Westmead Emergency Research Unit

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Special contributor

Fenton O'Leary

In this month's edition –

Foreword

EMRU Précis goes online!

You can now find the present and past précis articles courtesy of Dr Andrew Coggins @ http://emergencypedia.com/westmead-emru/

This month I have included with kind approval a social media and blog update from A/Prof Fenton O'Leary from kid's hospital (NCH) and an update on medical apps by Toby Thomas.

You will also find an amusing news article on the first defibrillator in the Nostos Algos section.

Disputatio addresses a burning issue raised by Dr Ibrahim – role of prophylactic antibiotics prior to tube thoracostomy.

Feel free to send your articles, topics or suggestions to samit36@hotmail.com or Jennifer.Johnson@swahs.health.nsw.gov.au or margaret.murphy@swahs.health.nsw.gov.au

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Happy reading…

Whilst there are articles on use of **PPI in stress ulcer prophylaxis** and **use of aspirin and clopidogrel in patients with TIA and risk of further stroke**; the most significant ED related article I believe has been the randomized controlled trial comparing use of **NAC versus IV fluids for prevention of contrast induced nephropathy.** It may come as no surprise that the only factor that they found preventive in this study was the amount of IV rehydration that the patients received!

Another interesting article published in the Annals of internal medicine outlines the **top patient safety interventions** which have a sound evidence base to be implemented right away in all hospitals. There is also recent **meta-analysis on antibiotic use and community associated C Difficile infections**. Another trial adds weight to the **futility of hypothermia as a therapy for TBI in children**. An interesting article in Nature about the **gut microbiome and role in diabetes** makes eclectic reading. An interesting article on **intensive lifestyle modifications in patients with NIDDM** has failed to demonstrate benefit! An article in Pediatrics hones in on the effects of **physical punishment in childhood.**

A meta-analysis on **regular caffeine use and positive cardiovascular outcomes**! **–** don't know if it applies to the products that originate from hospital cafeterias!

For the ultrasound buffs **– confirming ET tube placement with ultrasound**!

The special mention articles this month – best mode of quitting smoking – **abrupt versus gradual and an article on NAC versus IV rehydration in prevention of contrast induced nephropathy**.

Other interesting article reads – meta-analysis on tolerability of statins, effects of air-pollutions and presentations of CCF, music intervention in ICU patients, role of folic acid supplementation in patients on Methotrexate for RA, role for neuromuscular blockade in post-cardiac arrest patients in ICU, antibiotic prophylaxis after IDC removal, timing of umbilical cord clamping, use of night-time intensive care physicians and effects on outcomes

DUBIUS

- **Do not perform peripheral arterial Doppler scans** for nocturnal cramps, diabetic peripheral neuropathy or peripheral limb swelling if pulses are normal in the extremities – as it is unlikely to yield the cause but may lead to unnecessary interventions.[1]
- **Don't order coronary artery calcium scoring** for screening purposes on low risk asymptomatic individuals except for those with a family history of premature coronary artery disease. Net reclassification of risk by coronary artery calcium scoring, when added to clinical risk scoring, is least effective in low risk individuals.
- **Don't use coronary computed tomography angiography** in high risk emergency department patients presenting with acute chest pain. To date, randomized controlled trials evaluating use of coronary computed tomography angiography for individuals presenting with acute chest pain in the emergency department have been limited to low or low-intermediate risk individuals.[2]
- **Don't recommend follow-up imaging for clinically inconsequential adnexal cysts**. Simple cysts and hemorrhagic cysts in women of reproductive age are almost always physiologic. Small simple cysts in postmenopausal women are common, and clinically inconsequential. Ovarian cancer, while typically cystic, does not arise from these benign-appearing cysts. After a good quality ultrasound in women of reproductive age, don't recommend follow-up for a classic corpus luteum or simple cyst <5 cm in greatest diameter. Use 1 cm as a threshold for simple cysts in postmenopausal women. [3]
- **Don't test ANA sub-serologies without a positive ANA and clinical suspicion of immune-mediated disease.** Tests for anti-nuclear antibody (ANA) sub-serologies (including antibodies to double-stranded DNA, Smith, RNP, SSA, SSB, Scl-70, centromere) are usually negative if the ANA is negative. Exceptions include anti-Jo1, which can be positive in some forms of myositis, or occasionally, anti-SSA, in the setting of lupus or Sjögren's syndrome. Broad testing of autoantibodies should be avoided; instead the choice of autoantibodies should be guided by the specific disease under consideration. [4,5]

[1] Journal of the American College of Cardiology Vol. 60, No. 3, 2012 http://dx.doi.org/10.1016/j.jacc.2012.02.009 ACCF/ACR/AIUM/ASE/ASN/ICAVL/SCAI/SCCT/SIR/SVM/SVS 2012 Appropriate Use Criteria for Peripheral Vascular Ultrasound and Physiological Testing Part I: Arterial Ultrasound and Physiological Testing

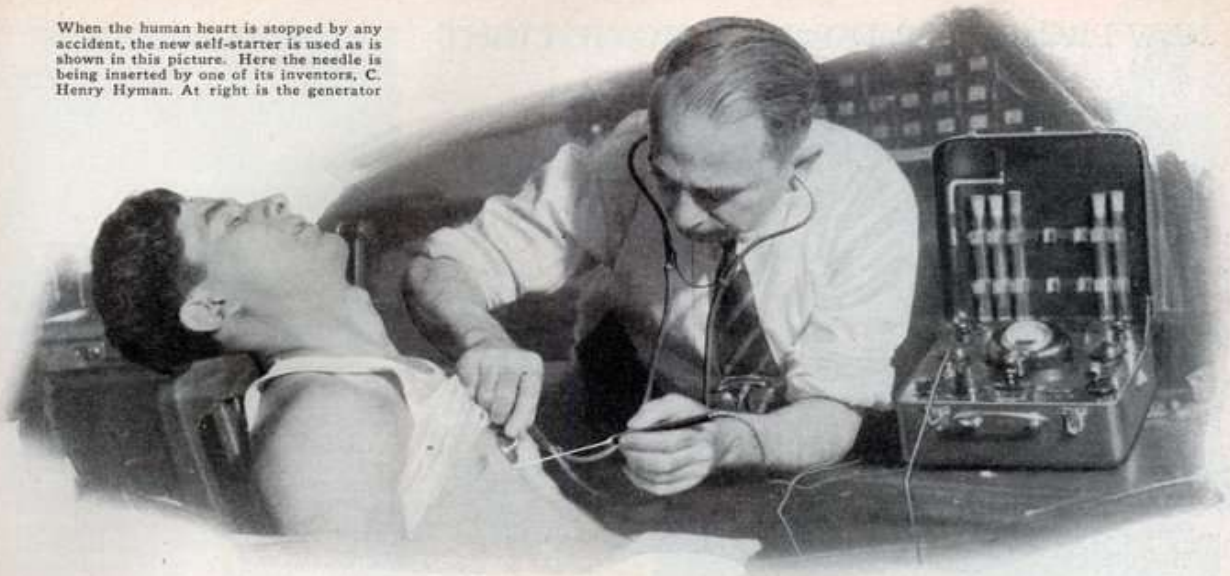
[2] The Society of Cardiovascular Computed Tomography (SCCT) formed a committee panel made up of expert members of its existing Guidelines Committee and Publications and Statements Committee that would be dedicated to recommending between five and 10 questions that should be considered when ordering Coronary CT angiography and coronary artery calcium scoring.

[3] The American College of Radiology (ACR) initially solicited expert opinion from physician leaders with its Board of Chancellors. A working group was then formed to further identify common clinical scenarios in which imaging may be misused and should be reconsidered.

[4] The American College of Rheumatology (ACR) established a Top 5 Task Force to oversee the creation of its recommendations.

[5] Adapted from Choosing wisely.org an initiative of American Board of Internal Medicine and involving relevant other medical specialty groups

NOSTOS ALGOS - Blast from the past

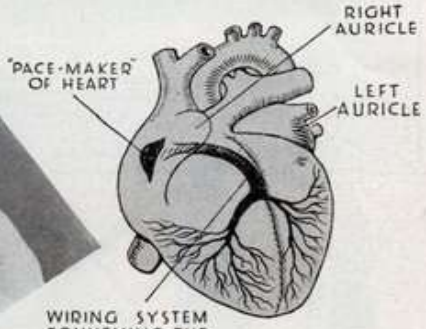


When the human heart is stopped by any accident, the new self-starter is used as is shown in this picture. Here the needle is being inserted by one of its inventors, C. Henry Hyman. At right is the generator

PHYSICIAN INVENTS

SELF-STARTER for Dead Man's Heart

An insulated wire passes through the hollow center of this needle to complete the circuit



WIRING SYSTEM CONVEYING THE ELECTRIC IMPULSES FROM PACE-MAKER TO THE HEART MUSCLES.

Each needle is kept in a sterilized test tube. Diagram of heart shows position of pacemaker

WHAT can be done when the heart ceases to beat? Under all sorts of different conditions, a doctor often is confronted with this urgent question.

The ambulance physician faces it with the victim of heart stroke, drowning, or accident. The surgeon faces it when the pulse of an etherized patient suddenly stops. The family physician faces it when a baby is still born or when a mother's heart stops during childbirth.

Until recently the only answer was the injection of a powerful stimulant into the heart itself, with the result that, not infrequently, the heart failed to respond.

A new answer has just been furnished by the invention of Dr. Albert S. Hyman, heart specialist of the Beth David Hospital of New York, and by C. Henry Hyman, electrical research engineer.

This life-saving device can be compared with the self-starter of a car. When the car's engine stalls, the starter motor turns it over until the cylinders are again firing. In the same way, when the heart stops under any of the conditions named above, the needle of the "Hyman Otor," as it is called, gives the four-cylinder heart engine a rhythmical electrical stimulation. This starts the heart beat and maintains it until the heart's own "electric generator" resumes operation.

This comparison is not far-fetched, for the equivalent of an electrical generator exists in the wall of the right upper chamber (or auricle) of the heart, and a system of "wires" conveys the electrical impulses to the heart muscle. This "ignition system" is called the "pace-maker" of the heart.

