discussion

The literature suggests that an overtriage rate up to 50% is acceptable. Our major trauma triage tool meets that standard. An important reason to accept overtriage is to reduce undertriage as this can be harmful. It is, however, important to prevent excessive resource utilisation in trauma patients who are not critically injured. The criteria mechanism of injury and other risk factors turn out to be less specific predictors for major trauma, as already shown in the literature, and account for the highest rate of overtriage.

Conclusion

The use of our major trauma triage protocol based on a cascade of physiological criteria, anatomical injuries, mechanism of injury and other risk factors leads to an overtriage rate of 50%, which is acceptable according to recent literature. Introducing a trauma protocol activation with selective resource and trauma team response activation based on different triage criteria may reduce the use of resources for major trauma care.

CT overuse in adult traumatic brain injury.

S. Adam, G. van Berlaer, I. Hubloue

Introduction

Several studies suggest that about one third of the performed computed tomography imaging (CT) of the head in traumatic brain injury (TBI) could be avoided by correctly applying current validated clinical decision rules. Considering that annually in the United States about 1.36 million TBI patients are treated in emergency departments (ED) of whom 1 million receive CT imaging, a substantial reduction of unnecessary costs and exposure to ionizing radiation could be obtained. This study aimed to evaluate the rate of this overuse in a Belgian ED by implementing the 4 most commonly applied guidelines for the use of CT in TBI on a population that received CT imaging for any type of TBI. We investigated the 'Canadian CT Head Rules' (CCHR), 'New Orleans Criteria' (NOC), 'American College of Emergency Physicians Clinical Policy' guideline (ACEP), and the 'National Clinical Guidelines Center' guideline (NICE).

Materials and Methods

By means of a prospectively designed observational sample study, we included 186 adult patients who received CT imaging of the head after sustaining any type of TBI at the ED of a tertiary teaching hospital in Belgium.

Results

A total of 30 patients (16.1%) had intracranial lesions on CT, 31 (17.6%) were admitted for neurological observation, 1 person died because of the sustained TBI and 4 persons needed surgical intervention for orbital fractures. The CCHR could be applied in 81 patients of whom in 52 (64.2%) a scan was advised by the guideline. The NOC could be applied in 76 patients and in 69 (90.8%) a scan was indicated. When applying the NICE (which has no exclusion criteria) a scan was recommended in 75 of the 186 cases (40.3%). Finally, ACEP was applicable in 176 patients of whom in 153 cases (87.0%) a CT scan was advised.

Discussion and Conclusions

This study confirms the internationally described significant overuse of CT head imaging in TBI in a Belgian ED. The extent of the possible reduction of CT use depends on which guideline is applied. A 60% reduction could be obtained by implementing the NICE, a 36% by using the CCHR (confirming most studies), and about 10% when applying the NOC or ACEP. Further research about strategies to decrease CT overuse and successful implementation of clinical decision rules in TBI is necessary.

S100 β in ruling out intracranial injury in pediatric mild traumatic brain injury: A meta-analysis

J. De Meyer, S. Hachimi-Idrissi

Background

The diagnosis of intracranial injury (ICI) in mild traumatic brain injury (mTBI) in children is currently based on Cranial Computed Tomography (CCT) and/or observation of the patient. Because of the radiation risk and the need for sedation, CCT may not be an appropriate tool. Biomarkers however, may be an alternative diagnostic tool. Research of the use of S100 β in adults seems to be promising to rule out ICI after mTBI.

We performed a meta-analysis to assess the predictive value of S100 β in mTBI (GCS 13-15) in children (<18y).

Methods

Literature search of the published data between January 1995 and August 2016 were analysed. No restriction was applied for study design, however only primary studies were used.

Any original study combining the following criteria was considered eligible:

- The study population includes children <18 years of age
- Biomarker S100 β is analyzed
- The study includes patients with mTBI
- The target condition is defined as any ICI confirmed by CT or MRI scan
- The study made a clear distinction in the severity of traumatic brain injury

Exclusion criteria were defined as:

- Study populations that included patients >18 years
- Studies that only analyze S100 β in children without traumatic brain injury
- Studies where no sufficient information was provided about the severity of traumatic brain injury
- Studies where there was no clear distinction between mTBI and more severe cases.

Results

Three articles were included for the meta-analysis. The majority of the studies were rejected because of the lack of the inclusion/exclusion criteria. All the studies were prospective.

The study population varied from 65 to 109 patients in which CCT was performed.

The pooled sensitivity for S100 β was 99% (95% CI: 93-100%); the pooled specificity was 38% (95%CI: 30-45%). The positive likelihood ratio was 1,55 (95% CI: 1,37 – 1,75) and the negative likelihood ratio was 0,08 (95%CI: 0,02 – 0,32).

Discussion

Because of the limited amount of the study focusing on the mTBI in children as well as the variability of definition of mTBI used in different studies, a clear decision could not be made. In addition, the study population was limited in most studies; therefore underpowered the results.

Conclusion

S100 β may be a good tool in ruling out ICI when used in addition to anamnestic and clinical findings., but more large studies are needed to validate the results if this meta analysis.

Feasibility and reliability of the ultrasound measurement of the optic nerve sheath diameter in an emergency room.

P.A. Rogghe, B. Kerzmann, P.A. Poncelet, F. Verschuren.

Introduction

The ultrasound measurement examination of the optic nerve sheath diameter (ONSD) has been previously developed as a potential clinical bedside tool for intracranial pressure assessment. We wished to evaluate the feasibility of this measurement in an emergency daily practice, and its reliability by comparison with a gold-standard CT-scan.

Materials and Methods

Inclusion criteria were adult patients, with any acute neurological impairment. The ultrasound measurement of ONSD was done by an emergency physician, the CT scan measurement done by a radiologist.

Accuracy and precision of echographic measurements have been assessed by the graphical representation of Bland and Altman.

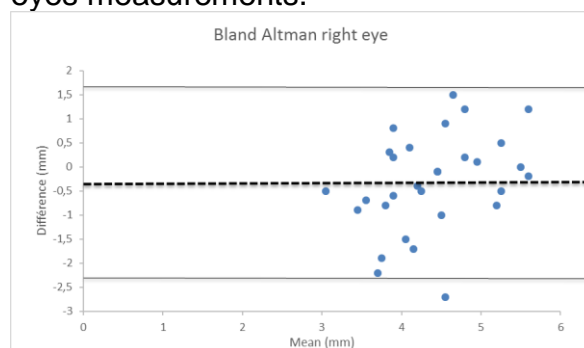
Results

30 patients were included, with a sex-ratio of 1 and a mean age of 64 years. 15 patients presented a normal cerebral CT and a median Glasgow Coma Scale (GCS) of 15, while 15 patients presented an abnormal CT (cerebral bleeding in majority) and a median GCS of 14 (unilateral $p = 0.03$). CT ONSD measurements were similar between normal and abnormal CT results ($p = 0.87$).

Mean ONSD were 4.2mm (2.6 to 7.3) with echography and 4.5mm (3 to 6.4) with CT.

Adequate measurements were possible in 100% of the patients both for the left eye and the right. The mean time of the echographic procedure was 3.21min.

The Bland and Altman graphical representation (see figure) confirmed a systematic error of -0.3 mm between echo and CT measurement (dark dotted line) surrounded by a limit of precision from -2.3 to 1.7 mm (thin lines). There was no difference between left and right eyes measurements.



Discussion and conclusion

The echographic measurement of the ONSD is a promising approach in the initial evaluation of the neurologic patient. The feasibility of the technique is excellent and confirmed by our study.

However, the limit of precision between echo and CT measurements extends from -2.3 and 1.7 mm, for mean ONSD values around 3 to 6mm, therefore limiting the current application of this technique in emergency situations.

One-year management of fractures of the fifth metacarpal at the emergency department

F. Pieret, X. Libouton, F. Verschuren

Introduction

Fractures of the fifth metacarpal comprise approximately 20% of all hand fractures. This injury is frequently the result of direct trauma of the clenched fist against a solid object, with the metacarpal neck as an anatomical weakness point. We evaluated our clinical practice guidelines based on a collaboration between orthopedic surgeons and emergency physicians.

Method

We previously established local clinical practice guidelines detailing our management of acute fractures of the fifth metacarpal: the indication and practice of the reduction of metacarpal shaft fractures and the indications for a surgical intervention. We retrospectively analyzed the files of patients admitted to the emergency department with fifth metacarpal fractures during 12 months in 2015.

Results:

Fifty-eight patients with a fifth metacarpal fracture (approximately one patient a week or 1 in 1000 admitted patients) presented to the emergency department. Most patients were males (76%) and when female were older in age (49 versus 32 years old). The typical mechanism of a "boxer's fracture" was withheld in only 36% of the cases.

We confirmed that fractures of the metacarpal neck were the most frequent (47%). Seventeen patients (29 %) were reduced under local anesthesia. The presence of an angulation larger than 35 degrees justified a reduction in this group of 17 patients, but 12 other patients with similar angulations were not treated by reduction. Primary surgery was indicated (emergency department) in 3 patients and secondary surgery (consultation orthopedic surgery) in 3 other patients. The only variable statistically associated with surgery was the initial localization of the fracture at the base of the bone (p value of 0,013 by Chi-squared analysis). The clinical observation of fracture rotation was weakly reported in the medical file (36%) despite of its critical challenge for a surgical decision.

Discussion and conclusions

We confirm the frequent nature of fifth metacarpal fractures and the theoretical indication of reduction in 50% of the patients when angulation exceeds 35 degrees. In 21% of the cases a reduction in the emergency department was not performed. This confirms the importance of education and training for reducing fifth metacarpal fractures by emergency physicians, and the collaboration with orthopedic surgeons for an optimal follow-up.

Application of the Ottawa Ankle Rules at a tertiary teaching hospital Emergency Department

N. Eggermont, J. Rottiers, G. Van Berlaer, I. Hubloue

Introduction

The Ottawa Ankle Rules (OAR) were developed in '92 as clinical decision rules to help rule out significant ankle and midfoot fractures in blunt ankle trauma. While the rules have been extensively validated, few data exist on their actual uptake. In our emergency department (ED) patients are seen by a physician at triage, who determines the need for imaging, and subsequently seen by another physician at trauma care (TC). The aim of this research was to determine whether the rules are correctly applied and followed in a tertiary teaching hospital.

Materials and Methods

In a retrospective descriptive sample study, electronic health records of all patients aged above five presenting to the ED with blunt ankle trauma in 2015 were analysed to determine application of the OAR at triage, imaging use, discordance between physical examination at triage versus TC and fracture rate. We further examined the following factors as potential predictors of OAR application and imaging use: time of day, physician experience, trauma mechanism, referral, work injury, previous ankle trauma, other injury, gender, age and patients saying they are non weight bearing (NWB) regardless of clinical exam.

Results

A total of 1370 patients presented to the ED with blunt ankle trauma. The OAR were applicable in 1226 cases. Median age was 26 (range 6-99), 789 (64,4%) were male, 437 (35,6%) female and 75 (6,1%) were referred. Most had a twisting injury (n=1080), followed by direct trauma (n=73), falls (n=35) and motor vehicle accidents (n=13).

Overall 1100 (89,7%) patients got imaging and 358 (29,2%) had a clinically significant fracture. The OAR were applied at triage in 760 (62%) of cases; of which 164 (21,6%) were negative, 589 (77,5%) positive and 7 (0,9%) applied incorrectly. In the negative group 24 patients still got imaging.

In 466 patients (38%) the OAR were not applied at triage. Of these, 432 (92,7%) got imaging, while in 135 (29%) cases the OAR were negative at TC.

Discordance between clinical exam at triage and TC was 14,5%. Of the patients with OAR- at triage, 22 (13,5%) were OAR+ at TC but none had a fracture. Of the patients with OAR+ at triage, 68 (11,5%) were OAR- at TC with one clinically significant fracture.

Previous ankle trauma was the only risk factor significantly associated with imaging in OAR- cases. Risk factors for non-application of the OAR at triage were age >65yrs, motor vehicle accidents, other injury, senior staff and referral. Risk factors for imaging in general were OAR+ and NWB.

Discussion and Conclusions

While the OAR were developed decades ago and validated extensively, still much room is left for their application. In more than one-third of cases the OAR were not applied at triage. Education and training of physicians around the OAR could increase implementation. More research is needed to understand the inter-observer discrepancy between triage and trauma care.

Ankle distortion and work disability: a comparative study between general practitioners, emergency practitioners and surgeons.

S. Hauglustaine, B. Teuwen, M. Dubois

Introduction

Ankle distortion is a common pathology in the emergency department, giving rise to work disability. In Belgium, there are no guidelines for the prescription of work disability after an ankle distortion. This retrospective study focusses on ongoing behaviour of Belgian Physicians concerning prescription of work disability after ankle distortion.

