Myths in Emergency Medicine


• 35 clinical trials published in 2009
• Established practices
• Evidence contradicted current practice
• 46%


• 2,044 articles
• 1,344: Addressed a medical practice
  73% evaluated a new practice
  56% reported new practice was better
  12% found that a new practice did not improve current practice
• 10.9% (146) articles: Reversal
• 10.3% Upheld a standard compared to a lesser standard
**TWO DAYS OF DEXAMETHASONE VERSUS 5 DAYS OF PREDNISONE IN THE TREATMENT OF ACUTE ASTHMA: A RANDOMIZED CONTROLLED TRIAL**


- Prospective, double blind study
- 200 adults with asthma
- 18-45 yrs
- Prednisone: 60mg x 5d
- Decadron: 16mg x 2d
- Normal activity at 3 d: 88% v. 75%
- = # of Txs, Primary care, admissions

**SINGLE-DOSE DEXAMETHASONE FOR MILD-TO-MODERATE ASTHMA EXACERBATIONS**


- British Columbia Children’s Hospital
- Dexamethasone: 2x half life; Greater anti-inflammatory effect
- 7 studies reviewed
  - 2: 2 doses of oral decadron v. 5 day course of prednisone: Similar relapse rates
  - 3: 1 IM dose v. 5 days of prednisone or prednisolone: Comparable improvement
  - 1: Single PO dose (0.6 mg/kg) v. 5 days prednisolone:
    - Baseline at 5 days
    - 1: Large trial with single PO dose: Lower Hosp Rate

**PROSPECTIVE STUDY OF THE RISK OF NOT USING PROPHYLACTIC ANTIBIOTICS IN NASAL PACKING FOR EPISTAXIS**


- Nasal packing for spontaneous epistaxis
- Antibiotics v. No antibiotics
- Prospective observational series
- 78 (amox/clav) v. 76 without
- Merocel packing
- OM, Sinusitis, TSS or other infectious complications
  - None
DIAGNOSTIC ACCURACY OF NITROGLYCERIN AS A "TEST OF TREATMENT" FOR CARDIAC CHEST PAIN: A SYSTEMATIC REVIEW

- 5 Studies
- 1,978 Patients
- Response to NTG predicting cardiac chest pain
- Sens/Spec
- 52%/49%

SUCROSE FOR PROCEDURAL PAIN MANAGEMENT IN INFANTS

- Univ of Ottawa
- Sucrose solutions reduce pain response in infants (< 1 yr)
- Persistent calming effect in infants (except methadone exposure)
- Opioid receptor antagonists minimize the effect
- Heal stick/Circumcision > Catheter and Venipuncture
- 0.2-0.5 ml/kg
- 10 doses/24 hours

R. A. Medve, J. Wang, and R. Karim
Tramadol and acetaminophen tablets for dental pain. Anesth Prog. 2001 Summer; 48(3): 79–81

- Order of Efficacy at 8 hours
  - Ibuprofen 400mg
  - Tramadol/APAP 75/650
  - APAP 650
  - Tramadol 75
  - Placebo

- Time of onset
  - Tramadol/APAP: 17 min
  - APAP: 18 min
  - Ibuprofen: 34 min

- 40 Large North American Children’s Hospitals
- 2006-2008: 0-17 yrs
- Ovarian torsion v. Testicular torsion
  - Testicular: 0.03% (0.02%-0.09%)
  - Ovarian: 0.02% (0.01%-0.06%)
- Mean time of presentation: 36 hrs v. 72 hrs
- Imaging request to completion: 0.77 hrs v. 1.86 hrs
- Median time from Dx to Srgy: 2.3 hrs v. 6.3 hrs
- Salvage rate: 30% v. 14%


- Meta-analysis
  - 1.8%: Dermabond
  - 0.3%: Traditional
  - OR 6.0
IS WATER EFFECTIVE FOR WOUND CLEANSING?