The essential feature of the Hyman invention is a hollow steel needle, through which a carefully insulated wire runs to the open point. Both the needle itself and its central wire are connected to the terminals of a light, spring-driven generator, provided with a current-interrupting device. This mechanism can be adjusted to give electrical impulses with the frequency of the heart-beat from infancy to old age.

When the physician faces a case of heart stoppage, he inserts the needle between the first and second ribs into the right auricle of the heart, and starts the generator at the required frequency. The rhythmical current then "cranks" the heart engine by stimulating the "pace-maker" to act in step with the generator, until its normal action is resumed. Usually this occurs quickly.

Medical authorities predict a wide usefulness for the "Hyman Otor."

OCTOBER, 1933 25

DISPUTATIO

The role of prophylactic antibiotics in the prevention of empyema post-tube thoracostomy.

Mary Ibrahim

Responses from Drs Kevin Lai, Harry Elizaga and Arsalan Hermiz included.

Recently Mary posed an interesting question about the role of prophylactic antibiotics in patients undergoing tube thoracostomy. There was a stimulating e-discussion around the topic and here I aim to dissect the issue further.

The Journal of Trauma and Acute Care Surgery. 73(3):752-7, 2012 Sep.

Development of posttraumatic empyema in patients with retained hemothorax: results of a prospective, observational AAST study.

DuBose J. Inaba K et al. AAST Retained Hemothorax Study Group.

AB BACKGROUND: The natural history of retained hemothorax (RH), in particular factors contributing to the subsequent development of empyema, is not well known. The intent of our study was **to establish the modern incidence of empyema among patients with trauma and RH and identify the independent predictors for development of this complication.** RESULTS: **Among 328 patients with posttraumatic RH from the 20 participating centers, overall incidence of empyema was 26.8% (n = 88). On regression analysis, the presence of rib fractures (adjusted odds ratio [OR], 2.3; 95% confidence interval [CI], 1.3-4.1; p = 0.006), Injury Severity Score of 25 or higher (adjusted OR, 2.4; 95% CI, 1.3-4.4; p = 0.005), and the need for any additional therapeutic intervention (adjusted OR, 28.8; 95% CI, 6.6-125.5; p < 0.001) were found to be independent predictors for the development of empyema for patients with posttraumatic RH.** Patients with empyema also had a significantly longer adjusted intensive care unit stay (adjusted mean difference, 4.1; 95% CI, 1.3-6.9; p = 0.008) and hospital stay (adjusted mean difference, -7.9; 95% CI, -12.7 to -3.2; p = 0.01). CONCLUSION: Among patients with trauma and posttraumatic RH, the incidence of empyema was 26.8%. Independent predictors of empyema development after posttraumatic RH included the presence of rib fractures, Injury Severity Score of 25 or higher, and the need for additional interventions to evacuate retained blood from the thorax. **Our findings highlight the need to minimize the risk associated with subsequent thoracic procedures among patients with critical illness and RH, through selection of the most optimal procedure for initial evacuation.** LEVEL OF EVIDENCE: Prognostic study, level III.

JAMA Surgery. 148(5):440-6, 2013 May.

Postoperative antibacterial prophylaxis for the prevention of infectious complications associated with tube thoracostomy in patients undergoing elective general thoracic surgery: a double-blind, placebo-controlled, randomized trial.

Oxman DA, Issa NC et al.

AB OBJECTIVE: **To determine whether extended postoperative antibacterial prophylaxis for patients undergoing elective thoracic surgery with tube thoracostomy reduces the risk of infectious complications compared with preoperative prophylaxis only.** DESIGN: Prospective, randomized, double-blind, placebo-controlled trial. SETTING: Brigham and Women's Hospital, an 800-bed tertiary care teaching hospital in Boston, Massachusetts. PARTICIPANTS: A total of 251 adult patients undergoing elective thoracic surgery requiring tube thoracostomy between April 2008 and April 2011. INTERVENTIONS: Patients received preoperative antibacterial prophylaxis with cefazolin sodium (or other drug if the patient was allergic to cefazolin). Postoperatively, patients were randomly assigned (at a 1:1 ratio) using a computer-generated randomization sequence to receive extended antibacterial prophylaxis (n = 125) or placebo (n = 126) for 48 hours or until all thoracostomy tubes were removed, whichever came first. MAIN OUTCOME MEASURES: The combined occurrence of surgical site infection, empyema, pneumonia, and Clostridium difficile colitis by postoperative day 28. RESULTS: **A total of 245 patients were included in the modified**

intention-to-treat analysis (121 in the intervention group and 124 in the placebo group). Thirteen patients (10.7%) in the intervention group and 8 patients (6.5%) in the placebo group had a primary end point (risk difference, -4.3% [95% CI, -11.3% to 2.7%]; P = .26). Six patients (5.0%) in the intervention group and 5 patients (4.0%) in the placebo group developed surgical site infections (risk difference, -0.93% [95% CI, -6.1% to 4.3%]; P = .77). Seven patients (5.8%) in the intervention group and 3 patients (2.4%) in the placebo group developed pneumonia (risk difference, -3.4% [95% CI, -8.3% to 1.6%]; P = .21). One patient in the intervention group developed empyema. No patients experienced C difficile colitis. CONCLUSIONS: **Extended postoperative antibacterial prophylaxis for patients undergoing elective thoracic surgery requiring tube thoracostomy did not reduce the number of infectious complications** compared with preoperative prophylaxis only.

The Journal of Trauma and Acute Care Surgery. 73(5 Suppl 4):S341-4, 2012 Nov.
Presumptive antibiotic use in tube thoracostomy for traumatic hemopneumothorax: an Eastern Association for the Surgery of Trauma practice management guideline.
Moore FO, Duane TM et al.
RESULTS: **Of the 98 articles identified, seven were selected as meeting criteria for review. Two questions regarding presumptive antibiotic use in TT for traumatic hemopneumothorax were addressed: (1) Do presumptive antibiotics reduce the incidence of empyema or pneumonia? And if true, (2) what is the optimal duration of antibiotic prophylaxis? CONCLUSION: Routine presumptive antibiotic use to reduce the incidence of empyema and pneumonia in TT for traumatic hemopneumothorax is controversial; however, there is insufficient published evidence to support any recommendation either for or against this practice.**

Systematic review and meta-analysis of antibiotic prophylaxis to prevent infections from chest drains in blunt and penetrating thoracic injuries. [Review]
Bosman A, de Jong MB et al.
British Journal of Surgery. 99(4):506-13, 2012 Apr. [Journal Article. Meta-Analysis. Review]
AB BACKGROUND: No consensus exists as to whether antibiotic prophylaxis in tube thoracostomy as primary treatment for traumatic chest injuries reduces the incidence of surgical-site and pleural cavity infections. RESULTS: Eleven articles were included, encompassing 1241 chest drains in 1234 patients. Most patients (84.7 per cent) were men, and a penetrating injury mechanism was most common (856, 69.4 per cent). A favourable effect of antibiotic prophylaxis on the incidence of pulmonary infection was found, with an **OR for the overall infectious complication rate of 0.24 (95 per cent c.i. 0.12 to 0.49). Patients who received antibiotic prophylaxis had an almost three times lower risk of empyema than those who did not receive antibiotic treatment (OR 0.32, 0.17 to 0.61). A subgroup analysis in patients with penetrating chest injuries showed that antibiotic prophylaxis in these patients reduced the risk of infection after tube thoracostomy (OR 0.28, 0.14 to 0.57), whereas in a relatively small blunt trauma subgroup no effect of antibiotic prophylaxis after blunt thoracic injury was found.** CONCLUSION: **Infectious complications are less likely to develop when antibiotic prophylaxis is administered to patients with thoracic injuries requiring chest drains after penetrating injury.**

Injury. 39(1):44-9, 2008 Jan.
The risk factors and management of posttraumatic empyema in trauma patients. [Review] [16 refs]
Eren S, Esme H et al.
BACKGROUND: Posttraumatic empyema increases patient morbidity, mortality and length of hospital stay, and the cost of treatment. The aim of this study was **to identify the risk factors for posttraumatic empyema and to review our treatment outcomes in patients with this condition**. METHODS: A total of 2261 patients who were admitted with thoracic traumas and underwent tube

thoracostomy between January 1989 and January 2006 were investigated retrospectively. **Posttraumatic empyema developed in 71 patients**. Logistic regression was used to assess the association between potential risk factors for posttraumatic empyema. All values were expressed as the mean+/-S.D. RESULTS: **Eight hundred and thirty-six (37%) of the patients had penetrating type trauma, while 1425 (63%) had blunt type trauma. The rate of posttraumatic empyema development was 3.1% for all patients.** Pulmonary contusion was seen in 221 (9.8%) patients and fractures of more than two ribs were seen in 191 (8.4%) patients. **Tube thoracostomy placement was performed in the emergency room in 1728 (76.4%) patients, in the hospital ward in 197 (8.7%), in the intensive care unit in 182 (8.0%), and in the operating room in 154 (6.8%). The duration of tube thoracostomy was 6.11+/-2.99 (1-21) days. Retained haemothorax was seen in 175 (7.7%) patients.** The mean lengths of hospital and intensive care unit stay were 6.42+/-3.45 and 2.36+/-2.66 days, respectively. **The analysis showed that duration of tube thoracostomy (OR, 2.49, p<0.001), length of intensive care unit stay (OR, 4.21, p<0.001), and presence of contusion (OR, 3.06, p<0.001), retained haemothorax (OR, 5.55, p<0.001), and exploratory laparotomy (OR, 2.46, p<0.001) were independent predictors of posttraumatic empyema. The relative risk of posttraumatic empyema was higher than 1 for each of the following risk factors: penetrating trauma (OR, 1.59, p=0.055), associated injuries (OR, 1.12, p=0.628) and fractures of more than two ribs (OR, 1.60, p=0.197).** CONCLUSION: **Prolonged duration of tube thoracostomy and length of intensive care unit stay, and the presence of contusion, laparotomy and retained haemothorax are independent predictors of posttraumatic empyema. Use of prophylactic antibiotics may be recommended in patients with these risk factors.**

A further 16 articles were reviewed but are not included here in the document

Conclusions –
There is enough data to suggest that traumatic chest injuries raise the risk for empyema and surgical interventions in these patients are associated with a further risk of developing infections. In patients with chest wall injuries and significant other traumatic injuries, there is enough data to suggest prophylactic antibiotics may reduce the incidence of empyema . **In patients with penetrating trauma, we currently administer IV cephazolin, so this is routine practice and probably should not change. Based on the evidence there is place for prophylactic antibiotics prior to thoracostomy in patients with significant trauma, penetrating injuries and traumatic hemothorax. There is no significant data to suggest that prophylactic antibiotics have a role in patients undergoing thoracostomy for other indications.**

PRIMUS

Multicentre trials currently underway at Westmead ED

Microchemirism Study – for patients who may need major transfusions after trauma

All patients meeting Trauma Category 1 criteria collect 2 tubes of

↓

Fill in the label and send to ICPMR with usual samples - no orders on Firstnet

BLISS Study – to correlate loads of bacterial DNA in blood versus outcomes in patients presenting to ED with sepsis.