Methods

Out of a set of 124497 attestations of work disability, prescribed between 1st of July 2015 and 30th of June 2016, attests with the diagnosis of ankle distortion according to ICD-10 codes S93.409, S93.609 and S93.919 were selected. After excluding the attests for ability extension or relapse, the 330 remaining attests were coupled with the assurance code (ZIV-code) of the prescribing medical discipline. Besides a general study of the prescription behaviour, three groups of disciplines were compared, as there are the general practitioners (n=214) (codes 0, 1, 3, 4, 5, 6 and 9) (GP), the emergency practitioners (n=52) (codes 80, 90, 800, 900 and the codes ending on 9) (EP) and finally the group of surgeons and the orthopaedic surgeons (n=37) (codes 14, 58, 140 and 580) (SOS). A student t-test for unpaired samples was used to test the hypothesis of no difference in prescription behaviour between the three defined groups.

Results

The mean work disability prescribed on a first disability attest is 8,21 days (SD 8,5135). The SOS-group doubles this disability period with a mean of 16,85 days (SD 19,6086). The prescribing behaviour of GP-group (mean 7,08 days, SD 6,2874) and the EP-group (mean 7,98 days, SD 4,5846) are mostly similar.

There is no statistical significant difference in the prescription behaviour between the GP- and EP-group ($p = 0.2464$), while the prescription behaviour of the SOS-group significantly ($p < 0.05$) differs from the GP-group ($p = 0.0117$) and the EP-group ($p = 0.0270$).

Discussion and conclusion

EP- and GP-group have a comparable work disability prescribing behaviour, while the SOS-group prescribes significantly longer work disability after an ankle distortion. Possible reason for this difference is the immobility during and after casting, mostly chosen as therapy by the SOS-group. Regarding clinical evidence that early mobilisation with an external support device is more beneficial than casting, casting seems to be likely beneficial during the first 7-10 days.

The big variance of prescription behaviour in most study groups emphasizes the need for prescription guidelines in Belgium. A reference to French and American guidelines, who take the patients work load in account, is a possibility.

Knowledge of risk factors for venous thromboembolisms and the use of low molecular weight heparin in the emergency department.

A. Vandewege, L. Mestdagh, T. Schmitz, E. Verhoeven, I. Hubloue

Introduction

Low molecular weight heparins (LMWH) are commonly prescribed in the emergency department (ED). Not prescribing LMWH for patients with lower limb immobilization (LLI) and at risk for venous thromboembolic events (VTE) can be life-threatening. The incidence of VTE in patients with LLI is estimated between 5 - 39%. The known risk factors for VTE are easily misinterpreted we noticed in our department.

Materials and methods

Participants were asked about their prescribing behavior: the influence of risk factors for VTE, the level of evidence and the need for dose reduction in patients with renal failure. Ethical committee was obtained and an online questionnaire was created.

Results

100 questionnaires were filled out by physicians, both attendings (70%) and residents (30%), working at EDs. 88% of the respondents does not differentiate immobilization of grade III distortions from fractures when prescribing LMWH and 16% indicates being influenced by the type of immobilization (splint versus circular cast). Withholding treatment in patients with known risk factors, other than the immobilization itself, was seen for known risk factors: hormonal therapy (34%), history (11%) and pregnancy (20%). Of the respondents 80% recognized that BMI is a risk factor. 48% wrongly indicated being influenced by the patient's gender in their decision and 2% indicated using the age of 60 or higher as the cut-off for prescribing LMWH. Renal insufficiency was not taken into account in 21% of the responders.

Discussion

It is important to only initiate VTE-prophylaxis in patients where benefits outweigh the possible risks.

Based on the results of our multi-center survey, we can conclude that a lot of physicians aren't familiar with the correct use of LMWH in the ED. It seems that the role of gender and age is not well known. More surprisingly, more than half of the respondents does not consider LLI itself as risk factor. In contrast, depending on the risk factor, one tenth to one third of the physicians would not prescribe LMWH even though the patient has a proven risk factor for VTE. Dose reduction is an important issue in patients with severe renal insufficiency and is apparently easily forgotten.

Conclusion

Even though there is extensive research available about the risk factors for development of VTE, a lot of physicians seem to be having difficulties identifying patients at increased risk. In addition, most research available about the subject is not applicable on the population encountered in the ED.

The decision pathway is not difficult so flowcharts could easily be created to limit the possibility of errors in interpretation of the risk factors. Further research is planned based on the results of this research, an international multi-center study is planned to follow this national enquiry.

Breaking Bad News: the Take five program.

I. Van Cauwenberge, A. Gillet, I. Bragard, A. Ghuysen

Introduction

For years, bad news delivery's impact on patients or their relatives, as well as physicians' stress has been a major concern. Based on studies claiming the efficacy of training courses to help physicians delivering such news, many protocols, like SPIKES, BREAKS or SHARE, have emerged worldwide. However, training to such protocol might be time-consuming and not suitable with junior doctors or trainees' turnover. We hypothesised that a standardized 5-hours training program could improve bad news delivery practice.

Participants and methods

This preliminary study was conducted in the ED of a tertiary care academic hospital accounting for 90000 ED census per year, 16 attending physicians, 10 junior residents, and 5 trainees per month. Data were collected between November 2015 and April 2016. The study included 3 phases over 4 weeks. Video recorded single role-playing sessions happened the 1st (T1) and the 4th (T3) weeks. A 3-hour theory lesson happened the second week (T2), introducing the basics of therapeutic communication and delivering bad news. Each role-playing session lasted almost 1 hour (10 minutes briefing and medical case reading, 10 minutes role-plays and 40 minutes group debriefing). Bad news delivery performance was evaluated by a 14-points retrospective assessment tool. We collected data about the status and impact of a stressful event at 3-days using the French version of the IES-R scale. We applied Student t-tests for statistical analysis.

Results

14 volunteers (10 trainees and 4 junior emergency physicians) were included in the study. On average, bad-news delivery process took 9'45" at T1 and 10'20" at T3. From T1 to T3, bad-news delivery performance increased significantly for both junior emergency physicians and trainees ($p=0.0003$ and $p=0.0006$, respectively). Further analysis revealed that most relevant increases involved the "situation" ($p<0.001$), "presentation" ($p=0.009$), "knowledge" ($p=0.037$), "emotions" ($p=0.01$) and "summary" ($p=0.001$) steps. We also found a significant decrease of the impact of bad-news delivery on trainee physicians' stress ($p=0.006$).

Discussion and conclusion

These preliminary results indicate some potential for this new standardized course of bad news delivery. Apart from allowing physicians increase their communications skills, we believe that this simple 5-hour simulation-training program could alleviate physicians' stress when they happen to break bad news.

Adequacy of bystander actions and dispatcher advice in unconscious patients: an audit in the Ghent region

I. Lamote, P. Van de Voorde, P. Calle, B. Deturck, T. Desmedt

Introduction

Adequate preventive measures and early cardiopulmonary resuscitation by bystander(s) when needed have a clear positive impact on outcome. It is therefore of the utmost importance to try and improve the quality of these actions and likewise the advice given by the EMS dispatcher. With the current study we wanted to identify the current level of adequacy of bystander actions and dispatcher instructions for those patients most needing it (those with possible cardiorespiratory arrest).

Materials and Methods

We collected data in a prospective cohort (June 2014-June 2015) of unconscious patients (GCS<8 before or at the moment of EMS call) from a single tertiary referral hospital and its pre-hospital physician-based EMS team. All cases (n=151) were then evaluated by 3 trained emergency physicians [PVDV, PC, IL], according to certain pre-defined rules, using an adapted Delphi method. Points of suboptimal support ('defaults') in the initial parts of the 'chain of survival' were only withheld if there was 100% consensus between the reviewers.

Results

The reviewers recognised defaults in 54 cases (35.8%) related to the bystander actions before first EMS call. More than half of these defaults were related to 'delayed alerting of the EMS services' (n=33; 21,9%). For subsequent dispatcher advice, clear defaults were identified in 24 cases (15.9%). However in an additional 11 cases (7.3%) the dispatcher did not give advice because the caller was not with the victim but made no further effort to get in contact with the victim or his/her immediate surroundings. The reviewers also indicated these 11 cases as potentially suboptimal. Finally, and importantly, the given advice was not or incorrectly followed by the bystander in as much as 60 cases (39.7%). Actions by bystanders after the EMS call, not related to the given advice (e.g. medications given by a general practitioner etc.) are beyond the scope of the current audit.

Conclusions

We audited the course of action during the first part of the chain of survival in patients with decreased consciousness. We identified many opportunities for improvement, especially in the early recognition and alarming of the EMS services. Healthcare workers and policy makers should reflect on appropriate measures to optimise these first parts of the chain of survival as this might have an important impact on patient's outcome.

Risk stratification during ED nurse triage for patients with transient loss of consciousness: a pilot study

P. Vanbrabant, L. Hombroux, S. Keunen, N. Gregoire, P. Crijns, S. Verelst

Introduction:

Our emergency department (ED) uses the Emergency Severity Index score to triage patients in order to allow early treatment for urgent/emergency cases. This triage system is not well suited for patients presenting with transient loss of consciousness (TLOC). Although often benign, TLOC can be caused by life-threatening disease. Several risk stratification tools have been developed but accuracy is disappointing. Furthermore, most risk tools include laboratory results and ECG what makes them less suitable for nurse triage relying on a short history and mainly on vital signs. We developed a simple risk stratification tool to be used by the nurse in ED triage.

Methods:

Patients aged >16 years old with TLOC were included. Exclusion criteria were: ABC unstable patients. Patients at risk for serious outcome after TLOC were defined as patients with palpitations before TLOC, TLOC during physical effort or when lying down, known cardiac history or family history or sudden death at an age < 40 years old.

Outcome measure: Predefined serious outcome until hospital discharge: death, acute coronary syndrome, (new) abnormal ECG, arrhythmia, stroke/intracranial hemorrhage (ICH), aortic aneurysm, structural heart disease, significant bleeding (needing PC transfusion), anemia (Hb <7,5 g/dl), readmission <48 Hr. post discharge, need for acute intervention.

Results:

During a period of 5 months 55 patients were evaluated during nurse triage in the ED. Median age was 63 years (range 17-92). F/M ratio was 1,75/1. Serious outcome was detected in 9 patients (16,3%). Serious outcome consisted of bradyarrhythmias (needing PM implantation) (n=2), tachyarrhythmia (AVNRT) (treated with ablation) (n= 2), de novo atrial fibrillation (n=1), pulmonary embolism (n=1), hypokalemia (n=1), ICD implantation (dilated cardiomyopathy) (n=1) and ICH (n=1). Sensitivity and specificity of the risk tool for serious outcome were 55,6 % (95% CI 21,2- 86,3) and 69,6 (95% CI 54,3- 82,3) respectively. The positive and negative predictive value were 26.3% (95% CI 9,2- 51,2) and 88,9% (95% CI 73,9- 96,9) respectively.

Conclusion:

Our pilot study suggests that a simple risk stratification tool using 4 questions can be useful during ED nurse triage, especially to detect low risk patients (high negative predictive value).

Elderly patients admitted to the Emergency Department: A 5-year epidemiology study in Liege University Hospital Centre.

J. Jobé, M. Diez, S. Allepaerts, A. Ghuysen

Introduction

With the increase in life expectancy, aging of the population is a well known phenomenon in western countries. These elderly patients often present acute exacerbation of chronic poly-pathological conditions, representing a specific challenge for the emergency physician. The knowledge of the epidemiologic particularities of these patients could offer interesting perspective in a better understanding of the specific issues of these patients.

Material and methods

This was a 6-year retrospective study including every patients > 75-year-old admitted in the emergency department (ED) of a University Hospital Centre, from January 2009 to December 2014. The epidemiologic data were extracted from electronic medical data files and further analysed.

Results

During the study period, 24564 patients > 75-year-old were admitted to our department (representing 9.8% of overall admissions). Most of these patients (82.9%) came directly from their home and 44.1% on their own initiative. Only 27.6% of these patients were referred by their general practitioner. The annual increase in the admission rate was 3.01%, while it was 2.19% for the global population (Figure 1).

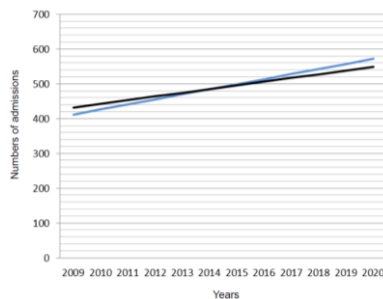


Fig 1

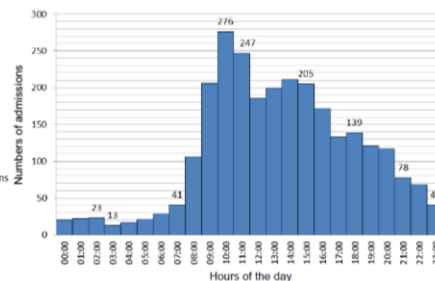
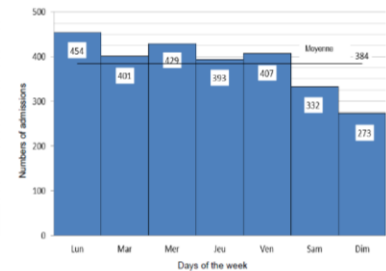


Fig 2



The timing of the admission reveal that elderly patients essentially consult the ED during the day and mostly during working days, as we can see on figure 2.