All patients meeting Triage category 2 for SEPSIS collect 1 tube of

↓

Order Bacterial load test on power orders and send sample with all the blood samples to ICPMR - PAXGENE sticker

BIN REIECTIS

Recommended blog roll and social media update by A/Prof Fenton O'Leary (NCH)

Mary on Neonates – SMACC 2013
www.intensivecarenetwork.com/index.php/icn-activities/smacc-2013/podcasts/611-smacc-mary-mccaskill-on-neonatal-nightmares

Simon Carley on Relax, Children are just little adults
http://www.intensivecarenetwork.com/index.php/icn-activities/smacc-2013/podcasts/620-smacc-carley-on-relax-children-are-just-little-adults
http://stemlynsblog.org/2013/06/children-are-just-little-adults-st-emlyns-2/

Matt O'Meara – FEAST study
http://www.intensivecarenetwork.com/index.php/icn-activities/smacc-2013/podcasts/622-smacc-omeara-on-fluids-and-kids-feast-or-famine

How to cope when your registrar knows more than you do. St.Emlyn's
http://stemlynsblog.org/2013/04/how-to-cope-when-your-registrar-knows-more-than-you-do/

A confronting story on NAI from the UK
http://m.guardian.co.uk/lifeandstyle/2013/may/13/who-would-harm-our-baby?INTCMP=SRCH

Shock
http://lifeinthefastlane.com/2013/06/challenging-the-assessment-of-shock/

Fran Lockie on Head injuries
http://www.intensivecarenetwork.com/index.php/icn-activities/icn-podcasts/645-83-lockie-on-tbi-in-kids

British child death rates are 'a major crisis', says paediatricians' leader
http://m.guardian.co.uk/society/2013/jul/13/preventable-child-deaths-nhs?CMP=twt_fd

Press release: MHRA confirms codeine not to be used in children under 12 years old
http://www.mhra.gov.uk/NewsCentre/Pressreleases/CON287048

All ashore
http://prehospitalmed.com/2013/08/02/all-ashore/

Brush up on Cardiac Auscultation
http://www.intensivecarenetwork.com/index.php/training/general-requirements/675-brush-up-on-cardiac-auscultation

Chronic Illness Puts Pediatric Trauma Patients at Higher Risk
http://www.nationwidechildrens.org/news-room-articles/chronic-illness-puts-pediatric-trauma-patients-at-higher-risk?contentid=119001

EMCrit Wee – Vasopressin, Steroids, and Epinephrine for Cardiac Arrest
http://emcrit.org/wee/vasopressin-steroids-epinephrine-for-cardiac-arrest/

Human Factors cases with @JakemanNicola

http://stemlynsblog.org/2013/08/human-factors-cases-with-jakemannicola/

Neonatal Resus Tips with Drs Mel Thompson and Liz Bannister
http://broomedocs.com/2013/08/neonates-102-with-drs-mel-thompson-and-liz-bannister/

Clinical Focus: Strangulation and Hanging Injuries
http://www.epmonthly.com/features/current-features/clinical-focus-strangulation-and-hanging-injuries/

Prehospital amputation
http://aucklandhems.com/2013/08/01/prehospital-amputation/

How to deliver Nasal Positive Pressure Oxygenation & allow free access to oropharynx
http://prehospitalmed.com/2013/08/01/how-to-deliver-nasal-positive-pressure-oxygenation-allow-free-access-to-oropharynx/

Paediatric EM: Seeing Kids is Child's Play at St Emlyn's
http://stemlynsblog.org/2013/07/paediatric-em-seeing-kids-is-childs-play-at-st-emlyns/

PETHO
http://emnerd.tumblr.com/post/55876247881/the-adventure-of-the-greek-interpreter

a knackered neonate…
http://thebluntdissection.org/2013/07/a-knackered-neonate/

Crisis Resource Management (CRM)
http://lifeinthefastlane.com/education/ccc/crisis-resource-management-crm/

Don't sleep with mean people
http://theconversation.com/dont-sleep-with-mean-people-16197

Near-Complete Supraglottic Transection of the Larynx after a Motorbike Accident
http://www.hindawi.com/crim/otolaryngology/2013/827902/

Helicopter Emergency Medical Services (HEMS) over-triage and the financial implications for major trauma centres in NSW, Australia
http://www.biomedcentral.com/content/pdf/1471-227X-13-11.pdf

Medical education's front line: The GMC's review of training in seven emergency medicine departments
https://www.fmlm.ac.uk/about/updates/medical-education%E2%80%99s-front-line-gmcs-review-training-seven-emergency-medicine

Diclofenac shouldn't be prescribed to people with heart problems, drug agency says
http://www.bmj.com/content/347/bmj.f4285

From Mindless to Mindful Practice — Cognitive Bias and Clinical Decision Making
http://www.nejm.org/doi/full/10.1056/NEJMp1303712

Recommended Apps and other titbits by Dr Toby Thomas

1) ABG Pro

Does Aa gradient, simple and complex acid base problems with differential diagnoses and osmolar gap. Great both for on the floor and those pesky metabolic questions on the fellowship. My only problem is that I seem to get different answers for the Aa gradient when I do it by hand (close but different)

2) Radiology Teaching Files: One Night in the ED

65 abdominal cases with CT's and then detailed answers. This is an excellent teaching resource. I suspect there may be additional chapters to come.

3) CT Scanning in Critical and Emergency Care

An awesome way to learn CT of the abdomen, brain, chest and spine. There's a case, the CT, a radiologist describing the film and then a detailed tute on that particular topic. Did I mention it is awesome?

4) NZ Blood: Reversing Warfarin

Type in the INR and it tells you what to do. Yes, you can look it up but this is way cooler.

5) SMART Foam

It links you up to the latest and greatest ED blog entries. It has even linked to Andrew Coggins' blog but I suspect that is a bug they can fix in the next version.

6) Real World Orthopaedics

A case history , the x-rays and then a description of the film. If you've missed something you can select a keyword in the description and it will then be highlighted on the film.

7) MedCalc Pro

Surely, we all know this one. A one- stop-shop for just about every formula you can think of and many you have never heard of (and will never need)

8) ERes

Too tired to think during a night shift? This is a great reference with decision rules, a refresher for numerous procedures, drug doses, ultrasound tips, and summaries for a huge range of topics.

If you want to check them out, just steal Toby's IPAD for a while.

PRÉCIS MENSTRUA

Crit Care Med 2013 Mar; 41:693.
Proton pump inhibitors versus histamine 2 receptor antagonists for stress ulcer prophylaxis in critically ill patients: A systematic review and meta-analysis.
Alhazzani W, Alenezi F et al.
RESULTS:
Fourteen trials enrolling a total of 1,720 patients were included. Proton pump inhibitors were more effective than histamine 2 receptor antagonists at reducing clinically important upper gastrointestinal bleeding (relative risk 0.36; 95% confidence interval 0.19-0.68; p = 0.002; I = 0%) and overt upper gastrointestinal bleeding (relative risk 0.35; 95% confidence interval 0.21-0.59; p < 0.0001; I = 15%). There were no differences
between proton pump inhibitors and histamine 2 receptor antagonists in the risk of nosocomial pneumonia (relative risk 1.06; 95% confidence interval 0.73-1.52; p = 0.76; I = 0%), ICU mortality (relative risk 1.01; 95% confidence interval 0.83-1.24; p = 0.91; I = 0%), or ICU length of stay (mean difference -0.54 days; 95% confidence interval -2.20 to 1.13; p = 0.53; I = 39%). No trials reported on C. difficile infection.
CONCLUSIONS:
**In critically ill patients, proton pump inhibitors seem to be more effective
than histamine 2 receptor antagonists in preventing clinically important and overt upper gastrointestinal bleeding.** The robustness of this conclusion is limited by the trial methodology, differences between lower and higher quality trials, sparse data, and possible publication bias. We observed **no differences between drugs in the risk of pneumonia, death, or ICU length of stay.**

Resuscitation 2013 Jun 24
Continuous neuromuscular blockade is associated with decreased mortality in post-cardiac arrest patients.
Salciccioli JD, Cocchi MN et al
Aim
Neuromuscular blockade may improve outcome in patients with acute respiratory distress syndrome. In post-cardiac arrest patients receiving therapeutic hypothermia, neuromuscular blockade is often used to prevent shivering. Our objective was to determine whether neuromuscular blockade is associated with improved outcomes after out-of-hospital cardiac arrest.
Results
A total of 111 patients were analysed. In patients with 24 h of sustained neuromuscular blockade, the crude survival rate was 14/18 (78%) compared to 38/93 (41%) in patients without sustained neuromuscular blockade (p = 0.004). After multivariable adjustment, neuromuscular blockade was associated with survival (adjusted OR: 7.23, 95% CI: 1.56–33.38). There was a trend toward improved functional outcome with neuromuscular blockade (50% versus 28%; p = 0.07). Sustained neuromuscular blockade was associated with improved lactate clearance (adjusted p = 0.01).
Conclusions
We found that **early neuromuscular blockade for a 24-h period is associated with an increased probability of survival. Secondarily, we found that early, sustained neuromuscular blockade is associated with improved lactate clearance**.