Conclusion

We demonstrate that the increase in elderly patients' admissions in the ED is greater than the global population. Surprisingly, these patients are mainly self-referring patients, consulting at daytime during working days.

Therefore, we believe that collaboration between EDs and geriatric departments should be reinforced during this period in order to identify patients meeting weakening criteria.

Emergency admissions for adverse drug reactions related to the use of direct oral anticoagulants and vitamin K antagonists: a prospective study

A.L. Sennesael, A.S. Larock, B. Devalet, V. Mathieux, X. Muschart, O. Dalleur, J.M. Dogné, A. Spinewine, F. Verschuren

Introduction

Direct oral anticoagulants (DOAC) were developed to address the drawbacks of vitamin K antagonists (VKA). However, current data suggest that ensuring appropriate and safe use of DOAC remains challenging. This study aimed to describe the nature, management and clinical outcome of adverse drug reactions (ADR) related to the use of DOAC and VKA.

Methods

We performed a secondary analysis of a prospective observational study conducted in the emergency departments of two teaching hospitals to determine the preventability of ADR related to the use of oral anticoagulants. Patients admitted from July 2015 to January 2016 with a thrombotic or bleeding event while under DOAC or VKA were included in a 1:1 sample. Data were collected on admission, at discharge and 3 months after admission. Causality and seriousness of ADR were assessed using pilot-tested scales. The study was approved by the Ethics Committees. Written informed consent was obtained from each patient.

Results

Amongst 2536 patients admitted with bleeding or thrombotic events, 274 were taking oral anticoagulants. The analysis included 46 DOAC- and 43 VKA-treated patients (median age 79 years, 54% male). Rivaroxaban (n=29) and acenocoumarol (n=40) were the most prescribed DOAC and VKA respectively. We observed 70 bleeding events, mainly gastrointestinal (n=44) and intracranial (n=16) bleedings. The table confirms that sites of bleedings were similar between DOAC and VKA (p=0.27 by homogeneity Chi-square test). We observed 19 thromboembolic events, mostly ischemic strokes (n=10). Thirty-eight and 41 adverse events were considered as serious ADRs for DOAC and VKA respectively. Emergency management required similar red blood cells transfusions (11 patients under DOAC and 12 under VKA). Prothrombin Complex Concentrates were used in 10 VKA patients and 4 DOAC patients. Mean duration of hospitalization was 7 ± 9 days for DOAC and 12 ± 19 days for VKA. At 90 days, mortality was 7% for DOAC and 14% for VKA.

Table: characteristics of adverse events

	TOTAL (N=89)	DOAC (N=46)	VKA (N=43)
Bleeding events (n [%])			
Upper GI bleeding	21 [24]	11 [24]	10 [23]
Lower GI bleeding	13 [15]	10 [22]	3 [7]
Intracranial bleeding	16 [18]	9 [20]	7 [16]
Hematoma	12 [13]	4 [9]	8 [19]
Hematuria	10 [11]	4 [9]	6 [14]
Epistaxis	3 [3]	2 [4]	1 [2]
Thromboembolic events (n [%])			
Ischemic stroke	10 [11]	6 [13]	4 [9]
Transient Ischemic Attack	3 [3]	1 [2]	2 [5]
Systemic embolism	3 [3]	2 [4]	1 [2]
DVT/PE	3 [3]	1 [2]	2 [5]

DVT: deep vein thrombosis, GI: gastro-intestinal, PE: pulmonary embolism

Discussion and Conclusions

Despite well-known advantages for the current prescription of DOAC, and despite their safer profile, the reality of ADR facing the emergency physicians seems to remain similar between DOAC and VKA. In this study, DOAC-related ADR were associated with more favourable outcomes.

Acute otitis media in children at the Emergency Department: is the guideline being followed?

J. Heuvelmann, E. Versele, G. Van Berlaer, R. Buyl, I. Hubloue

Introduction

The Belgian guideline for treatment of acute otitis media (AOM) in children - one of the most frequent infections - does not recommend systemic antibiotics (ABs), except in clearly defined cases (Grade 1A). The guideline additionally allows using delayed AB prescriptions. If treatment is started, amoxicillin should be the first choice (Grade 1B). Poor guideline adherence has been reported before.

Our aim is to analyse adherence to the guideline in a paediatric emergency department (PED) in a tertiary teaching hospital.

Materials and Methods

In a retrospective descriptive sample study, electronic health records of paediatric patients who presented in 2015 and were diagnosed AOM, were analysed regarding age, gender, diagnoses and AB use.

Results

Of 17698 patients that presented to the PED, 875 were diagnosed with AOM as primary or secondary diagnosis, and after exclusion of patients already AB treated, 773 children were included.

Median age was 2 years (range 0–15), and 436 (56%) were girls.

Primary diagnosis was AOM (73%), cold (16%), pneumonia (4%), tonsillitis (3%), and other (5%).

We identified 297 patients (38%) for whom ABs were recommended: 27 (9%) because they were < 6 months old; 140 (47%) because they were 6 to 24 months old and had severe symptoms, complications (mastoiditis, meningitis), or were not improving within 48 hours of the diagnosis; and 130 (44%) because they were >2 years old and had severe symptoms, complications, no improvement within 72 hours, or relapsing within 12 months. Regardless of their age, high risk patients and children with persistent otorrhoea are also recommended to be treated with ABs.

Considering adherence to the guideline: of the 297 children for whom ABs were recommended, 216 (73%) were indeed treated (3 received a delayed prescription), but 81 (27%) were not. For 476 children ABs were not recommended, yet 125 (26%) were started on AB (18 received a delayed prescription). Overall, the guideline was not followed in 206 of the 773 patients (27%).

The guideline was most often violated in the group of 6 to 24 months old (31%) than in both other groups of <6 months old and >2 years old (respectively 26% and 19%).

When AB were administered (n=341) the guideline (proposing amoxicillin) was followed in 310 cases (91%); 29 (8%) received amoxicillin/clavulanate, and 1 (0.3%) received macrolides.

As supporting treatment, 404 children (52%) received local drops containing antibiotics, 311 (40%) received local nasal decongestives, 252 (32%) analgetic eardrops, and 252 (32%) local corticosteroids. The majority (n=632; 82%) received additional oral analgesia.

Discussion and Conclusions

The Belgian guideline for AB treatment in paediatric AOM patients is followed in the majority of cases, but improvement is still possible by means of teaching. The majority of physicians at the PED treat AOM with the recommended antibiotic drug.

Blood sampling through systematic peripheral intravenous catheter placement in the Emergency Department: compulsion or reasonable practice?

J. Jobé, A. Mathot, A. Ghuysen

Introduction:

In many emergency department (ED) intravenous peripheral catheters are systematically inserted as soon as incoming patients need blood samples. The rationale beyond such routine lies in the assumption that such catheters might further be useful to give any medications (like painkiller, contrast...) and represent a safety precaution in case of unexpected critical conditions. However, several catheters are never used, particularly in low acuity patients, generating pain, discomfort or complications, unnecessarily. The aim of the present study was to retrospectively evaluate to what extent such misplacement might occur in an ED of a University Hospital.

Methods:

This was a retrospective study conducted in an University hospital ED, from September, to November, 2015. All incoming patients with an triage scale level 3 to 4 categorization were included. A systematic random sampling method was applied to this study population; the sample size was determined in accordance with previous reported data estimating the proportion of the unused catheters in emergencies between 34 and 56%. Therefore, a proportion of 0,5 with 0,02 acuity degree was used, allowing the optimisation of the sample size and its representativeness.

We evaluated the occurrence of catheters being inserted for blood sample simple only, but no further use and tried to identify predicting factors associated with such misuses.

Results:

During the study period, 1679 patients were included in the study, of whom, 1629 (97%) underwent peripheral intravenous catheterization for blood sampling at the admission. In this population, 982 (60%) patients benefited from a useful catheter, while 647 (40 %) remained unused. Isolated uro-genital complains with a pain score < 5/10, or self referring patients < 49 year-old, no fever and a pain score < 5/10 were identified as accurate predictors for catheter placement futility.

Conclusion:

As previously reported, most peripheral intravenous catheters systematically inserted in the ED of an University Hospital Centre for low acuity patients remained unused. This significant rate prompted the identification of predictors for such malpractice.

The impact of evidenced based recommendations as concerns the indication for peripheral vein catheterisation in the ED should be further evaluated.

Lactate and lactate clearance as marker for tissue hypoperfusion: a retrospective observational study

M. Verhaeghe, S. Hachimi-Idrissi

Introduction

In patients with shock, monitoring of vital signs can be insufficient to determine the severity and the response to treatment. Lactate concentration (L) and lactate clearance (LC) might be more sensitive than vital signs to detect the severity of shock as well as the response to treatment. The purpose of this study is to analyze whether the L and LC correlate with the outcome of severe ill patients with different types of shock. We wondered if there is a correlation between the L/LC and the treatment. In-hospital mortality is the primary outcome.

Methodology

A 3.5-year single-center retrospective observational study at the University Hospital of Ghent, Belgium. Patients, 18 years of age or older, admitted to the ED from 1/1/12 until 30/6/15, diagnosed with shock were included in this study. Patient's characteristics, vital signs, Ls and other blood test results, therapeutic interventions and outcome were collected. The 3-hour and 6-hour LC were calculated. Univariate and multivariable statistical tests were performed to examine the relation between the initial L/LC and the in-hospital mortality, total mortality, length of stay (LOS), LOS at the ICU and the therapy (fluids, mechanical ventilation, blood products, vasopressors). The optimal cut-off point of the LC to predict the mortality was calculated. (SPSS 2016, $P < 0.05$ statistically significant).

Results

347 patients met the inclusion criteria. 133 patients were excluded, 214 retained for further statistical analysis. In general, the initial L and the 6-hour LC are statistically significantly associated with the in-hospital mortality and the total mortality. The higher the initial L and the lower the LC, the higher the possibility of mortality in the hospital or within 6 months. In hypovolemic and cardiogenic shock, only the initial L is predictive for the mortality. Blood pressure and heart rate are not correlated with mortality. The higher the initial L and the lower the 6-hour LC, the longer the LOS at ICU and the total LOS. A partial relation between the initial L/LC and the required therapy is found. The optimal cut-off for the 6-hour LC is 38%. Patients with a 6-hour LC $> 38\%$ had a significantly higher chance of survival.

Discussion

Because of the significant relation between the L/6-hour LC and the outcome, clinicians can use L and the 6-hour LC to identify patients at high risk of poor outcome. They are useful and clinical obtainable markers of tissue hypoxia and disease severity. This study showed a partial relation between the initial L/LC and the required therapy, which is confirmed by other research. The optimal cut-off point of 6-hour LC in our study is 38%. In literature, there is a great variability in the LC's optimal cut-off point and its optimal time interval to predict the survival.

Hypernatremia at admission in the emergency department: a case - control study

P. Bola Mionga, C. Melot

Background

Blood electrolytes are a part of the routine blood sampling in clinical medicine. Hypernatremia is often overlooked despite the fact it is associated with increased mortality and morbidity rates. Except for few rare causes, hypernatremia is found in specific conditions. The purpose of our study is to determine the incidence of hypernatremia, as well as to evidence the clinical signs and mortality associated with hypernatremia in patients admitted to the emergency department (ED).

Materials and Methods

After the agreement of the medical ethics committee of our institution, we realized a retrospective case-control study over the 2013 year. We collected all patients with hypernatremia ($\text{Na} > 145 \text{ mmol/L}$) admitted in the ED during one year. For each diseased patient (case), we selected a normonatremic ($\text{Na} 135 - 145 \text{ mmol/l}$) patient (control) admitted during the same week with identical age and gender. The statistical analysis consisted in a conditional univariable and multivariable logistic regression. Results were presented in odds ratio with 95% confidence interval [OR (95%CI)]. A $p < 0.05$ was considered significant.

Results

159 patients were included (1.3% of all measured Na blood level). In hypernatremic patients, we found that there were more patients residing in nursing homes or other institutions ($p < 0.0001$ OR 8.80 [3.52 – 22.02]), more patients presenting with dementia ($p < 0.0001$ OR 4.40 [2.21 – 8.74]), more dependent patients ($p = 0.0003$ OR 5.00 [2.08 – 12.01]), as well as more patients presenting for/with alcohol abuse ($p = 0.0012$ OR 7.33 [2.20 – 24.42]). We also observed more frequent urinary complications ($p = 0.0029$ OR 9.00 [2.12 – 38.27]), and a higher mortality rate ($p = 0.0058$ OR 3.29 [1.41 – 7.65]) in the hypernatremic group. Multivariable conditional logistical regression demonstrated that institutionalization and alcohol abuse were independent factors associated with hypernatremia (respectively, $p = 0.0005$ OR 12.72 [3.03 - 53.47]) and $p = 0.0047$ OR 12.07 [2.15 - 67.83]).