N Engl J Med 2013; 369:11-19July 4, 2013DOI: 10.1056/NEJMoa1215340
Clopidogrel with Aspirin in Acute Minor Stroke or Transient Ischemic Attack
Wang Y, Wang Y et al for the CHANCE Investigators
METHODS
In a randomized, double-blind, placebo-controlled trial conducted at 114 centers in China, we randomly assigned 5170 patients within 24 hours after the onset of minor ischemic stroke or high-

risk TIA to combination therapy with clopidogrel and aspirin (clopidogrel at an initial dose of 300 mg, followed by 75 mg per day for 90 days, plus aspirin at a dose of 75 mg per day for the first 21 days) or to placebo plus aspirin (75 mg per day for 90 days). All participants received open-label aspirin at a clinician-determined dose of 75 to 300 mg on day 1. The primary outcome was stroke (ischemic or hemorrhagic) during 90 days of follow-up in an intention-to-treat analysis. Treatment differences were assessed with the use of a Cox proportional-hazards model, with study center as a random effect.

RESULTS

Stroke occurred in 8.2% of patients in the clopidogrel–aspirin group, as compared with 11.7% of those in the aspirin group (hazard ratio, 0.68; 95% confidence interval, 0.57 to 0.81; P<0.001). Moderate or severe hemorrhage occurred in seven patients (0.3%) in the clopidogrel–aspirin group and in eight (0.3%) in the aspirin group (P=0.73); the rate of hemorrhagic stroke was 0.3% in each group.

CONCLUSIONS

Among patients with TIA or minor stroke who can be treated within 24 hours after the onset of symptoms, **the combination of clopidogrel and aspirin is superior to aspirin alone for reducing the risk of stroke in the first 90 days and does not increase the risk of hemorrhage.** (Funded by the Ministry of Science and Technology of the People's Republic of China)

Neurology 2013 May 28; 80:2065.

Periprocedural management of antithrombotic medications in patients with ischemic cerebrovascular disease. Report of the Guideline Development Subcommittee of the American Academy of Neurology.

Armstrong MJ et al.

Their recommendations, based on the available evidence, can be summed as follows:

- Aspirin and warfarin should be continued during dental procedures (Level A).
- Continuing these drugs may be safe during several other types of relatively minor procedures (Levels B and C).
- Little evidence exists for or against periprocedural heparin bridging in patients whose warfarin is being held (Level U).
- Heparin bridging appears to increase bleeding risk compared with simply holding warfarin (Level B).
- Patients should be counselled that stopping aspirin or warfarin, particularly for ≥7 days, is probably associated with an increased risk for stroke (Level B).

Acad Emerg Med. 2013 Jun;20(6):592-6. doi: 10.1111/acem.12144.

The implications of missed opportunities to diagnose appendicitis in children.

Naiditch JA, Lautz TB et al.

METHODS:

The records of all 816 patients who underwent appendectomy for suspected appendicitis at a free-standing children's hospital between 2007 and 2010 were reviewed. A patient admitted or evaluated in the emergency department (ED), discharged without a diagnosis of appendicitis, and then readmitted with histopathologically confirmed appendicitis within 3 days was considered to have a "missed diagnosis." Outcomes for this missed group were compared to those of the remainder of the appendectomy cohort.

RESULTS:

Thirty-nine patients with appendicitis (4.8%) were missed at initial presentation. The most common initial discharge diagnoses were acute gastroenteritis (43.6%), constipation (10.3%), and emesis (10.3%). The median duration from the initial evaluation to the appendicitis admission was 28.3 hours (interquartile range [IQR] = 17.0 to 39.6 hours). A missed diagnosis was associated with a longer median hospitalization (5.8 days [IQR = 4.0 to 8.1 days] vs. 2.5 days [IQR = 1.8 to 4.6 days];

p < 0.001), higher rate of perforation (74.4% vs. 29.0%; p < 0.001), higher complication rate (28.2% vs. 10.4%; p = 0.002), and higher rate of reintervention (20.5% vs. 6.2%; p = 0.003).

CONCLUSIONS:

Of children diagnosed with appendicitis**, 4.8% may have had a missed opportunity for earlier diagnosis. These false-negative diagnoses are associated with higher rates of perforation, postoperative complications, and need for postoperative interventions, as well as longer hospitalizations.**

CIRCOUTCOMES Published online before print July 9, 2013**,**doi: 10.1161

Comparative Tolerability and Harms of Individual Statins

A Study-Level Network Meta-Analysis of 246 955 Participants From 135 Randomized Controlled Trials

Huseyin N, Jasper B et al

We systematically reviewed randomized trials evaluating different statins in participants with and without cardiovascular disease. We performed random-effects pairwise and network meta-analyses to quantify the relative harms of individual statins. We included 55 two-armed placebo-controlled and 80 two- or multiarmed active-comparator trials including 246 955 individuals.

Results

Statins as a class resulted in significantly higher odds of diabetes mellitus (odds ratio, 1.09; 95% confidence interval, 1.02–1.16) and transaminase elevations (odds ratio, 1.51; 95% confidence interval, 1.24–1.84) compared with control. When individual statins were compared in network meta-analyses, there were numerous statistically detectable differences, favoring simvastatin and pravastatin. According to dose-level comparisons, individual statins resulted in higher odds of discontinuations with higher doses of atorvastatin and rosuvastatin. Similarly, higher doses of atorvastatin, fluvastatin, lovastatin, and simvastatin were associated with higher odds of transaminase elevations. Simvastatin at its highest doses was associated with creatine kinase elevations (odds ratio, 4.14; 95% credible interval, 1.08–16.24).

Conclusions—As a class, **adverse events associated with statin therapy are not common**. Statins are **not associated with cancer risk but do result in higher odds of diabetes mellitus**. Among individual statins, **simvastatin and pravastatin seem safer and more tolerable** than other statins.

The Lancet, Early Online Publication, 10 July 2013 doi:10.1016/S0140-6736(13)60898-3

Global association of air pollution and heart failure: a systematic review and meta-analysis

Shah ASV, Langrish JP et al

Results

Of 1146 identified articles, 195 were reviewed in-depth with 35 satisfying inclusion criteria. Heart failure hospitalisation or death was associated with increases in carbon monoxide (3·52% per 1 part per million; 95% CI 2·52—4·54), sulphur dioxide (2·36% per 10 parts per billion; 1·35—3·38), and nitrogen dioxide (1·70% per 10 parts per billion; 1·25—2·16), but not ozone (0·46% per 10 parts per billion; −0·10 to 1·02) concentrations. Increases in particulate matter concentration were associated with heart failure hospitalisation or death (PM2·5 2·12% per 10 µg/m3, 95% CI 1·42—2·82; PM10 1·63% per 10 µg/m3, 95% CI 1·20—2·07). Strongest associations were seen on the day of exposure, with more persistent effects for PM2·5. In the USA, we estimate that a mean reduction in PM2·5 of 3·9 µg/m3 would prevent 7978 heart failure hospitalisations and save a third of a billion US dollars a year.

Interpretation

Air pollution has a close temporal association with heart failure hospitalisation and heart failure mortality.

BMJ 2013; 346 doi: http://dx.doi.org/10.1136/bmj.f3646 (Published 27 June 2013)

Lithium in the prevention of suicide in mood disorders: updated systematic review and meta-analysis

Cipriani A, Hawton K et al.

Results 48 randomised controlled trials (6674 participants, 15 comparisons) were included. **Lithium was more effective than placebo in reducing the number of suicides (odds ratio 0.13, 95% confidence interval 0.03 to 0.66) and deaths from any cause (0.38, 0.15 to 0.95).** No clear benefits were observed for lithium compared with placebo in preventing deliberate self-harm (0.60, 0.27 to 1.32). In unipolar depression, **lithium was associated with a reduced risk of suicide (0.36, 0.13 to 0.98) and also the number of total deaths (0.13, 0.02 to 0.76) compared with placebo.** When lithium was compared with each active individual treatment a statistically significant difference was found only with carbamazepine for deliberate self-harm. Lithium tended to be generally better than the other active comparators, with small statistical variation between the results.

Conclusions Lithium is an effective treatment for reducing the risk of suicide in people with mood disorders. Lithium may exert its antisuicidal effects by reducing relapse of mood disorder, but additional mechanisms should also be considered because there is some evidence that lithium decreases aggression and possibly impulsivity, which might be another mechanism mediating the antisuicidal effect.

JAMA. 2013 Jun 12;309(22):2335-44. doi: 10.1001/jama.2013.5670.

Effects of patient-directed music intervention on anxiety and sedative exposure in critically ill patients receiving mechanical ventilatory support: a randomized clinical trial.

Chlan LL, Weinert CR et al.

OBJECTIVE:

To test whether listening to self-initiated patient-directed music (PDM) can reduce anxiety and sedative exposure during ventilatory support in critically ill patients.

RESULTS:

Patients in the PDM group listened to music for a mean (SD) of 79.8 (126) (median [range], 12 [0-796]) minutes/day. Patients in the NCH group wore the noise-abating headphones for a mean (SD) of 34.0 (89.6) (median [range], 0 [0-916]) minutes/day. The mixed-models analysis showed that at any time point, patients in the PDM group had an anxiety score that was 19.5 points lower (95% CI, -32.2 to -6.8) than patients in the usual care group (P = .003). By the fifth study day, anxiety was reduced by 36.5% in PDM patients. The treatment × time interaction showed that PDM significantly reduced both measures of sedative exposure. **Compared with usual care, the PDM group had reduced sedation intensity by -0.18 (95% CI, -0.36 to -0.004) points/day (P = .05) and had reduced frequency by -0.21 (95% CI, -0.37 to -0.05) points/day (P = .01). The PDM group had reduced sedation frequency by -0.18 (95% CI, -0.36 to -0.004) points/day vs. the NCH group (P = .04). By the fifth study day, the PDM patients received 2 fewer sedative doses (reduction of 38%) and had a reduction of 36% in sedation intensity.**

CONCLUSIONS AND RELEVANCE:

Among ICU patients receiving acute ventilatory support for respiratory failure, PDM resulted in greater reduction in anxiety compared with usual care, but not compared with NCH. Concurrently, PDM resulted in greater reduction in sedation frequency compared with usual care or NCH, and greater reduction in sedation intensity compared with usual care, but not compared with NCH.