Conclusion

Hypernatremia was found in 1.3% of patients who had blood sampling in the ED. Hypernatremia was associated with increased mortality and was independently associated with nursing home residency and alcohol abuse.

Performance of clinical scores and routine laboratory tests as potential biomarkers in the diagnosis of acute appendicitis

C. Iloaie, M. Vranckx

Introduction

To diagnose or to exclude an acute appendicitis is a challenge for the emergency physician, especially when the contribution of ultrasonography or computed tomography is limited. Clinical scores including laboratory values of white blood cells, such as Alvarado or François scores can help to rule in or rule out the diagnosis, but there are still non contributive intermediate values. Publications showed a potential role as biomarkers of acute infections or appendicitis from other routine laboratory tests such as elevated C-reactive protein, eosinopenia, hyperlymphocytosis, hyperbilirubinemia and elevated mean platelet volume. None compared simultaneously all those tests and the clinical scores.

Material and Method

We performed a bicentric retrospective case-control study. Histologically confirmed appendicitis cases from 01/01/2014 to 31/12/2014 were selected from the hospital database and paired for age, sex and week of presentation with non admitted patients who presented to the emergency department with an abdominal pain as main complaint and in whom a routine laboratory analysis was requested. Collected data were the component of Alvarado and François scores and the detailed lab results. As most widely admitted, usefulness of a test was defined as a positive likelihood ratio > 5 to rule in the diagnosis or a negative likelihood ratio < 0.2 to rule out the diagnosis.

Results

After exclusion of appendicitis patients who could not be paired appropriately, 156 patients were included (78 in group A = appendicitis, 78 in group B = control). Main results are figured in table1:

Clinical scores	Sensitivity	Specificity	Likelihood Ratio +	Likelihood Ratio -
Alvarado < 4 "Low risk"	26,92%	7,69%	0,29	9,50
Alvarado 4 to 6 "Intermediate"	58,97%	92,31%	7,67	0,44
Alvarado > 6 "High risk"	14,10%	100%	infinite	0,86
François < -5 "Low risk"	3,85%	60,26%	0,10	1,60
François -5 to +1 "Intermediate"	51,28%	42,31%	0,89	1,15
François > +5 "High risk"	44,87%	97,44%	17,50	0,57
Biomarkers	Sensitivity	Specificity	Likelihood Ratio +	Likelihood Ratio -
Hyperleucocytosis (> 10.000)	75,64%	67,95%	2,36	0,36
Hyperneutrophilia 2x NI (> 20.000)	6,41%	100%	infinite	0,94
Hyperneutrophilia (> 7.000)	84,62%	74,36%	3,30	0,21
Hyperneutrophilia (> 80 %)	48,72%	93,59%	7,60	0,55
Lymphopenia (< 1.000)	16,67%	93,59%	2,60	0,89
Lymphopenia (< 20 %)	76,92%	71,79%	2,73	0,32
Hypermonocytosis (> 1.000)	34,62%	92,31%	4,50	0,71
Eosinopenia (< 20)	21,79%	93,59%	3,40	0,84
Eosinopenia (< 50)	43,59%	78,21%	2,00	0,72
Hyperthrombophilia (> 410.000)	5,13%	100%	infinite	0,95
Platelet volume > 10,9	52,56%	58,97%	1,28	0,80
Hyperbilirubinemia (> 1,2)	42,31%	78,21%	1,94	0,74
hsCRP elevated (> 7,99)	76,92%	78,21%	3,53	0,30
hsCRP > 2 x NI (> 15,99)	56,41%	87,18%	4,40	0,50
hsCRP > 5 x NI (> 39,99)	38,46%	94,87%	7,50	0,65
hsCRP > 10 x NI (> 79,99)	23,08%	96,15%	6,00	0,80

Conclusion

Both clinical scores of Alvarado and François correctly identify evident appendicitis cases but none can safely exclude the diagnosis. Highly elevated leucocytosis, neutrophilia and C-reactive protein have a significant performance to rule in the diagnosis. Hypermonocytosis and severe eosinopenia have a similar moderate contribution as C-reactive protein. None of the laboratory tests can play alone a role of a negative biomarker to safely rule out the diagnosis. More studies are requested to evaluate the potential role of a simple combination of them in excluding the diagnosis of acute appendicitis.

Trampoline induced injuries admitted to a Belgian emergency department

S. De Coninck, W. Buylaert, P. De Paepe

Introduction

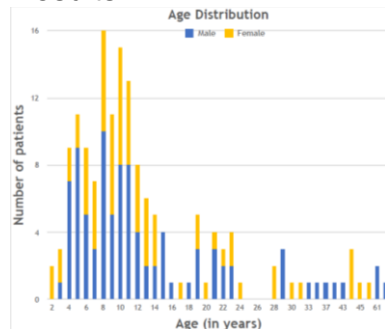
Data from different countries indicate that trampoline induced injuries are rising in recent years. Studying the epidemiology and the circumstances of these accidents is of interest for prevention.

We undertook the present study since, as far as we know, no data are available for Belgium.

Methods

Cases of trampoline related injuries, admitted to the ED of a University Hospital (Belgium) between 1st July 2011 and 1st July 2016, were retrospectively analyzed. Electronic clinical nursing and medical files were screened using the keyword trampoline, and cases related to trampoline injuries use were included. The study was approved by the ethical committee of the University Hospital.

Results



One hundred sixty patients (91 males and 69 females) were admitted. Their age ranged between 2 and 64 years (Median 10 yrs, Inter Quartile Range: 8 yrs).

The months with the largest number of admissions were May and June.

The number of patients per year (July till June) over the 5 years study period increased annually from 5 to 14, to 44, to 42 and to 55 patients.

The lesions observed three times or more were: ankle distortion (n=36), forearm fracture (n=16), ankle or foot fracture (n=14), cut wounds (n=13), leg fracture (n=11), leg or foot contusion (n=11), knee contusion (n=10), humerus fracture (n=9), muscle strain in the neck (n=7), elbow contusion (n=6), finger fracture (n=5), head or neck contusion (n=5), back contusion (n=4) and clavicle fracture (n=3).

Life threatening injuries were not observed.

An operative procedure proved necessary in 17 patients: osteosynthesis in 9, mostly forearm fractures, and closed reduction in 6, in addition to 2 arthroscopic meniscal operations.

Discussion and conclusion

Trampoline injuries, mostly of osteoarticular nature, are frequently seen in children in the ED and, as also observed in other countries, seem to rise in recent years. A possible explanation may be the increasing popularity of domestic trampolines.

A limitation of the present study is its retrospective nature.

Future studies should focus on the causes and circumstances of these accidents in order to develop preventive measures.

Ocular surface disorders after out-of hospital cardiac arrest: a pilot study

C. Duchatelet, S. Van Nuffel, S. Hachimi-Idrissi

Introduction

The presence of a corneal reflex and the ability to maintain eye closure are instrumental in protecting the cornea. In resuscitated comatose patients, impaired eyelid closure, decreased blink reflex and impaired ocular surface lubrication may lead to exposure keratopathy. Exposure keratopathy is a risk factor for infectious keratitis and corneal ulceration, which may lead to permanent visual loss. The current guidelines do not advise any eye care during the post-resuscitation phase. The aim of this study was to evaluate the incidence of ocular surface disorders in cardiac arrest patients surviving to hospital discharge.

Materials and methods

Retrospective observational study of out-of hospital cardiac arrest patients who were resuscitated by the Mobile Intensive Care Unit between 2009 and 2014. After ROSC, the patient was transported to a hospital in the surrounding of Ghent and standard post-resuscitation care was administered. All patients transported to Ghent University Hospital and surviving to hospital discharge were included in the study. Electronic patient files were reviewed for ophthalmological complications during hospitalisation.

Results

Between 2009 and 2014, 573 patients were treated prehospital for OHCA. ROSC was achieved in 209 patients. 112 patients were transferred to Ghent University Hospital. 27 of them survived to hospital discharge. 16 (59%) were male. The mean age was 66 years (SD 19; range 25–94). Out of 27 patients, only four (15%) patients underwent ophthalmologic checking. All of these patients (100%) showed evidence of exposure keratopathy.

Conclusion

Although the overall incidence of ocular surface disorders in this sample of patients surviving cardiac arrest to hospital discharge seemed low, all patients who underwent ophthalmologic checking had evidence of exposure keratopathy. Further prospective research is needed to evaluate the beneficial effect of both the routine application of lubricating eye gel in the early post-resuscitation phase and the routine ophthalmologic screening with fluorescein eye stain testing.

Lessons learned from the terrorist attacks on March 22, 2016: the experiences of the Brussels Military Burn Center.

L. Bruyningckx, S. Jennes

Introduction

As a burn unit and intensive care, our center was faced with a large influx of victims of the terrorist attacks on March the 22nd, both from the National Airport and the Metro station in Brussels. We triaged and assessed 23 casualties sustaining severe blast- and fragmentation injuries, as well as burns. The purpose of this study is to review the patient data and to draw lessons for the future.

Materials and methods

We conducted a retrospective study using patient data from the initial paper medical charts, our electronic health record and radiographic registration system. All patients admitted to the burn unit, were included in the study. We reviewed the demographic data (age, gender, nationality, language), origin of explosion, sustained injuries, early and late complications and length of stay. To estimate the risk of mortality we calculated the injury severity score (ISS), the Baux index and Tobiasen score. Furthermore we performed an interview with several staff members directly involved in the management of this mass casualty incident (MCI).

Results

We assessed 23 casualties, of which 19 came directly from the site of injury. 18 of them were admitted. 3 patients were transferred for specialist advise, with 2 of these patients readmitted after surgery in the referral center. The Baux- (<0.5-10%) and Tobiasen score (60 - >99%) estimated a low risk of mortality in our burn patients. The ISS showed a higher risk (2-66), because of the multiple blast- and fragmentation injuries. No death was stated during hospitalization or after discharge.

Discussion and conclusions

Our staff was prepared to manage this MCI. Previously we were already confronted with mass burns in Ghislenghien July 30, 2004 and more recently with the admission of 8 severely burned patients from a nightclub fire in Bucharest (November 7, 2015). With these lessons learned we showed efficiency not only in the treatment of burns, but in the full care of polytrauma cases.

In this article we want to emphasize the importance of patient registration; staff, supplies and infrastructure for triage and treatment; damaged control resuscitation and surgery; facilities and staff for debridement and wound care; as well as the importance of drills and training.

A descriptive analysis of a national survey about the use of prophylactic low molecular weight heparin in the ED

L. Mestdagh, E. Verhoeven, I. Hubloue

Introduction

Low molecular weight heparins (LMWH) are commonly prescribed in the emergency department (ED). Not prescribing LMWH for patients with lower limb immobilization (LLI) and at risk for venous thromboembolic events (VTE) can be life-threatening. The actual incidence of VTE in patients with LLI is estimated between 5 - 39%. In an extensive literature search we were not able to find ED-specific (inter)national guidelines regarding this topic. This prompted us to conduct a multi-center survey in Belgium regarding the use of LMWH in patients with LLI.

Methods

A questionnaire was developed and, after approval of the Ethical Committee, made available online. Participants were asked about the existence of formal guidelines within their ED, their prescribing behavior and the level of evidence for their behavior.

Results

100 questionnaires were filled out. Information of 46 hospitals was collected. The responding physicians, 30% residents and 70% attendings, had different back-grounds. Of the respondents 41% would always prescribe LMWH in patients with LLI. This would vary among specialties: 68.2% of the surgeons, 24.6% of the emergency physicians, 16.7% of the internal medicine physicians and 77.8% of the anesthesiologists. When asked about guidelines 40% of the respondents confirmed having guidelines within their ED, evenly distributed for university and non-university hospitals. The prescribing behavior was based on experience (73%), literature (77%), local guidelines (46%) and eminence (68%).

Conclusion

Based on these results, we can conclude that a lot of respondents aren't familiar with the use of prophylactic LMWH in the ED.

The lack of clear guidelines might contribute to patients not getting the correct VTE prophylaxis. Also, the prescribing behavior of a lot of physicians in the ED is mostly based on personal experience and case reports instead of international guidelines based research. There was no difference in the implementation of clear guidelines in the different types of hospitals, but the number of hospitals that do have guidelines is low. The difference between specialties was expected, but the low prescribing rate for the emergency physicians identifies a clear point of focus for education and training.

The principal conclusion is that the specialty of emergency medicine needs to develop and publish its own guidelines. Further research is planned following this national enquiry.

Work-stress in emergency medical centre: does the profit of one man the loss of the other?

M. Gabriel, C. Stassart, S. Stipulante, A.M. Etienne, A. Ghuysen

Introduction

Dispatchers' from the 112 dispatching centre in Liege region have recently gained the opportunity to propose telephone guided assistance for early cardiopulmonary resuscitation (T-CPR) using the ALERT algorithm, as previously described. However, these situations may reveal rough aspects, often stressful and worrisome not only for the caller, but for the dispatcher as well.