JAMA Psychiatry. 2013;70(7):692-697. doi:10.1001/jamapsychiatry.2013.908.

Noncancer Pain Conditions and Risk of Suicide

Ilgen MA, Kleinberg F et al.

Results Controlling for demographic and contextual factors (age, sex, and Charlson score), elevated suicide risks were observed for each pain condition except arthritis and neuropathy (hazard ratios ranging from 1.33 [99% CI, 1.22-1.45] for back pain to 2.61 [1.82-3.74] for psychogenic pain). When

analyses controlled for concomitant psychiatric conditions, the associations between pain conditions and suicide death were reduced; however, significant associations remained for back pain (hazard ratio, 1.13 [99% CI, 1.03-1.24]), migraine (1.34 [1.02-1.77]), and psychogenic pain (1.58 [1.11-2.26]). **Conclusions and Relevance: There is a need for increased awareness of suicide risk in individuals with certain noncancer pain diagnoses, in particular back pain, migraine, and psychogenic pain.**

Antimicrob. Agents Chemother. **May 2013** vol. 57 no. 5 **2326-2332 doi: 10.1128/AAC.02176-12**
Meta-Analysis of Antibiotics and the Risk of Community-Associated *Clostridium difficile* Infection
Brown KA, Khanafer N et al
ABSTRACT
The rising incidence of Clostridium difficile infection (CDI) could be reduced by lowering exposure to high-risk antibiotics. The objective of this study was to determine the association between antibiotic class and the risk of CDI in the community setting. The EMBASE and PubMed databases were queried without restriction to time period or language. Comparative observational studies and randomized controlled trials (RCTs) considering the impact of exposure to antibiotics on CDI risk among nonhospitalized populations were considered. We estimated pooled odds ratios (OR) for antibiotic classes using random-effect meta-analysis. Our search criteria identified 465 articles, of which 7 met inclusion criteria; all were observational studies. Five studies considered antibiotic risk relative to no antibiotic exposure: clindamycin (OR = 16.80; 95% confidence interval [95% CI], 7.48 to 37.76), fluoroquinolones (OR = 5.50; 95% CI, 4.26 to 7.11), and cephalosporins, monobactams, and carbapenems (CMCs) (OR = 5.68; 95% CI, 2.12 to 15.23) had the largest effects, while macrolides (OR = 2.65; 95% CI, 1.92 to 3.64), sulfonamides and trimethoprim (OR = 1.81; 95% CI, 1.34 to 2.43), and penicillins (OR = 2.71; 95% CI, 1.75 to 4.21) had lower associations with CDI. We noted no effect of tetracyclines on CDI risk (OR = 0.92; 95% CI, 0.61 to 1.40). **In the community setting, there is substantial variation in the risk of CDI associated with different antimicrobial classes. Avoidance of high-risk antibiotics (such as clindamycin, CMCs, and fluoroquinolones) in favor of lower-risk antibiotics (such as penicillins, macrolides, and tetracyclines) may help reduce the incidence of CDI.**

JAMA Intern Med. 2013;173(9):763-769. doi:10.1001/jamainternmed.2013.116.
High-Sensitivity Cardiac Troponin T Levels and Secondary Events in Outpatients with Coronary Heart Disease from the Heart and Soul Study
Beatty AL, Ku IA et al
Objectives To determine the association of hs-cTnT levels with structural and functional measures of heart disease and the extent to which these measures explain the relationship between hs-cTnT and secondary events.
Design We measured serum concentrations of hs-cTnT and performed exercise treadmill testing with stress echocardiography in a prospective cohort study of outpatients with coronary heart disease who were enrolled from September 11, 2000, through December 20, 2002, and followed up for a median of 8.2 years.
Main Outcomes and Measures Cardiovascular events (myocardial infarction, heart failure, or cardiovascular death), determined by review of medical records and death certificates.
Results Of 984 participants, 794 (80.7%) had detectable hs-cTnT levels. At baseline, higher hs-cTnT levels were associated with greater inducible ischemia and worse left ventricular ejection fraction, left atrial function, diastolic function, left ventricular mass, and treadmill exercise capacity. During follow-up, 317 participants (32.2%) experienced a cardiovascular event. After adjustment for clinical risk factors, baseline cardiac structure and function, and other biomarkers (N-terminal portion of the prohormone of brain-type natriuretic peptide and C-reactive protein levels), each doubling in hs-cTnT level remained associated with a 37% higher rate of cardiovascular events (hazard ratio, 1.37 [95% CI, 1.14-1.65]; *P* = .001).

Conclusions and Relevance In outpatients with stable coronary heart disease, higher hs-cTnT levels were associated with multiple abnormalities of cardiac structure and function but remained independently predictive of secondary events. These findings suggest that hs-cTnT levels may detect an element of risk that is not captured by existing measures of cardiac disease severity.

Lancet Neurol. 2013 Jun;12(6):546-53. doi: 10.1016/S1474-4422(13)70077-2. Epub 2013 May 8.
Comparison of hypothermia and normothermia after severe traumatic brain injury in children (Cool Kids): a phase 3, randomised controlled trial.
Adelson PD, Wisniewski SR et al.

Abstract
BACKGROUND:
On the basis of mixed results from previous trials, we assessed whether therapeutic hypothermia for 48-72 h with slow rewarming improved mortality in children after brain injury.
METHODS:
In this phase 3, multicenter, multinational, randomised controlled trial, we included patients with severe traumatic brain injury who were younger than 18 years and could be enrolled within 6 h of injury. We used a computer-generated randomisation sequence to randomly allocate patients (1:1; stratified by site and age [<6 years, 6-15 years, 16-17 years]) to either hypothermia (rapidly cooled to 32-33°C for 48-72 h, then rewarmed by 0·5-1·0°C every 12-24 h) or normothermia (maintained at 36·5-37·5°C). The primary outcome was mortality at 3 months, assessed by intention-to-treat analysis; secondary outcomes were global function at 3 months after injury using the Glasgow outcome scale (GOS) and the GOS-extended pediatrics, and the occurrence of serious adverse events. Investigators assessing outcomes were masked to treatment. This trial is registered with ClinicalTrials.gov, number NCT00222742.
FINDINGS:
The study was terminated early for futility after an interim data analysis on data for 77 patients (enrolled between Nov 1, 2007, and Feb 28, 2011): 39 in the hypothermia group and 38 in the normothermia group. We detected **no between-group difference in mortality 3 months after injury (6 [15%] of 39 patients in the hypothermia group vs. two [5%] of 38 patients in the normothermia group; p=0·15). Poor outcomes did not differ between groups (in the hypothermia group, 16 [42%] patients had a poor outcome by GOS and 18 [47%] had a poor outcome by GOS-extended paediatrics; in the normothermia group, 16 [42%] patients had a poor outcome by GOS and 19 [51%] of 37 patients had a poor outcome by GOS-extended paediatrics). We recorded no between-group differences in the occurrence of adverse events or serious adverse events.**
INTERPRETATION:
Hypothermia for 48 h with slow rewarming does not reduce mortality of improve global functional outcome after paediatric severe traumatic brain injury.

Nature. 2013 Jun 6;498(7452):99-103. doi: 10.1038/nature12198. Epub 2013 May 29.
Gut metagenome in European women with normal, impaired and diabetic glucose control.
Karlsson FH, Tremaroli V et al

Abstract
Type 2 diabetes (T2D) is a result of complex gene-environment interactions, and several risk factors have been identified, including age, family history, diet, sedentary lifestyle and obesity. Statistical models that combine known risk factors for T2D can partly identify individuals at high risk of developing the disease. However, these studies have so far indicated that human genetics contributes little to the models, whereas socio-demographic and environmental factors have greater influence. Recent evidence suggests the importance of the gut microbiota as an environmental factor, and **an altered gut microbiota has been linked to metabolic diseases including obesity, diabetes and cardiovascular disease**. Here we use **shotgun sequencing to characterize the faecal metagenome of 145 European women with normal, impaired or diabetic glucose control.** We

observe compositional and functional alterations in the metagenomes of women with T2D, and **develop a mathematical model based on metagenomic profiles that identified T2D with high accuracy. We applied this model to women with impaired glucose tolerance, and show that it can identify women who have a diabetes-like metabolism.** Furthermore, glucose control and medication were unlikely to have major confounding effects. We also applied our model to a recently described Chinese cohort and show that the discriminant metagenomic markers for T2D differ between the European and Chinese cohorts. Therefore, metagenomic predictive tools for T2D should be specific for the age and geographical location of the populations studied.

N Engl J Med 2013; 369:145-154July 11, 2013DOI: 10.1056/NEJMoa1212914
Cardiovascular Effects of Intensive Lifestyle Intervention in Type 2 Diabetes
The Look AHEAD Research Group
BACKGROUND
Weight loss is recommended for overweight or obese patients with type 2 diabetes on the basis of short-term studies, but long-term effects on cardiovascular disease remain unknown.
METHODS
In 16 study centers in the United States, we randomly assigned 5145 overweight or obese patients with type 2 diabetes to participate in an intensive lifestyle intervention that promoted weight loss through decreased caloric intake and increased physical activity (intervention group) or to receive diabetes support and education (control group). The primary outcome was a composite of death from cardiovascular causes, nonfatal myocardial infarction, nonfatal stroke, or hospitalization for angina during a maximum follow-up of 13.5 years.
RESULTS
The **trial was stopped early on the basis of a futility analysis** when the **median follow-up was 9.6 years. Weight loss was greater in the intervention group than in the control group throughout the study (8.6% vs. 0.7% at 1 year; 6.0% vs. 3.5% at study end). The intensive lifestyle intervention also produced greater reductions in glycated hemoglobin and greater initial improvements in fitness and all cardiovascular risk factors, except for low-density-lipoprotein cholesterol levels.** The **primary outcome occurred in 403 patients in the intervention group and in 418 in the control group (1.83 and 1.92 events per 100 person-years, respectively; hazard ratio in the intervention group, 0.95; 95% confidence interval, 0.83 to 1.09; P=0.51).**
CONCLUSIONS
An intensive lifestyle intervention focusing on weight loss did not reduce the rate of cardiovascular events in overweight or obese adults with type 2 diabetes. (Funded by the National Institutes of Health and others)

Pediatrics Published online July 15, 2013 (doi: 10.1542/peds.2012-4021)
Harsh Physical Punishment in Childhood and Adult Physical Health
Afifi TO, Mota N et al
ABSTRACT
BACKGROUND: The use of physical punishment is controversial. The current study investigated possible associations between harsh physical punishment (i.e., pushing, grabbing, shoving, slapping, and hitting) in the absence of more severe child maltreatment (i.e., physical abuse, sexual abuse, emotional abuse, physical neglect, emotional neglect, and exposure to intimate partner violence) and several physical health conditions.
RESULTS: **Harsh physical punishment was associated with higher odds of cardiovascular disease (borderline significance), arthritis, and obesity after adjusting for sociodemographic variables, family history of dysfunction, and Axis I and II mental disorders** (adjusted odds ratios ranged from 1.20 to 1.30).