In this study, we intended to evaluate dispatchers' stress feelings in the accomplishment of T-CPR, but also factors able to worsen or alleviate these feelings and how dispatchers actually react to cope with these issues.

Methods

This was a mono centric, retrospective study including the staff (n = 20) of the 112 dispatching centre in Liège region. We designed a specific survey exploring the 3 key stages of their current duty: receiving a call of unresponsive victims, during and after T-CPR. Data were collected during a semi-managed interview, using specific questionnaires.

Results

In comparison with mean stress feelings, the application of the ALERT algorithm is responsible for a significant increase in dispatchers' stress ($p = 0.01$). There was no difference regarding gender, age or experience.

Work stress reached its significant optima values in special circumstances such as in paediatric resuscitations, when the caller was stressed, non collaborating or panicked and under bad environment conditions.

Significant minima were obtained in the immediate post T-CPR phases.

Thoughts were dominated by technical aspects during T-CPR, while post-CPR phases were characterized by more intrusive thoughts.

Conclusions

In their daily practices, 112 dispatchers from our regional dispatching centre are facing a significant amount of stress, particularly when they happen to deal with T-CPR. This stress is further increased in case of paediatric resuscitations, when the caller is stressed, non collaborating or panicked and when bad, noisy, environment conditions are responsible for poor communications. Managers should be aware of these observations in order to alleviate potentially deleterious chronic stress conditions.

Efficiency of vagal manoeuvres for supraventricular tachycardia at emergency department

D. Van Olmen, D. De Meirman, F. Somville, G. Van der Mieren

Introduction

Patients with supraventricular tachycardia (SVT) often (incidence 35/100,000) present at emergency department.

Current ERC guidelines for stable patients with regular narrow QRS tachycardia recommend vagal manoeuvres as first-line treatment to stop SVT.

Despite these guidelines are generally accepted, there is no consensus which vagal manoeuvre is most effective in treating these patients.

This review focused on the efficacy of the two most used techniques: Valsalva manoeuvre (VM) and carotid sinus massage (CSM). Different techniques of VM were recently published.

Materials and methods

We searched in multiple databases with search terms 'supraventricular tachycardia', 'atrioventricular (nodal) reentry tachycardia', 'vagal manoeuvre', 'valsalva manoeuvre', 'carotid sinus massage'.

Inclusion criteria were 1° study population adolescents or adults, 2° specification of the technique of VM and 3° written in English.

Results

Out of 21 articles we could include 4 articles. Other articles did not meet our inclusion criteria. Standard VM, performed as creating an intrathoracic pressure of 40 mmHg (equal to blowing into a 10mL syringe) for 15 s in a semirecumbent position, reversed approximately 5-20% of SVT into sinus rhythm.

Recent studies (n=433) showed an increase in reversion rate when standard VM was followed by switch in supine position and passive raise of the legs for 15s after standard strain of VM.

Modified VM was successful in 43%, whereas standard VM only reversed 17% (effect size 3.7 (2.3-5.8), $p < 0.0001$).

CSM for ten seconds successfully reversed SVT in 10.5-17%.

Major cardiac adverse events were not reported with both vagal manoeuvres.

CSM in elderly was associated with higher risk of transient and persisting neurological complications in respectively 0.21% and 0.13% of the cases.

Discussion and conclusion

Modified VM has shown to be more effective and harmless in reversing SVT compared with the well-known standard VM or CSM. Implementation of this cost-free new technique can reduce the use of pharmacological agents, such as adenosine, with less adverse effects for the patient.

Stem cell therapy for ischemic stroke: from bench to bedside

J. De Pryck, S. Hachimi-Idrissi

Introduction

Every year ischemic stroke takes many lives and leaves millions of people with profound deficits. Currently the only approved therapy is recombinant tissue plasminogen activator, which has to be administered within a narrow time window of 4,5 hours. Stem cell therapy was first initiated in several preclinical studies with promising results. This led to the introduction of stem cell therapy in clinical studies. Our research consists of 2 systematic reviews where preclinical and clinical effects were pooled. We provide a systemic review of the evidence of efficacy of cell-based therapy in both preclinical (animal) and clinical setting.

Materials and Methodology

After screening of databases, 76 studies were included in our systematic review of studies in rodent stroke models and 4 randomized clinical trials were used for the systematic review of studies in humans. After data extraction and assessment of study quality, the pooled effects were calculated using Revman5 and Microsoft© Excel.

Results

Stem cell therapy has a positive effect on behaviour and histological outcome in rodent stroke models. These results are in line with previously conducted meta-analyses. This improvement in rodents is not translated to clinical trials in humans. Pooled study data of the randomized controlled clinical trials did show a significant improvement in neurologic outcome, but not in functional recovery.

Conclusion

Study quality is regarded as one of the major reasons for failed translation of preclinical evidence to clinic. Large, well-designed preclinical trials are urgently needed. Good preclinical research is necessary to determine the optimal route of administration, the optimal cell dose and type and the most accurate administration time of the stem cells.

How to perform the care of the acute ophthalmological case coming in A and E ?

E. Thijs, A. Higuët, S. Thijs

Background

Ophthalmology is a small part of the job in emergency medicine. It is very important not to miss any reversible disease with consequences on the vision of the patient.

Patients and methods

A prospective study was proceeded in a general hospital where the ophthalmologist is not on call locally. All patients who entered the emergency department with an ophthalmological complaint were registered from 01/04 /2016 until 06/08/2016. An informed consent was signed by every patient or by his/her guardian. In total, 62 patients were included. Details about demographics, date and hour of consultation, nature of the complaint (traumatic/non-traumatic), anamnesis, clinical and technical investigations executed by the emergency physician or ophthalmologist –if referred and treatment were listed. For the statistical analysis the program SPSS was used.

Results

47 male and 15 female patients visited the emergency department with an ophthalmological complaint. The youngest patient was 4 years old and the oldest 89.

Almost 34 % (N=21) of all patients visited the emergency department out-of-hours. In those cases the emergency physician is the only caregiver for the patient to reach when the patient decides that the problem can not be postponed.

Complaints with a traumatic origin comprised for almost 62,9 % of all cases. 41 % of these cases were referred to an ophthalmologist, while 56,5 % of the non-traumatic cases were referred.

These numbers show clearly that non-traumatic cases are more quickly referred than traumatic cases. The Chi-square test could not show a statistical significant difference in reference rate between those two groups ($P=0,237$). During clinical investigations fluorescein was used in 41,9 %, in 32,3 % only an short inspection was executed. In 98,4 % of all cases an anamnesis was performed by the emergency physician, but only in 45,2 % relevant questions concerning vision were asked. A well executed anamnesis is very important to estimate the risk for severe conditions like acute closed angle glaucoma, retinal detachment, thrombosis or arteritis temporalis.

Discussion

The management of most traumatic ocular injuries doesn't seem to be a problem for the emergency physician to take care of. Management of non-traumatic eye disease appears to be more difficult and these patients are more quickly referred without a correct anamnesis to estimate the risk of severe pathology .

Conclusion

A collaboration with the ophthalmologist could be useful in creating flow charts to summarize relevant questions to determine the risk for severe – but reversible – pathology.

Should we set a limit for total RBC transfusion ?

R. Slappendel, M. Leysen

Introduction

Blood products are a valuable resource for every society. Scarcity is quite common due to shrinking donor pools in an aging population, restrictions on blood donor eligibility and operative procedures, rising to increase demand. Despite the increased cost in improving quality, we see that transfusion practices remain quite liberal in some institutions. One should ask himself the question whether further transfusion therapy is warranted in circumstances with poor patient outcome.

Objectives

1. What is the overall mortality of patients receiving 20 or more units of red blood cells (RBCs)?
2. Is there a mortality difference based on gender, age, cause and total amount of RBCs?
3. Can the total amount of transfused RBCs aid us in the decision of discontinuing therapy?

Methods

We used data from the Blood Bank associated with our hospital. This was done retrospectively within the period of 1 Jan. 2015 and 31 Aug. 2016. We analyzed the data of patients that received ≥ 20 units of RBCs during their admission or time of death. We compared mortality rates based on gender, age and cause of transfusion. Finally we tried to establish a cut-off point in which mortality was unacceptably high.

Results

In total 15.215 patients received ≥ 1 unit of RBCs. We included 75 patients that received ≥ 20 units. Overall mortality was 58.6%. Gender (57 male vs. 18 female) seemed to have no influence (59.6% vs. 55.6%). The cause of transfusion was massive bleeding in all cases with different medical backgrounds, with no clear impact on survival. In our study we could see a negative trend in mortality when age (23-85y) and total of transfused RBCs increased (20-113U) (no statistical difference).

Discussion and conclusion

This study showed that the overall mortality rate was almost 60% in patients receiving ≥ 20 units of blood. We could not find any significant differences when we compared mortality rates based on gender, age and cause of transfusion.

Although it was not statistically proven, patients with increased age seemed to have a higher mortality. Unfortunately, the population subgroups studied were too small to reach significance.

In contrast to what we expected from certain medical histories e.g. polytrauma and fluxus postpartum, due to the more sustained nature of those patients, the study showed no mortality difference. Furthermore, other causes of transfusion such as hematological oncology and surgery (thoracic, cardiac and transplantation) did not show an impact on survival.

In conclusion, this study was not able to provide evidence that the total amount of transfused RBCs contributes to the ethical decision in discontinuing further transfusions. We propose that a larger study design is needed in the future. Nevertheless, every physician should ask himself the question whether giving more blood products would favor the outcome of his/her patient.

Knowledge and Attitudes of Emergency Department Caregivers Regarding Occupational Infectious Risk

O. Revin, A.Simon, F.Verschuren

Introduction

Emergency workers are exposed to potentially pathogenic infectious agents. However, what are their knowledge and attitudes towards this occupational infectious risk?

Material and method

A survey was sent in both digital and hardcopy format to all emergency caregivers of one teaching hospital. The respondents filled in the questionnaire (25 questions) on a voluntary basis. The collected data was analyzed anonymously.

Results

Out of 147 caregivers contacted, 64 responses were obtained (44%) which represented 24 physicians, 24 nurses and 16 other categories (medical students and social workers). 45% of the health-care workers (15 nurses, 12 physicians and 2 medical students) were previous victims of an occupational infectious accident during their professional career. The accidents were declared by almost all the nurses and half of physicians and consisted of bloodborne pathogens without declared infectious complications.

Questions regarding knowledge of the rate of Hepatitis C transmission risk, their own Hepatitis B antibodies level, the main HIV occupational transmission risk, their own Tetanus vaccination status, the CMV transmission risk and Ebola virus transmission risk have been adequately answered in 23%, 13%, 65%, 88%, 11% and 30% of the respondents respectively. Questions regarding general attitudes when caring for a patient with meningococemia, pulmonary tuberculosis, acquired MRSA colonization and scabies have been adequately answered in 78%, 75%, 98%, 92% of the respondents respectively.

The survey showed that 45% of the respondents never participate in the yearly Influenza vaccination campaign, and that 92% of them are willing to report a work accident in the event of a contaminated needle stitch. The rate of appropriate answers to questions on knowledge was not different between the three groups of respondents ($p = 0,10$ by Chi-square test). The rate to questions on attitudes was lower for medical students ($p = 0,007$).

Conclusion

The survey shows that almost half of the respondents have had a personal occupational infectious accident. The precautionary attitudes to be followed in order to limit the infectious risk are well known by the health-care workers; however, the theoretical knowledge is less well-known. The next step is to increase the awareness of the emergency caregivers regarding this occupational risk.

Non-invasive ventilation in a pre-hospital and in-hospital setting

J. Van der Mullen, M. Gillis

Introduction

Non-invasive ventilation (NIV) undoubtedly has its place in treatment of acute respiratory failure. However, the size of the currently available systems can slow down therapy.

Materials and methods

In this prospective observational study performed between November 2013 and May 2016, we evaluated the Vylife Boussignac®, a small and easy to handle NIV, in a pre- and in-hospital setting. Children (<18 y) and patients showing hemodynamic instability, airway obstruction, exhaustion, patient-against-ventilator aggression or heavy facial hair were excluded from the study. The primary outcome parameter was the combination of increased of peripheral O₂ saturation to 92% or more, hemodynamic stability (minimal mean arterial pressure of 60 mm Hg), improved arterial blood gas (pO₂ min 65 mm Hg without further increase of pCO₂ and lactate concentration).

Results

65 patients were included (37 men). 49 patients (75%, 24 men) had acute pulmonary edema, while 15 patients (23%, 12 men) suffered from an acute exacerbation of COPD. Positive primary outcome was obtained in 39 patients (60%). Additionally, 13 patients were transferred to the intensive therapy unit with NIV but without the need for sedation, intubation and mechanical ventilation. 12 patients (18%) reached exclusion criteria during treatment and were sedated, intubated and mechanically ventilated with the apnea-mode of the NIV-system. In 1 patient (1.5%), a do not resuscitate III policy was introduced due to poor prognosis.

Discussion

More men than women were included in the study, which corresponds with previous dyspnea studies. With this NIV-system, 52 patients (80%) were spared of further sedation, intubation and mechanical ventilation. For those patients who needed further treatment, the apnea-mode of the NIV-system allowed easy conversion to mechanical ventilation.

Conclusion

The tested NIV-system was very efficient and allowed to obtain good results similar to the bigger, closed circuit systems.

Sigmoid volvulus: a common cause of abdominal pain in the elderly but presented in adolescents.

K. Haeck, G. Vandermieren, K. Valgaeren, F. Somville

Introduction

Sigmoid volvulus is typical disease of the elderly, so it is rarely considered as a differential diagnosis of abdominal pain in young adults. An early diagnosis and management are crucial to prevent life-threatening complications such as necrosis, perforation and sepsis.

Clinical presentation

We present two cases: a 20 year old female presented on the emergency department with acute abdominal pain without nausea or vomiting. She had normal lab results. Abdominal radiograph showed a distention of the sigmoid (9 cm). An abdominal CT showed dilated large bowel loops with a bird beak-like narrowing of the sigmoid and a whirl sign suggestive of a sigmoid volvulus. She underwent emergency endoscopic detorsion and decompression. Rectal biopsies were normal. The second case is a 28 year old female with a history of irritable bowel syndrome and constipation. She presented with a problem of constipation during 5 days. She had normal lab findings. Abdominal radiograph showed colonic distention and air-fluid levels. A barium enema showed a dilated dolichosigmoid and a short segment with reduced expansion and intermittent torsion, probably after reduction of the sigmoid volvulus. She was observed, laxativa were started en she went home uneventfully.

Literature key-points

Multicenter studies on sigmoid volvulus in adolescents are lacking. Regarding children, there is one multicenter study of 13 cases, and one retrospective review of 63 children. There is a male predominance. The study of choice to diagnose is a Barium enema with a typical 'bird's beak' sign. Predisposing factors are pathologically long colonic mesentery, a narrow based mesocolon, mental retardation, malrotation and Hirschsprung's disease. Treatment is controversial: although limited experience in this age group, evidence suggests that endoscopic management should be considered the first step of treatment, followed by definitive elective surgery. Non-operative reduction alone carries a high recurrence rate (35%).

Conclusion

The possibility of volvulus should be considered in adolescents presenting with acute or recurrent abdominal pain, constipation, nausea and vomiting, particularly if there is associated pronounced colonic distention in the plain radiographic studies. Diagnosis is confirmed by contrast enema or abdominal CT scan. Endoscopic reduction or contrast enema is a successful first-line treatment for patients without any signs of complications. Elective sigmoid resection with primary anastomosis is often required to prevent recurrence.

The use of intravenous baclofen as therapy for the γ -hydroxybutyric acid withdrawal syndrome.

F. Desmet, S. De Winter, M. Sabbe

Introduction

The γ -hydroxybutyric acid (GHB) withdrawal syndrome is a frequent problem at the ED, due to an increase in chronic GHB abuse. It is serious, long-lasting and a challenge to treat. Therapeutic options are limited. In this case series with three patients, we introduced baclofen, a γ -aminobutyric acid type B (GABA-B) receptor agonist, for treatment of the withdrawal syndrome. It has been hypothesised that a substitution for GHB on the GABA-B receptor could prevent withdrawal.

Materials and methods

Single center case series performed on three patients with the GHB withdrawal syndrome. All patients, males aged between 25 and 31 years, suffered from a serious GHB withdrawal syndrome with symptoms of tremor, restlessness, insomnia, nausea, autonomic dysfunction, anxiety and delirium.

They all initially received massive doses of benzodiazepines, without significant effect. Two patients also received an unsuccessful continuous dexmedetomidine drip, which is an alpha 2 adrenergic receptor agonist, with doses up to 1 μ g/kg/hour. In all patients, intravenous baclofen was started, with an intravenous loading dose between 0.5 and 2mg to achieve a therapeutic level. Thereafter a continuous intravenous dose between 0.5 and 1 mg per hour for 12 hours was administered to maintain a steady state. After that, baclofen was substituted orally with a daily oral dose varying between 20mg and 40mg which could be downgraded and stopped over the next days. They all continued to receive a standard benzodiazepine regimen during the baclofen trial.

Results

Main outcome measurements were the degree of withdrawal symptoms and the need for benzodiazepines during baclofen treatment. In our three patients, a significant reduction of the GHB withdrawal syndrome was noted. A standard daily regimen of baseline benzodiazepine dosing between 40 and 80mg diazepam was sufficient, without the need for additional doses. Adverse effects of baclofen use were absent.

Discussion

Withdrawal symptoms can develop fast, become severe and can be long-lasting. Standard therapy consists of high doses of benzodiazepines, but can lead to new tolerance, and cross-tolerance is not complete. Baclofen reduces abuse and dependency of GHB due to modulation of the GABA-B receptor, and might exert an inhibitory action on the dopamine neurons.

Conclusion

This case series suggests the benefit of intravenous baclofen as additive to the standard benzodiazepine treatment for a GHB withdrawal syndrome in order to limit life-threatening symptoms, to reduce the total amount of benzodiazepines needed and to shorten the length of stay in an observational unit with monitoring facilities. Further trials are needed to confirm our findings and a dose finding study is needed to provide more information on the appropriate dose of IV baclofen within safe limits.

Essential oil poisoning in adults: a case report.

T. Desmet, P. De Paepe

Introduction

Essential oils are derived from plants. They are volatile mixtures of alcohols and are used a.o. in alternative remedies. These products are cheap and freely available. Their potentially severe toxicity is generally not well known.

Clinical presentation

A 60 yrs old woman was transferred from the psychiatry ward to the emergency department because of agitation, vomiting and fecal incontinence. She admitted drinking 25 ml of lavender oil and the same amount of eucalyptus oil 1 hour before presentation. Besides a known bipolar disease, she had no medical history. An arterial blood gas on admission revealed a hypokalemia (2.46 mmol/L) and a combined metabolic and respiratory alkalosis (pH 7.52, pCO₂ 34 mmHg, Bic 26 mmol/L, BE 3.5 mmol/L, Cl 96 mmol/L). The ECG showed T-wave flattening and a prolonged QTc interval (527ms). There was a moderate elevation of serum CK (981 U/L), AST (64 U/L) and ALT (35 U/L) (elevated liver set was known to exist). An ultrasonography of the liver and an X-ray of the chest were normal.

The patient was monitored and anti-emetics (alizapride 100 mg in total) and potassium (ca. 150 meq in total) were administered intravenously. The vomiting ceased and pulmonary complications did not occur. She fully recovered and could be discharged 36 hours later with a normal QTc interval.

Literature key points

Essential oils are potentially very toxic. The toxic dose varies but amounts from 0,5 ml/kg onwards for lavender oil and 0,2 ml/kg for eucalyptus oil can cause severe toxicity in adults (for children 0,5 ml/kg and 0,4 ml/kg). Symptoms usually present within 2 – 4 hours and signs of pulmonary aspiration can be delayed for up to 6 hours. Initial effects include a burning sensation in the mouth and throat, vomiting, epigastralgia and diarrhea. Drowsiness, ataxia and disorientation frequently occur. Convulsions, central nervous system depression, rhabdomyolysis and hepatic and renal failure may occur in severe cases. Respiratory symptoms are due to chemical pneumonitis. This may occur in the absence of vomiting or central nervous depression and is due to the high volatility of essential oils. Electrolyte disturbances (mostly hyponatremia and hypokalemia) are frequently reported. The management of an intoxication is mainly supportive. Asymptomatic patients should be monitored for at least 6 hours. Vomiting should be avoided. Since essential oils are poorly adsorbed, activated charcoal is unlikely to help significantly and increases the risk of aspiration by eliciting vomiting. Electrolyte disturbances and hypoglycemia should be corrected. (Toxicol Int. 2015; 22:170-171; www.toxbase.org; www.toxinz.com; Goldfrank's Toxicol. Emergencies. 9th Ed.)

Conclusions

Essential oils are widely available and found in almost every household. Their toxicity is not well known. After suspicion of an intoxication with essential oils prompt supportive treatment and monitoring is advised.

A catch of the eye

P. Verdonck, H. Raemen, K. Monsieurs

Introduction

Isolated ocular trauma may cause devastating injury. Periorbital haematoma can make examination and evaluation of the globe and posterior chamber difficult. This delays diagnosis of a retrobulbar haematoma, globe rupture and retinal detachment with significant impact on outcome. Ocular ultrasound (US) can be a helpful tool. We present a case of a traumatic lens dislocation and rupture of the ciliary apparatus after isolated trauma of the eye, diagnosed by bedside US.

Clinical presentation

A 77-year old male suffered an isolated trauma to the left eye as he was hit by a stick. He was referred to our hospital as the assessment by his ophthalmologist was incomplete due to hyphema. Physical examination showed periorbital swelling but there was no visible laceration, no exophthalmos and no emphysema. On visual field testing, he had a reduced visual acuity of the left eye. The eye was closed, draped and gel was applied. Bedside US of the left eye was performed with a 13-6 MHz linear array transducer. This showed an intact volume of the globe, no sign of retrobulbar haematoma and no retinal detachment. The anterior chamber was clear, but an abnormal iris was seen. On evaluation while moving the eye, iridodonesis (agitated motion of the iris) was seen and complete disruption of the ciliary apparatus with posterior lens dislocation was diagnosed (Figure). Ophthalmoscopy confirmed this diagnosis. A phakovitrectomy was planned.

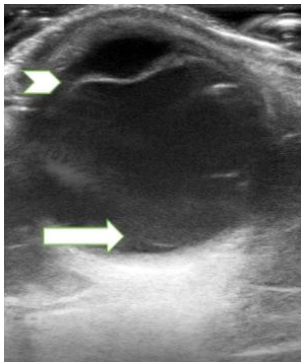


Figure : Sagittal view of the left eye showing iridodonesis (arrowhead) and posterior lens dislocation (arrow).

Literature key points

After head or isolated ocular trauma, US aids in the evaluation of the posterior chamber. The sensitivity and specificity of US for diagnosing lens dislocation are 84,6 % and 98,3 % respectively. During ocular US, minimal pressure and a large amount of gel must be applied. There is no significant rise in intraocular pressure with these precautions.

Conclusion

We describe a case of a patient with posttraumatic posterior lens dislocation and iridodonesis, diagnosed by US. Ocular US is a safe and sensitive bedside tool that can be used by emergency physicians.

Methemoglobinemia induced by oral ingestion of poppers: a case report.

T. Thomas, A. De Wolf, P. De Paepe, N. Mpotos

Introduction

Poppers are recreational inhalation drugs consisting of volatile alkyl nitrites compounds. Due to dilatation of cerebral blood vessels and increase in intracranial pressure, they allegedly cause a rush and enhance sexual pleasure.

Clinical presentation

A 46-year-old man, without significant medical history, was brought in by ambulance with mild dyspnoea and cyanosis of the lips and fingers. The patient stated that he was forced to orally ingest a bottle of poppers during a party. Pulse oximetry revealed an oxygen saturation of 87% whilst breathing room air. An arterial blood gas (ABG) sample without supplementary oxygen showed an oxygen saturation of 97.1% and methaemoglobin (MetHb) concentration of 36.40%. He was treated with high flow oxygen (15 l/min) and a single intravenous dose of 120 mg (2 mg/kg) methylene blue. Within 12 hours the patient's MetHb levels returned within reference values and his symptoms disappeared.

Literature key points

The alkyl nitrites compounds of poppers are potent oxidisers of oxyhaemoglobin, resulting in the formation of methaemoglobin. As methaemoglobin is unable to bind oxygen, this leads to functional anaemia and hypoxia. Oral ingestion of popper results in higher concentrations of MetHb compared to the intended inhalation. MetHb has similar light absorption at both wavelengths used in a conventional pulse oximeter (660nm and 940 nm), this results in an underestimation of oxygen saturation. Therefore, methemoglobinemia should be suspected if a discrepancy of >5% is observed between saturation provided by pulse oximeter and the ABG sample. Methemoglobinemia at levels above 30% and symptomatic patients with lower levels should be treated with high concentrations of oxygen and 1-2mg/kg methylene blue IV given as a 10% solution over 3-10 minutes. Clinical improvement should be evident within one hour. If cyanosis persists retreatment is indicated with an identical dose. Due to oxidative stress by methylene blue, the total dose should not exceed 7mg/kg. If the maximal dosage does not resolve the symptoms, exchange blood transfusions or haemodialysis may be considered.

Conclusion

The intake of poppers is popular. Their alkyl nitrites compounds will result in the formation of methaemoglobin. Oral intake will result in higher formation of methaemoglobin and limited intake can cause severe symptoms. The treatment consists of high concentrations of oxygen and intravenous methylene blue administration.

Direct and indirect signs of the rupture of an abdominal aortic aneurysm: caught by ultrasound.