BMJ 2013; 346 doi: http://dx.doi.org/10.1136/bmj.f3147 (Published 11 June 2013)

Antibiotic prophylaxis for urinary tract infections after removal of urinary catheter: meta-analysis

Marschall J,Carpenter CR et al.

Abstract

Objective To determine whether antibiotic prophylaxis at the time of removal of a urinary catheter reduces the risk of subsequent symptomatic urinary tract infection**.**

Design Systematic review and meta-analysis of studies published before November 2012 identified through PubMed, Embase, Scopus, and the Cochrane Library; conference abstracts for 2006-12 were also reviewed.

Results Seven controlled studies had symptomatic urinary tract infection after catheter removal as an endpoint; six were randomized controlled trials (five published; one in abstract form) and one was a non-randomized controlled intervention study. Five of these seven studies were in surgical patients. Studies were heterogeneous in the type and duration of antimicrobial prophylaxis and the period of observation. Overall, **antibiotic prophylaxis was associated with benefit to the patient, with an absolute reduction in risk of urinary tract infection of 5.8% between intervention and control groups. The risk ratio was 0.45 (95% confidence interval 0.28 to 0.72). The number needed to treat to prevent one urinary tract infection was 17 (12 to 30).**

Conclusions Patients admitted to hospital who undergo short term urinary catheterization might benefit from antimicrobial prophylaxis when the catheter is removed as they experience fewer subsequent urinary tract infections. Potential disadvantages of more widespread antimicrobial prophylaxis (side effects and cost of antibiotics, development of antimicrobial resistance) might be mitigated by the identification of which patients are most likely to benefit from this approach.

Emerg Med J. 2013 Feb 28. [Epub ahead of print]

Mortality and morbidity after high-dose methylprednisolone treatment in patients with acute cervical spinal cord injury: a propensity-matched analysis using a nationwide administrative database.

Chikuda H, Yasunaga H et al.

Abstract

OBJECTIVE:

To examine the magnitude of the adverse impact of high-dose methylprednisolone treatment in patients with acute cervical spinal cord injury (SCI).

METHODS:

We examined the abstracted data from the Japanese Diagnosis Procedure Combination database, and included patients with ICD-10 code S141 who were admitted on an emergency basis between 1 July and 31 December in 2007-2009. The investigation evaluated the patients' sex, age, comorbidities, Japan Coma Scale, hospital volume and the amount of methylprednisolone administered. One-to-one propensity-score matching between high-dose methylprednisolone group (>5000 mg) and control group was performed to compare the rates of in-hospital death and major complications (sepsis; pneumonia; urinary tract infection; gastrointestinal ulcer/bleeding; and pulmonary embolism).

RESULTS:

We identified 3508 cervical SCI patients (2652 men and 856 women; mean age, 60.8±18.7 years) including 824 (23.5%) patients who received high-dose methylprednisolone. A propensity-matched analysis with 824 pairs of patients showed a **significant increase in the occurrence of gastrointestinal ulcer/bleeding (68/812 vs. 31/812; p<0.001) in the high-dose methylprednisolone group. Overall, the high-dose methylprednisolone group demonstrated a significantly higher risk of complications (144/812 vs. 96/812;OR, 1.66; 95% CI 1.23 to 2.24; p=0.001) than the control group.** There was **no significant difference in in-hospital mortality between the high-dose methylprednisolone group and the control group (p=0.884).**

CONCLUSIONS:
Patients receiving high-dose methylprednisolone had a significantly increased risk of major complications, in particular, gastrointestinal ulcer/bleeding. However, high-dose methylprednisolone treatment was not associated with any increase in mortality.

Clin Infect Dis. (2013)doi: 10.1093/cid/cit278First published online: July 10, 2013
A Guide to Utilization of the Microbiology Laboratory for Diagnosis of Infectious Diseases: 2013 Recommendations by the Infectious Diseases Society of America (IDSA) and the American Society for Microbiology (ASM)
Baron EJ, Miller JM et al
Abstract
The critical role of the microbiology laboratory in infectious disease diagnosis calls for a close, positive working relationship between the physician and the microbiologists who provide enormous value to the health care team. This document, developed by both laboratory and clinical experts, provides information on which tests are valuable and in which contexts, and on tests that add little or no value for diagnostic decisions. Sections are divided into anatomic systems, including Bloodstream Infections and Infections of the Cardiovascular System, Central Nervous System Infections, Ocular Infections, Soft Tissue Infections of the Head and Neck, Upper Respiratory Infections, Lower Respiratory Tract infections, Infections of the Gastrointestinal Tract, Intraabdominal Infections, Bone and Joint Infections, Urinary Tract Infections, Genital Infections, and Skin and Soft Tissue Infections; or into etiologic agent groups, including Tick-borne Infections, Viral Syndromes, and Blood and Tissue Parasite Infections. Each section contains introductory concepts, a summary of key points, and detailed tables that list suspected agents; the most reliable tests to order; the samples (and volumes) to collect in order of preference; specimen transport devices, procedures, times, and temperatures; and detailed notes on specific issues regarding the test methods, such as when tests are likely to require a specialized laboratory or have prolonged turnaround times.

Cochrane Pregnancy and Childbirth Group Published Online: 11 JUL 2013
DOI: 10.1002/14651858.CD004074.pub3
Effect of timing of umbilical cord clamping of term infants on maternal and neonatal outcomes
McDonald SJ, Middleton P et al
Objectives
To determine the effects of early cord clamping compared with late cord clamping after birth on maternal and neonatal outcomes
Main results
We included 15 trials involving a total of 3911 women and infant pairs. We judged the trials to have an overall moderate risk of bias.
Maternal outcomes: No studies in this review reported on maternal death or on severe maternal morbidity. There were **no significant differences between early versus late cord clamping groups for the primary outcome of severe postpartum haemorrhage (risk ratio (RR) 1.04, 95% confidence interval (CI) 0.65 to 1.65; five trials with data for 2066 women with a late clamping event rate (LCER) of ˜3.5%, I^2 0%) or for postpartum haemorrhage of 500 mL or more (RR 1.17 95% CI 0.94 to 1.44; five trials, 2260 women with a LCER of ˜12%, I^2 0%).** There were no significant differences between subgroups depending on the use of uterotonic drugs. Mean blood loss was reported in only two trials with data for 1345 women, with no significant differences seen between groups; or for maternal haemoglobin values (mean difference (MD) -0.12 g/dL; 95% CI -0.30 to 0.06, I^2 0%) at 24 to 72 hours after the birth in three trials.
Neonatal outcomes: **There were no significant differences between early and late clamping for the primary outcome of neonatal mortality (RR 0.37, 95% CI 0.04 to 3.41, two trials, 381 infants with a LCER of ˜1%), or for most other neonatal morbidity outcomes, such as Apgar score less than seven**

at five minutes or admission to the special care nursery or neonatal intensive care unit. Mean birth weight was significantly higher in the late, compared with early, cord clamping (101 g increase 95% CI 45 to 157, random-effects model, 12 trials, 3139 infants, I^2 62%). Fewer infants in the early cord clamping group required phototherapy for jaundice than in the late cord clamping group (RR 0.62, 95% CI 0.41 to 0.96, data from seven trials, 2324 infants with a LCER of 4.36%, I^2 0%). Haemoglobin concentration in infants at 24 to 48 hours was significantly lower in the early cord clamping group (MD -1.49 g/dL, 95% CI -1.78 to -1.21; 884 infants, $I^2$59%). This difference in haemoglobin concentration was not seen at subsequent assessments. However, improvement in iron stores appeared to persist, with infants in the early cord clamping over twice as likely to be iron deficient at three to six months compared with infants whose cord clamping was delayed (RR 2.65 95% CI 1.04 to 6.73, five trials, 1152 infants, I^2 82%). In the only trial to report longer-term neurodevelopmental outcomes so far, no overall differences between early and late clamping were seen for Ages and Stages Questionnaire scores.

Authors' conclusions

A more liberal approach to delaying clamping of the umbilical cord in healthy term infants appears to be warranted, particularly in light of growing evidence that delayed cord clamping increases early haemoglobin concentrations and iron stores in infants. Delayed cord clamping is likely to be beneficial as long as access to treatment for jaundice requiring phototherapy is available.

N Engl J Med. 2013 Jun 6;368(23):2201-9. doi: 10.1056/NEJMoa1302854. Epub 2013 May 20.

A randomized trial of night-time physician staffing in an intensive care unit.

Kerlin MP, Small DS et al.

Abstract

BACKGROUND:

Increasing numbers of intensive care units (ICUs) are adopting the practice of night-time intensivist staffing despite the lack of experimental evidence of its effectiveness.

METHODS:

We conducted a **1-year randomized trial in an academic medical ICU of the effects of night-time staffing with in-hospital intensivists (intervention) as compared with night-time coverage by daytime intensivists who were available for consultation by telephone (control).**

RESULTS:

A total of 1598 patients were included in the analyses. The median Acute Physiology and Chronic Health Evaluation (APACHE) III score (in which scores range from 0 to 299, with higher scores indicating more severe illness) was 67 (interquartile range, 47 to 91), the median length of stay in the ICU was 52.7 hours (interquartile range, 29.0 to 113.4), and mortality in the ICU was 18%. Patients who were admitted on intervention days were exposed to night-time intensivists on more nights than were patients admitted on control days (median, 100% of nights [interquartile range, 67 to 100] vs. median, 0% [interquartile range, 0 to 33]; P<0.001). Nonetheless, **intensivist staffing on the night of admission did not have a significant effect on the length of stay in the ICU (rate ratio for the time to ICU discharge, 0.98; 95% confidence interval [CI], 0.88 to 1.09; P=0.72), ICU mortality (relative risk, 1.07; 95% CI, 0.90 to 1.28), or any other end point.** Analyses restricted to patients who were admitted at night showed similar results, as did sensitivity analyses that used different definitions of exposure and outcome.