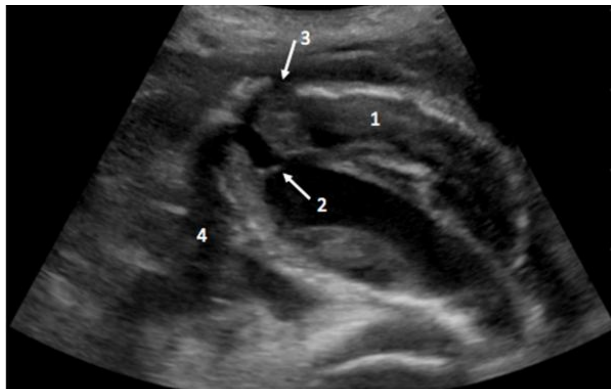
K. Peeters, H. Raemen, K. Monsieurs

Introduction

In the clinical setting of a patient with a suspected rupture of an abdominal aortic aneurysm (AAA), bedside ultrasound (US) has been used to rapidly confirm the presence of an AAA. State of the art US can, however, also be used to identify several signs of rupture of an AAA. We report a case of a ruptured AAA diagnosed by emergent bedside US.

Clinical presentation

An 85 year old woman with a previously diagnosed asymptomatic infrarenal AAA of 4.5 cm presented to the emergency department with abdominal pain. Her initial vital signs were stable, but her condition rapidly deteriorated as she developed profound hypovolaemic shock. The clinical suspicion for a ruptured AAA was high. Massive transfusion was started while a bedside US was performed. This revealed an inhomogeneous layered luminal thrombus, internal interruption of the luminal thrombus, a parietal hypoechoic focus due to aneurysm wall interruption and a para-aortic hypoechoic area adjacent to the bleeding side. Because the patient was hemodynamically unstable, a decision was made not to perform a CT scan but to refer the patient immediately to the operating theatre.



1. Inhomogeneous layered luminal thrombus
2. Internal interruption of the luminal thrombus
3. A parietal hypoechoic focus due to aneurysm wall interruption
4. A para-aortic hypoechoic area adjacent to the bleeding side

Literature key points

Rupture of an AAA is a fatal condition with an overall mortality of 90%. Classic presentation with the triad of hypotension, back pain and a pulsatile abdominal mass is rather uncommon. Physical examination is often unreliable and rapid diagnosis of a rupture is crucial for a favourable outcome. The sensitivity of US to detect an AAA is comparable with that of computed tomography or magnetic resonance imaging (> 95% sensitivity). Whenever US is used to triage patients with a suspected AAA rupture, a focused search for signs of rupture should be performed. Most of the US signs for AAA rupture are considered specific (92-100% specificity) but their sensitivity is rather low (14-69%).

Conclusions

In haemodynamically unstable patients with a high suspicion of a ruptured AAA, the use of bedside US may reveal direct and indirect signs assisting in the diagnosis of a ruptured AAA.

Another horned viper bites the dust?

D. Demaeght, P. Verdonck, K. Monsieurs

Introduction

Horned viper (*Vipera ammodytes*, sand viper) envenomation is a medical emergency. As this snake is non-endemic in Belgium, poisoning is relatively rare. The most urgent question to be answered is if antidote has to be administered. This decision should not be delayed but should not be taken lightly either, as there is a risk of anaphylaxis. Furthermore, the antidote is expensive and not widely available.

Clinical presentation

A 34-year-old man was bitten in his left hand by his pet, a horned viper, the most dangerous of European vipers due to its large size and high venom toxicity (see figure).



On arrival at the emergency department, the patient's left hand and forearm were swollen and very painful. Shortly after admission he felt nauseous and generally unwell and he started vomiting. He was pale and diaphoretic, tachycardia was noted but further clinical examination was normal. The arterial blood gas showed hypoxaemia (pO_2 64 mmHg) and discrete serum lactate elevation (3.1 mmol/L). Supportive therapy with high flow oxygen and intravenous fluids was started. A chest radiography was normal, an ECG showed sinus tachycardia and laboratory findings were normal. ViperfavTM (purified Fab fragments of equine antibodies) was immediately ordered at the poison control centre in Brussels and administered intravenously after which the patient's clinical condition rapidly improved.

Literature key points

A Horned viper bite is a medical emergency as it may lead to shock. The course of the patient should be monitored carefully as the severity of the envenomation depends on many factors. Whether or not to give the antidote should be evaluated carefully, but it should be given as soon as possible once signs of systemic or severe local envenoming are present. Although a classification of envenomation was made, there is no clear threshold for starting antidote therapy. Clinicians who are unfamiliar with the management of snake bites should seek expert advice with a poison control centre.

Conclusions

Horned viper envenomation should be monitored carefully as it can evolve to hemodynamic instability, lactate acidosis and shock. If there are systemic symptoms, antidote should be administered as soon as possible. This includes anticipation as the antidote is not widely available.

Severe epigastric pain, emesis and increased lipase ... diagnose please!

D. Van Olmen, F. Somville, G. Van der Mieren

Introduction

Gastric volvulus (GV) is an uncommon, but severe pathology requesting early diagnosis and treatment. Because it's so rare, most physicians do not take GV in their differential diagnosis, possibly leading to delayed diagnosis with fatal complications.

Clinical presentation

A 73-year old woman with Parkinson's disease presented at emergency department (ED) with severe epigastric pain for two days, abdominal distention and retching. She vomited twice. Blood pressure was 185/84 mmHg, heart rate 65 bpm, saturation 95% and respiratory rate 12/min. There was no fever. There were no other co-morbidities nor surgical history. Physical examination showed hypoperistalsis, a sensitive epigastric region without rebound tenderness and a large distension of the abdomen. ECG and laboratory test were normal, except lipase, which was increased to 392U/L.

Abdominal X-ray and ultrasonography showed a large gastric fluid distension and normal biliary system. CT (fig 1) diagnosed an organo-axial gastric volvulus.



A nasogastric tube was placed and removed 1.5L of gastric fluid. Lipase returned to normal and patient became asymptomatic. Later imaging showed an intrathoracic stomach based on a hiatal hernia, which was repaired with Nissen Fundoplication. Patient was discharged after 11 days.

Literature key points

Incidence of GV is rare and most cases present in children < 1y and in 5th decade.

GV is classified as organo-axial (rotation around long axis between pylorus and cardia) or mesentero-axial (rotation around short axis from lesser to great curvature). In addition, GV can be defined as primary (type I), caused by laxity or disruption of the ligaments anchoring on the stomach and, more common, GV secondary to underlying pathology (ex. paraesophageal hernia) (type II). Borchardt's triad (epigastric pain, retching without vomiting and inability to pass a nasogastric tube) is associated in 70%. Recent studies recommend endoscopy for early decompression and evaluation of mucosal ischaemia. Without early diagnosis, mortality rate is 30-50%, due to complications, such as gastric ischaemia, haemorrhage and perforation.

Conclusions

Emergency physicians should be suspicious for GV in case of foregut occlusion symptoms, because urgent diagnosis and treatment is necessary to prevent life-threatening complications.

An uncommon case of otalgia

M. Joillet, E. Bakelants, D. De Meirman, F. Somville, G. Van der Mieren

Introduction

Otalgia is a frequent complaint in the emergency department with many causes. The most common are infection, trauma, impacted cerumen and foreign bodies. A very peculiar case of otalgia and foreign bodies presented in our E.R.

Clinical presentation

A 65-year old male presented with otalgia of the right ear and a smelling, bloody discharge. Clinical examination revealed an erosive lesion behind the right auricle with a scar of previous parotidectomy because of a malignancy. In the meatus we saw a few mobile white foreign bodies (figure). The cranial nerves were intact. He did not show signs of trismus or lymphadenopathy. Further examination showed overall lack of hygiene.



The blood sample showed eosinophilia (1.8%) and an elevated CRP (25 mg/L). CT showed erosive infarction of the outer ear and mastoid due to multiple maggots. These had eaten their way into the bone but hadn't reached the parenchyma yet. The specimen revealed human botfly or *Dermatobia Hominis*. They were removed successfully through otoscopic surgery.

Literature key points

Aural manifestation of the human botfly is rare. Transmission is by eggs on arthropods, which are transferred to the host and hatch due to warmth. The larvae enter the skin and feed on tissue from the host. They exit the skin and live within the soil until they emerge as flies.

Manifestation occurs in patients with poor personal hygiene, children and mentally retarded adults. The most common signs are otalgia, otorrhea, bleeding, itching, hearing impairment, pruritus, tinnitus and perforation of the tympanic membrane.

Myiasis can be diagnosed by otomicroscopy or CT scan. Different solutions can be used as treatment: chloroform, oil drops, urea, dextrose, ceratine, hypertonic saline and iodine solution. The gold standard is surgical removal of the larvae.

Conclusion

- A patient with otalgia should be examined for foreign bodies.
- Most common signs are otalgia, bleeding and otorrhea.
- Gold standard is surgical removal of the maggots.

Not just a simple food poisoning

N. De Tommaso, P. Stammet, C. Werer, J. Colling, C. Ferretti

Introduction

Botulism is a rare cause of foodborne disease which might increase in the future as home-made cooking becomes very popular again.

Clinical presentation

A 60 years old man presented at the emergency department for diplopia and nausea. The day before, the patient ate a rest of a sausage supposed to be at least two month old, date when his wife decided the entire family would become vegetarian, after a TV show. Few hours after ingestion, he developed abdominal pain, nausea and vomiting. The next day, he still had nausea and started to have diplopia and difficulties to talk. At the emergency room, his vital signs were not worrisome. Clinical examination revealed bilateral eyelid ptosis, xerostomia, dysphagia, dysarthria and a bilateral palsy of the hypoglossal nerve. Blood biology and cerebral CT Scan were normal. The history and the physical examination made us suspect botulism and the patient immediately received 2 doses of equine trivalent botulism antitoxin serum before admission to the ICU. The patient progressively and completely recovered after a week without the need for intubation. Two weeks later, the reference laboratory for botulism in Brussels, confirmed the presence of clostridium botulinum type E in the patient serum and in the sausage.

Literature key points

Human botulism is a rare but potential life-threatening disease, caused by ingestion of food contaminated by a neurotoxin produced by a Gram positive bacteria : Clostridium botulinum. The main symptoms are descending palsies starting at the muscles supplied by the cranial nerves: eyelid ptosis, dysphagia, dysarthria and diplopia. In severe cases, it can lead to a respiratory failure caused by the impairment of the respiratory muscles. There is no fever and no disturbance of consciousness. The incubation period is 12 to 72 hours. The sources is often improperly preserved home canned food, fermented fish, honey and non-nitrite cured meats. Since 2000, only 3 cases of foodborne botulism have been detected in Belgium. Therapy is based on the injection of trivalent botulism antitoxin serum which has to be administrated within 24h after symptoms onset. Botulism is a notifiable disease that must be declared to the hygiene inspector.

Conclusion

Botulism has to be considered in patients with a history of food poisoning with progressive cranio-caudal nerve palsies. Specific treatment has to be initiated as soon as possible.

An extraordinary intoxication with white spirit

A. Sturtewagen, S. Bogaerts, C. Vandycke, S. Depuydt

Introduction

Different routes of intoxication with white spirit (WS) are possible. Systemic toxicity with headache, nausea and neurological damage most commonly occurs after inhalational exposure, but it may also occur following oral ingestion or after intravenous injection.

Clinical presentation

A 59-year old schizophrenic man was admitted after injection of an unknown amount of WS subcutaneously and intramuscularly into both arms and into the left calf the day before. Clinical examination showed an afebrile, haemodynamically and respiratory stable patient with swelling and erythema on the affected limbs. Blood results showed a leukocytosis and a CRP of 203 mg/L. An ultrasound of the affected limbs showed phlegmones with extensive muscle liquefaction. Intravenous amoxicillin clavulanic acid was started. Post-exposure prophylaxis (PEP) wasn't necessary. Four days later he developed fever. Debridement was necessary. Antibiotics were changed to ciprofloxacin and clindamycin with good clinical response. The patient was discharged one week after admission.



Literature

Toxicity from WS depends on its route of exposure. Cases of oral ingestion are described: patients developed vomiting, diarrhoea and different gastro-intestinal lesions. Aspiration caused pneumonitis 24-48 hours after ingestion.

Inhalational exposure can lead to systemic toxicity, with headache, nausea, neurological damage and sometimes cardiac arrhythmias.

Soft tissue injection results in local swelling and erythema. Necrosis at the site of injection may occur. Elevation of compartment pressures with vascular compromise, rhabdomyolysis and ischaemia are possible complications.

Conclusion

WS is mostly ingested accidentally or intended, but it can also be injected resulting in phlegmones that should be treated with antibiotics and debridement. In such case you have to think about PEP.

Abdominal pain and shock? Check the thorax!

E. Bakelants, M. Joillet, D. De Meirman, F. Somville, G. Van der Mieren

Introduction

Lung carcinoma forms metastases to the pericardium in approximately 1 to 20 cases. All types of pericardial disease are possible but most patients present with pericardial effusion. Pericardial metastasis has a very bad life expectancy.

In this case report, nonspecific abdominal complaints were the first presentation of metastatic lung cancer.

Case

A 64-year old woman came to our emergency department after fainting. Since 5 days she experienced epigastric discomfort, nausea, diarrhea, vomiting and anorexia. Fever was absent. She had no chest pain nor palpitations. She had noticed an increasing fatigue and dyspnea. She did not use medication. Medical history was blank, except for stomach ulcers and 30 pack years.

Clinical examination showed an attentive, pale, exhausted woman. Apart from tachycardia (122/min) and mild respiratory distress (saturation 93%), cardiopulmonary auscultation was normal. Blood pressure was 112/78 mmHg. The right hypochondriac region was tender at palpation. There were signs of dehydration but CVP was +6 cm.

An arterial blood sample showed metabolic acidosis with respiratory compensation.

Hematocrit was normal, CRP was 139 mg/L, electrolytes, renal and liver tests were overall disrupted. Troponins were 118 ng/L. ECG was normal. Abdominal sonography showed diffuse edema around the liver and a widened vena cava inferior and hepatic veins without changes during inspiration. RX thorax showed a small malignancy in the left upper lung. During these tests the patient collapsed; BP 85/51 mmHg, pulse 114/min and saturation 94% (O₂ mask) with cyanotic lips. Echocardiography showed cardiac tamponade with right sided compression. A single lumen catheter was placed in the pericardium. After drainage of the pericardial fluid the patient stabilized. This fluid was CEA positive.

Literature key points

The most frequent cause of pericardial effusion is malignancy. In 2 to 7.3% of cases it may be the first presentation of cancer.

In anamnesis patients frequently complain about anorexia (90%), dyspnea (78%), cough (47%), chest pain or laryngeal nerve compression.

Conclusion

Be aware of pericardial tamponade, especially in case of malignancy. Clinical presentation of right ventricular failure can be non-specific, with abdominal complaints or mild signs of shock, but deterioration occurs fast.

Acupuncture induced haemopneumothorax

H. Baeten, J. Ball, K. Monsieurs

Introduction

Serious acupuncture induced vascular injuries are considered very rare complications of this widespread therapy.

Clinical presentation

A 28 year old female presented to the emergency department with progressive dyspnoea and left sided chest pain after an acupuncture session for left shoulder pain 6 hours earlier.

On arrival the patient looked distressed but was haemodynamically stable. Chest auscultation revealed absent air entry and a dull percussion note on the left side, respiratory rate was 20 breaths per minute with peripheral oxygen saturation of 100% on FiO₂ of 0,24. A chest x-ray revealed a left sided haemopneumothorax and a 28 F intercostal chest drain was surgically inserted, 800ml of blood was drained.

A thoracic CT angiogram showed an 8 mm arterial contrast blush adjacent to the tip of the intercostal drain and consecutively the patient underwent a subclavian angiogram revealing active bleeding from a thyrocervical trunk branch. A superselective embolisation with two microcoils was successfully performed.

The patient was transferred to the intensive care department. A residual haemothorax was treated with a second intercostal drain on day 2 and intrapleural streptokinase was administered on day 4 and 5. The intercostal drains were removed on day 5 and day 7. On day 8 patient was discharged home and seen at the clinic two weeks later with a normal clinical examination and chest x-ray.

Literature key-points

Different types of complications associated with acupuncture have been documented in the literature, ranging from infections, spinal cord injuries and pneumothorax. Vascular injuries associated with acupuncture, however, are extremely rare. In a recent systematic review only 21 cases in the period 1965 till 2013 were identified.

Conclusion

Emergency clinicians need to be aware of this mechanism leading to a haemopneumothorax and a thorough history taking, including inquiring about complementary alternative medicine, will bring up the clue. In order to prevent this serious complication acupuncturists need to be aware of it and understand the association with the erroneous use of an acupuncture needle.

The impact of the European migration crisis on the reasoning of an Emergency medicine specialist

S. Golmarvi, A. Meersman, P. Messiaen

Introduction

In 2015 we witnessed the largest migration of refugees in Europe since World War 2. Belgium welcomed in 2015 alone, 44.760 migrants mostly from Syria, Iraq and Afghanistan. As a growing number of refugees also presents at the emergency department, there is a need to broaden the perspective on patients who not only suffer from health risks during the journey, but can also be afflicted by specific illnesses related to the country of origin. Specifically symptoms as fever, respiratory-, gastrointestinal symptoms, sores, skin rash and meningitis or other neurological symptoms need special attention.

Clinical presentation

A 36-year-old man, who recently migrated from Syria to Belgium, presented at the emergency department with 3-week history of relapsing fever and low-back pain. On clinical exam, he was afebrile (37°C) and was relatively comfortable with a pain scale of 3/10. Moreover, he had a moderate diffuse abdominal tenderness on palpation. He also had lumbar and paravertebral lumbar pain. The laboratory studies and additional tests revealed a high inflammatory response, a few mesenteric adenopathies and a moderate splenomegaly, without a clear focus of infection.

The differential diagnose at that time included staphylococcal spondylodiscitis, enteric gram-negative spondylodiscitis, skeletal TBC or disseminated brucellosis.

Three days later, however the blood cultures appeared positive with *Brucella* species and later also the serology proved positive. The magnetic resonance imaging series with gadolinium contrast of lumbar spine revealed spondylodiscitis level L2-L3, without any signs of abcedation around the vertebrae. The diagnosis of *Brucella* spondylodiscitis was confirmed for which doxycycline 100mg orally bd and gentamicin 5mg/kg/day intravenously was started, with a continuation phase of doxycycline and ciprofloxacin 500mg orally bd for another 10 weeks. The patient recovered completely.

Literature key points

Brucellosis must be considered as a differential diagnosis in patients with clinical manifestation of prolonged fever, musculoskeletal pain or peripheral arthritis. Different diagnostic tests (serology, blood cultures and magnetic resonance imaging), guided by the symptoms for an early diagnosis and extended treatment of imported brucellosis are necessary to prevent complications and relapse of this disease. Although this imported disease has no burden on Belgium public health, there is an economic implication because of elevated healthcare utilization, if these patients with human brucellosis are not diagnosed and treated effectively in the timely manner.

Conclusion

With the large influx of newly arrived migrants, Emergency medicine physicians can be confronted with conditions which are rare or unknown in our regions. We should be more aware of specific infection endemic in the countries of origin.

Intracompartmental pressure measurement using a needle and an arterial pressure monitoring device in acute compartment syndrome of the calf

E. Verwulgen, H. Raemen, S. Lemoyne, K. Monsieurs

Introduction

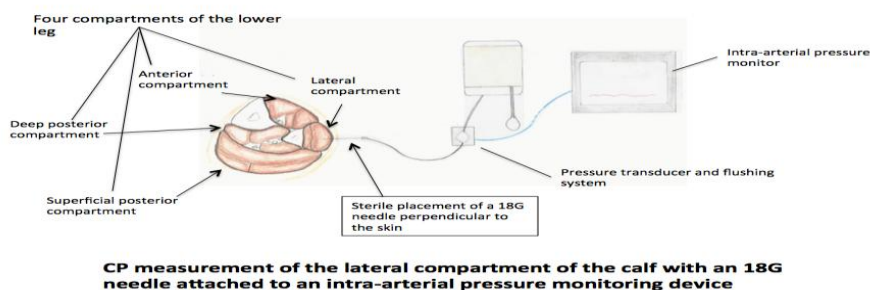
Acute Compartment Syndrome (ACS) of the limb is a potentially limb- and life-threatening condition. Management of an ACS of the limb is a core clinical skill in the European Curriculum for Emergency Medicine. The Emergency Physician (EP) should maintain a high index of suspicion as early diagnosis and treatment are mandatory. We present a case where the intracompartmental pressure (CP) measurement was performed in the Emergency Department (ED) using an intra-arterial pressure (IAP) monitoring device.

Clinical presentation

A 30 year old man experienced acute pain to the left calf while playing football. He presented to the ED with a tender swelling of the lateral calf. There were no signs of neurovascular impairment. An X-ray showed no bony abnormality and ultrasound was compatible with a rupture of the m. peronei. He was discharged with appropriate instructions. 12 hours later he represented with excruciating pain, an extremely tender swelling of the lateral calf and paresthesia of the foot. A 3-point CP measurement of the lateral compartment using an 18 G needle attached to an IAP monitor (figure) showed a maximal CP of 177 mmHg. A fasciotomy showed necrosis of both m. peronei and confirmed the diagnosis of ACS.

Literature key points

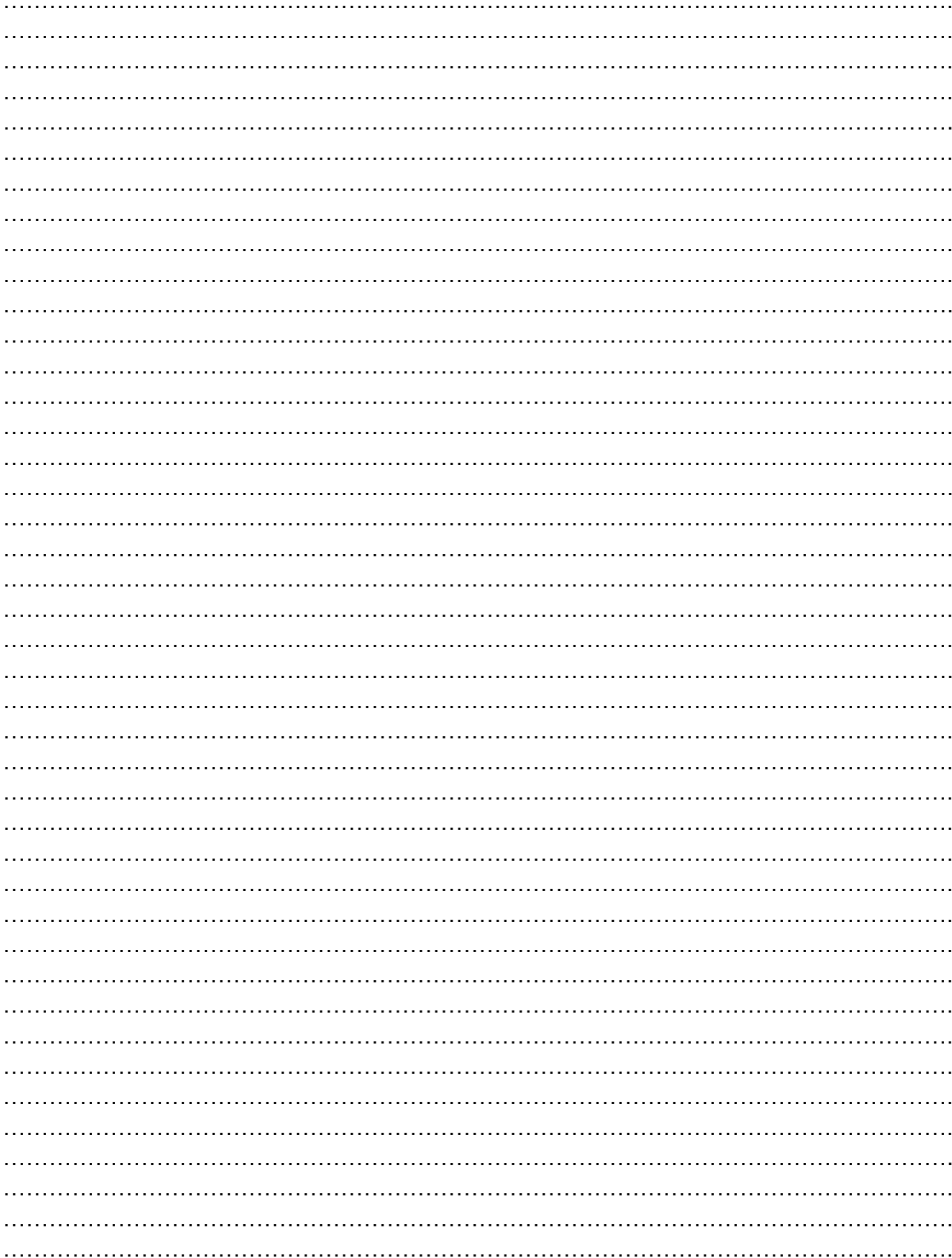
ACS occurs when raised CP causes tissue ischaemia, mostly after injury to the limb. A high index of suspicion is required to timely diagnose this potential disastrous pathological process. The 5 P's (Pain, Pulselessness, Pallor, Paresthesia and Paralysis) are unreliable signs, except for disproportionate pain. In doubt the CP should be measured. There are several specialised devices available for this purpose but in the ED a needle and an IAP monitor are a feasible alternative. In the suspected compartment three separate measurements should be done, the highest CP is indicative. Threshold for fasciotomy is a CP above 30 mmHg or 'delta pressure' (diastolic blood pressure minus CP) less than 30 mmHg is. Fasciotomy should be performed within 6 hours, after 12 hours permanent myoneural damage is inevitable.



Conclusion

We report a patient with of lateral ACS of the calf that was measured using an 18 G needle attached to an IAP monitor. In collaboration with orthopaedic surgeons, EPs should learn this core clinical skill which can be performed without specialised equipment.

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