CONCLUSIONS:

In an **academic medical ICU in the United States, night-time in-hospital intensivist staffing did not improve patient outcomes.** (Funded by University of Pennsylvania Health System and others; ClinicalTrials.gov number, NCT01434823.).

Am J Respir Crit Care Med. 2013 Jun 15;187(12):1369-73. doi: 10.1164/rccm.201212-2219OC.

Impact of delay in clinical presentation on the diagnostic management and prognosis of patients with suspected pulmonary embolism.
den Exter PL, van Es J et al.
Abstract
Rationale: The nonspecific clinical presentation of pulmonary embolism (PE) frequently leads to delay in its diagnosis. Objectives: This study aimed to assess the impact of delay in presentation on the diagnostic management and clinical outcome of patients with suspected PE.
Measurements and Main Results: A delayed presentation (presentation >7 d) was present in 754 (18.6%) of the patients. **The failure rate of an unlikely clinical probability and normal D-dimer test was 0.5% (95% confidence interval [CI], 0.01-2.7) for patients with and 0.5% (95% CI, 0.2-1.2) for those without diagnostic delay. D-dimer testing yielded a sensitivity of 99% (95% CI, 96-99%) and 98% (95% CI, 97-99%) in these groups, respectively. Patients with PE with diagnostic delay more frequently had centrally located PE (41% vs. 26%; P < 0.001).** The cumulative rates of recurrent venous thromboembolism (4.6% vs. 2.7%; P = 0.14) and mortality (7.6% vs. 6.6%; P = 0.31) were not different for patients with and without delayed presentation.
Conclusions: **PE can be safely excluded based on a clinical decision rule and D-dimer testing in patients with a delayed clinical presentation.** A delayed presentation for patients who survived acute PE was associated with a more central PE location, although this did not affect the clinical outcome at 3 months.

Journal of trauma and acute care surgery pg. 140-145 DOI: 10.1097/TA.0b013e3182988ae2
Not all mechanisms are created equal: A single-center experience with the national guidelines for field triage of injured patients.
Lance ES, Juan DC et al
Abstract
AB BACKGROUND: **Trauma systems use prehospital evaluation of anatomic and physiologic criteria and mechanism of injury (MOI) to determine trauma center need (TCN)**. METHODS: The trauma registry of an urban Level I trauma center was reviewed from 2001 to 2011 for all patients meeting only MOI criteria. Patients meeting any anatomic and physiologic criteria were excluded. **TCN was defined as death, Injury Severity Score (ISS) of greater than 15, emergency department transfusion, intensive care unit admission, need for laparotomy/thoracotomy/vascular surgery within 24 hours of arrival, pelvic fracture, 2 or more proximal long bone fractures, or neurosurgical intervention during admission.** Logistic regression analysis was used to identify which MOI predict TCN. RESULTS: A total of 3,569 patients were transported to our trauma center who met only MOI criteria and had the MOI recorded in the registry; 821 MOI patients (23%) were identified who met our definition of TCN. **Significant predictors of TCN included death in the same passenger compartment, ejection from vehicle, extrication time of more than 20 minutes, fall from more than 20 feet, and pedestrian thrown/runover. Criteria not meeting TCN include vehicle intrusion, rollover motor vehicle collision, speed of more than 40 mph, injury from autopedestrian/autobicycle of more than 5 mph, and both of the motorcycle crash (MCC) criteria.** CONCLUSION: **With the exception of vehicle intrusion and MCC, the new National Trauma Triage Criteria accurately predicts TCN.** LEVEL OF EVIDENCE: Prognostic and epidemiologic, level III. (C) 2013 Lippincott Williams & Wilkins, Inc.

Annals of Internal Medicine. 2013 Mar;158(5_Part_2):365-368.
The Top Patient Safety Strategies That Can Be Encouraged for Adoption Now.
Shekelle PG, Pronovost PJ et al
For the past 4 years, with support from the Agency for Healthcare Research and Quality, a project team from the RAND Corporation; Stanford University; the University of California, San Francisco; Johns Hopkins University; and ECRI Institute and an international panel of 21 stakeholders and

evaluation methods experts conducted an evidence-based assessment of patient safety strategies (PSSs).

Table 2. **Patient Safety Strategies Ready for Adoption Now**

Strongly encouraged

- Preoperative checklists and anesthesia checklists to prevent operative and postoperative events
- Bundles that include checklists to prevent central line–associated bloodstream infections
- Interventions to reduce urinary catheter use, including catheter reminders, stop orders, or nurse-initiated removal protocols
- Bundles that include head-of-bed elevation, sedation vacations, oral care with chlorhexidine, and subglottic suctioning endotracheal tubes to prevent ventilator-associated pneumonia
- Hand hygiene
- The do-not-use list for hazardous abbreviations
- Multicomponent interventions to reduce pressure ulcers
- Barrier precautions to prevent health care–associated infections
- Use of real-time ultrasonography for central line placement
- Interventions to improve prophylaxis for venous thromboembolisms

Encouraged

- Multicomponent interventions to reduce falls
- Use of clinical pharmacists to reduce adverse drug events
- Documentation of patient preferences for life-sustaining treatment
- Obtaining informed consent to improve patients' understanding of the potential risks of procedures
- Team training
- Medication reconciliation
- Practices to reduce radiation exposure from fluoroscopy and CT
- The use of surgical outcome measurements and report cards, such as those from ACS NSQIP
- Rapid-response systems
- Use of complementary methods for detecting adverse events or medical errors to monitor for patient safety problems
- Computerized provider order entry
- Use of simulation exercises in patient safety efforts

ACS = American College of Surgeons; CT = computed tomography; NSQIP = National Surgical Quality Improvement Program.

Am J Respir Crit Care Med. 2013 Jul 1;188(1):77-82. doi: 10.1164/rccm.201212-2199OC.
Multicenter implementation of a severe sepsis and septic shock treatment bundle.
Miller RR , Dong L et al.

Abstract

Methods: **Observational study of a severe sepsis and septic shock bundle as part of a quality improvement project in 18 ICUs in 11 hospitals** in Utah and Idaho. Measurements and Main Results: Among 4,329 adult subjects with severe sepsis or septic shock admitted to study ICUs from the emergency department between January 2004 and December 2010, **hospital mortality was 12.1%, declining from 21.2% in 2004 to 8.7% in 2010. All-or-none total bundle compliance increased from**

4.9-73.4% simultaneously. Mortality declined from 21.7% in 2004 to 9.7% in 2010 among subjects noncompliant with one or more bundle element. **Regression models adjusting for age, severity of illness, and comorbidities identified an association between mortality and compliance with each of inotropes and red cell transfusions, glucocorticoids, and lung-protective ventilation.** Compliance with early resuscitation elements during the first 3 hours after emergency department admission caused ineligibility, through lower subsequent severity of illness, for these later bundle elements. Conclusions: **Total severe sepsis and septic shock bundle compliances increased substantially and were associated with a marked reduction in hospital mortality after adjustment for age, severity of illness, and comorbidities in a multicenter ICU cohort.** Early resuscitation bundle element compliance predicted ineligibility for subsequent bundle elements.

J Am Coll Cardiol. 2013;():. doi:10.1016/j.jacc.2013.06.035

Effects of Habitual Coffee Consumption on Cardiometabolic Disease, Cardiovascular Health, and All-cause Mortality

O'Keefe JH, Bhatti SK et al.

Abstract

Coffee is the most widely consumed beverage in the United States (US) after water, and is the principal source of caffeine intake among adults. The biological effects of coffee may be substantial and are not limited to the actions of caffeine. Coffee is a complex beverage containing hundreds of biologically-active compounds, and the health effects of chronic coffee intake are wide ranging. **From a cardiovascular (CV) standpoint, coffee consumption may reduce the risks of type 2 diabetes mellitus (T2DM) and hypertension (HTN), as well as other conditions associated with CV risk such as obesity and depression; but it may adversely affect lipid profiles depending on how the beverage is prepared. Regardless, a growing body of data suggests that habitual coffee consumption is neutral to beneficial regarding the risks for a variety of adverse CV outcomes including coronary heart disease (CHD), congestive heart failure (CHF), arrhythmias, and stroke.** Moreover, large epidemiological studies suggest that **regular coffee drinkers have reduced risks for mortality—both CV and all-cause**. The potential benefits also include protection against neurodegenerative diseases, improved asthma control, and lower risk of select gastrointestinal diseases. A daily intake of about 2 to 3 cups of coffee appears to be safe and is associated with neutral to beneficial effects for most of the studied health outcomes. However, most of the data on coffee's health effects are based upon observational data, with very few randomized controlled studies, and association does not prove causation. Additionally, the possible advantages of regular coffee consumption have to be weighed against potential risks (which are mostly related to its high caffeine content) including anxiety, insomnia, tremulousness and palpitations, as well as bone loss and possibly increased risk of fractures.

Resuscitation published online 11 July 2013.

Real-time tracheal ultrasonography for confirmation of endotracheal tube placement during cardiopulmonary resuscitation Hao-Chang C, Kah-Meng C et al

Methods

We performed a **prospective observational study of patients undergoing emergency intubation during CPR. Real-time tracheal ultrasonography was performed during the intubation** with the transducer placed transversely just above the suprasternal notch, to assess for endotracheal tube positioning and exclude esophageal intubation. The **position of trachea was identified by a hyperechoic air–mucosa (A–M) interface with posterior reverberation artefact (comet-tail artefact). The endotracheal tube position was defined as endotracheal if single A–M interface with comet-tail artefact was observed. Endotracheal tube position was defined as intraesophageal if a second A–M interface appeared, suggesting a false second airway (double tract sign). The gold standard of correct endotracheal intubation was the combination of clinical auscultation and**

quantitative waveform capnography. The main outcome was the accuracy of tracheal ultrasonography in assessing endotracheal tube position during CPR.
Results
Among **the 89 patients enrolled, 7 (7.8%) had esophageal intubations. The sensitivity, specificity, positive predictive value, and negative predictive value of tracheal ultrasonography were 100% (95% confidence interval [CI]: 94.4–100%), 85.7% (95% CI: 42.0–99.2%), 98.8% (95% CI: 92.5–99.0%) and 100% (95% CI: 54.7–100%), respectively. Positive and negative likelihood ratios were 7.0 (95% CI: 1.1–43.0) and 0.0, respectively.**
Conclusions
Real-time tracheal ultrasonography is an accurate method for identifying endotracheal tube position during CPR without the need for interruption of chest compression. Tracheal ultrasonography in resuscitation management may serve as a powerful adjunct in trained hands.

Anaesthesia Early View (Online Version) published online: 11 JUL 2013 DOI: 10.1111/anae.12282
A comparison of the BURP and conventional and modified jaw thrust manoeuvres for orotracheal intubation using the Clarus Video System
Lee AR, Yang S et al
Summary
We evaluated the effects of three airway manipulation manoeuvres: **(a) conventional (single-handed chin lift); (b) backward, upward and right-sided pressure (BURP) manoeuvre; and (c) modified jaw thrust manoeuvre (two-handed aided by an assistant) on laryngeal view and intubation** time using the Clarus Video System in 215 patients undergoing general anaesthesia with orotracheal intubation. In the first part of this study, the laryngeal view was recorded as a modified Cormack–Lehane grade with each manoeuvre. In the second part, intubation was performed using the assigned airway manipulation. **The primary outcome was the time to intubation, and the secondary outcomes were the modified Cormack–Lehane grade, the number of attempts and the overall success rate.** There were significant differences in modified Cormack–Lehane grade between the three airway manipulations ($p < 0.0001$). **Post-hoc analysis indicated that the modified jaw thrust improved the laryngeal view compared with the conventional ($p < 0.0001$) and the BURP manoeuvres ($p < 0.0001$). The BURP worsened the laryngeal view compared with the conventional manoeuvre ($p = 0.0132$). The time to intubation in the modified jaw thrust group was shorter than with the conventional manoeuvre ($p = 0.0004$) and the BURP group ($p < 0.0001$). We conclude that the modified jaw thrust is the most effective manoeuvre at improving the laryngeal view and shortening intubation time with the Clarus Video System.**

Emerg Med J doi:10.1136/emermed-2013-202781
The sad truth about the SADPERSONS Scale: an evaluation of its clinical utility in self-harm patients
Saunders K, Brand F et al
Abstract
Background The SADPERSONS Scale is commonly used as a screening tool for suicide risk in those who have self-harmed. It is also used to determine psychiatric treatment needs in those presenting to emergency departments. To date, there have been relatively few studies exploring the utility of SADPERSONS in this context.
Methods SADPERSONS scores were recorded for 126 consecutive admissions to a general hospital emergency department. Clinical management outcomes following assessment were recorded, including psychiatric hospital admission, community psychiatric aftercare and repetition of self-harm in the following 6 months.
Results Psychiatric hospital admission was required in five cases (4.0%) and community psychiatric aftercare in 70 (55.5%). 31 patients (24.6%) repeated self-harm. **While the specificity of the SADPERSONS scores was greater than 90% for all outcomes, sensitivity for admission was only**

2.0%, for community aftercare was 5.8% and for repetition of self-harm in the following 6 months was just 6.6%.
Conclusions For the purposes of suicide prevention, a low false negative rate is essential. **SADPERSONS failed to identify the majority of those either requiring psychiatric admission or community psychiatric aftercare, or to predict repetition of self-harm. The scale should not be used to screen self-harm patients presenting to general hospitals.** Greater emphasis should be placed on clinical assessment which takes account of the individual and dynamic nature of risk assessment.

Editorial Group: Cochrane Musculoskeletal Group Published Online: 31 MAY 2013
Folic acid and folinic acid for reducing side effects in patients receiving methotrexate for rheumatoid arthritis
Shea B, Swinden MV et al
Abstract
Objectives
To identify trials of supplementation with folic acid or folinic acid during MTX therapy for rheumatoid arthritis and **to assess the benefits and harms of folic acid and folinic acid (a) in reducing the mucosal, gastrointestinal (GI), hepatic and haematologic side effects of MTX, and (b) whether or not folic or folinic acid supplementation has any effect on MTX benefit.**
Main results
Six trials with 624 patients were eligible for inclusion. For patients supplemented with any form of exogenous folate (either folic or folinic acid) whilst on MTX therapy for rheumatoid arthritis, **a 26% relative (9% absolute) risk reduction was seen for the incidence of GI side effects such as nausea, vomiting or abdominal pain (RR 0.74, 95% CI 0.59 to 0.92; P = 0.008). Folic and folinic acid also appear to be protective against abnormal serum transaminase elevation caused by MTX, with a 76.9% relative (16% absolute) risk reduction (RR 0.23, 95% CI 0.15 to 0.34; P < 0.00001), as well as reducing patient withdrawal from MTX for any reason (60.8% relative (15.2% absolute) risk reduction, RR 0.39, 95% CI 0.28 to 0.53; P < 0.00001).**
We analysed the effect of folic or folinic acid on the incidence of stomatitis / mouth sores, and whilst showing a trend towards reduction in risk, the results were not statistically significant (RR 0.72, 95% CI 0.49 to 1.06)
Authors' conclusions
The results support a **protective effect of supplementation with either folic or folinic acid for patients with rheumatoid arthritis during treatment with MTX.**
There was a clinically important significant reduction shown in the incidence of GI side effects, hepatic dysfunction (as measured by elevated serum transaminase levels) as well as a clinically important significant reduction in discontinuation of MTX treatment for any reason. A trend towards a reduction in stomatitis was demonstrated however this did not reach statistical significance.
This updated review with its focus on lower doses of folic acid and folinic acid and updated assessment of risk of bias aimed to give a more precise and more clinically relevant estimate of the benefit of folate supplementation for patients with rheumatoid arthritis receiving methotrexate.

Special mention articles this month

Cochrane Database Syst Rev. 2012 Nov 14;11:CD008033. doi: 10.1002/14651858.CD008033.pub3.
Reduction versus abrupt cessation in smokers who want to quit.
Lindson-Hawley N, Aveyard P et al.
Abstract
OBJECTIVES:

1. To compare the success of reducing smoking to quit and abrupt quitting interventions. 2. To compare adverse events between arms in studies that used pharmacotherapy to aid reduction.

SELECTION CRITERIA:

We included randomized controlled trials (RCTs) that recruited adults who wanted to quit smoking. Studies included at least one condition which instructed participants to reduce their smoking and then quit and one condition which instructed participants to quit abruptly.

MAIN RESULTS:

Ten studies were relevant for inclusion, with a total of 3760 participants included in the meta-analysis. Three of these studies used pharmacotherapy as part of the interventions. Five studies included behavioural support in the intervention, four included self-help therapy, and the remaining study had arms which included behavioural support and arms which included self-help therapy. **Neither reduction or abrupt quitting had superior abstinence rates when all the studies were combined in the main analysis (RR= 0.94, 95% CI= 0.79 to 1.13), whether pharmacotherapy was used (RR= 0.87, 95% CI= 0.65 to 1.22), or not (RR= 0.97, 95% CI= 0.78 to 1.21), whether studies included behavioural support (RR= 0.87, 95% CI= 0.64 to 1.17) or self-help therapy (RR= 0.98, 95% CI= 0.78 to1.23).** We were unable to draw conclusions about the difference in adverse events between interventions, however recent studies suggest that pre-quit NRT does not increase adverse events.

AUTHORS' CONCLUSIONS:

Reducing cigarettes smoked before quit day and quitting abruptly, with no prior reduction, produced comparable quit rates, therefore patients can be given the choice to quit in either of these ways.

Annals of Emergency Medicine. published online 17 June 2013.

N-Acetylcysteine Plus Intravenous Fluids Versus Intravenous Fluids Alone to Prevent Contrast-Induced Nephropathy in Emergency Computed Tomography

Traub SJ, Mitchell AM et al

Methods

The design was a **randomized, double blind, 2-center, placebo-controlled interventional trial.** Inclusion criteria were patients undergoing chest, abdominal, or pelvic computed tomography (CT) scan with intravenous contrast, older than 18 years, and at least one contrast-induced nephropathy risk factor. Exclusion criteria were end-stage renal disease, pregnancy, N-acetylcysteine allergy, or clinical instability. **Intervention for the treatment group was N-acetylcysteine 3 g in 500 mL normal saline solution as an intravenous bolus and then 200 mg/hour (67 mL/hour) for up to 24 hours; and for the placebo group was 500 mL normal saline solution and then 67 mL/hour for up to 24 hours. The primary outcome was contrast-induced nephropathy, defined as an increase in creatinine level of 25% or 0.5 mg/dL, measured 48 to 72 hours after CT.**

Results

The data safety and monitoring board terminated the study early for futility. Of 399 patients enrolled, 357 (89%) completed follow-up and were included. **The N-acetylcysteine plus saline solution group contrast-induced nephropathy rate was 14 of 185 (7.6%) versus 12 of 172 (7.0%) in the normal saline solution only group (absolute risk difference 0.6%; 95% confidence interval −4.8% to 6.0%). The contrast-induced nephropathy rate in patients receiving less than 1 L intravenous fluids in the emergency department (ED) was 19 of 147 (12.9%) versus 7 of 210 (3.3%) for greater than 1 L intravenous fluids (difference 9.6%; 95% confidence interval 3.7% to 15.5%), a 69% risk reduction (odds ratio 0.41; 95% confidence interval 0.21 to 0.80) per liter of intravenous fluids.**

Conclusion

We did not find evidence of a benefit for N-acetylcysteine administration to our ED patients undergoing contrast-enhanced CT. However, we did find a significant association between volume of intravenous fluids administered and reduction in contrast-induced nephropathy.

CONCLUSIO

NO ED or TOXICLOGY journal club articles were received in the last month for publication in Précis.

Westmead ED publications this month

None noted or made aware of to Précis.