- Meta-analysis of 11 studies
- Tap water, distilled, cooled boiled water, NS
- Acute adult and peds wounds
- Open Fx: 1 trial
- Surgical wounds: 4 trials
- Chronic wounds: 1 trial
- Lacerations: 5 trials
  - Tap v. Saline: RR: 0.63


- No routine diagnostics
- Corticosteroids within 72 hours of onset
- 16 yrs and older
  - 10-day course: Prednisolone 50 mg for 10 days or Prednisone 60 mg for 5 days followed by a 5-day taper
- Antiviral monotherapy: NO
- Combination as an option (only due to the low risk of antivirals)
- Eye protection

DRUGS FOR URINARY TRACT INFECTIONS
From The Medical Letter JAMA 311(8):855, February 26, 2014

- Uncomplicated cystitis in non pregnant females
  - Bactrim DS BID x 3 Days (if resistance < 20%)
  - Nitrofurantoin 100 mg BID x 5 Days
  - Fosfomycin 3g single dose ($60)

- Uncomplicated pyelonephritis in non pregnant females
  - *Cipro 500 mg BID x 7 Days
  - *Levofloxacin 750 mg QD x 5 Days
  - Bactrim DS BID x 14 Days
  - Ceftriaxone 1 gm IVPB and 10-14 Day course of an oral cephalosporin (e.g. cephalixin)
  *Resistance < 10%

- *Fluoroquinolone resistance < 10%
Vertigo makes me dizzy

- 4% of ED visits
- Henry Ford: 1,681 ED Pts; 2008-2011
- Avg age: 56.9 yrs
- CT: 48% of Pts; ABNL: 6/810 (0.74%); MRI: 5%; 11/90 (12%)
- Cost: $164,700 per positive CT; $22,058 per positive MRI
- All positives: Headache, Neuro findings or Ophtho complaints

RATE AND PREDICTORS OF SERIOUS NEUROLOGIC CAUSES OF DIZZINESS IN THE EMERGENCY DEPARTMENT

- 907 patients, UCSF ED 2007-2009
- Dizziness, Vertigo, Imbalance; Median duration: 1 day; 33% previous episodes
- Neuroimaging: 35%; Lab 72%; ECG 68%
- Serious Neurological disease: 5%
  Stroke (3%), TIA (1%), Neoplasm (1%), ICH (1%), Seizure (<1%), Demyelinating disease (<1%)
- CV: 4%, Other medical: 13%, 22%

A NEW ELECTROCARDIOGRAPHIC CRITERIA FOR EMERGENT REPERFUSION THERAPY

- Univ of TN
- Conditions with ST depression that may benefit from emergency reperfusion
  - Diffuse ST-depression with ST-elevation in aVR
  - left main occlusion
  - proximal left anterior descending artery occlusion
  - MI in the setting of severe multi-vessel coronary artery disease
A NEW ELECTROCARDIOGRAPHIC CRITERIA FOR EMERGENT REPERFUSION THERAPY


Univ of TN

CondiPons with ST depression that may benefit from emergency reperfusion

Diffuse ST-depression with ST-elevaPon in aVR – let main coronary artery occlusion – proximal let anterior descending artery occlusion – MI in the sexng of severe mulP-vessel coronary artery disease

Nough H. The value of ST-segment elevaPon in lead aVR for predicting left main coronary artery lesion in patients suspected of acute coronary syndrome.

• 400 Pts with typical chest pain
• PCI performed within 48 hours of CCU admission
• 31% had aVR STE 1 mm
• Men/Women with STE in aVR: 40.7%/43.8%
• Sens/Spec: 62.7%/73.6%
THE USE OF CEPHALOSPORINS IN PENICILLIN-ALLERGIC PATIENTS: A LITERATURE REVIEW

- Univ of MD and Johns Hopkins
- Systematic review: 27 articles
- Cephalosporins in PCN allergic Pts
- PCN allergy in those reporting PCN allergy
  - < 10%
- Anaphylaxis after PCN: .015% to .004%
- Cross reactivity: 1% and 2.55%
- R1 side chain: 1st & 2nd generations (cefdroxil, cefadroxil, cephalaxin, cephradine, cefaclor (2nd), and cefprozil (2nd).
- 3rd, 4th and 5th generation: Negligible

RADIOGRAPHIC ASSESSMENT OF SPLENIC INJURY WITHOUT CONTRAST: IS CONTRAST TRULY NEEDED?

- 319 Pts with splenic injuries
- CT: With or without IV contrast
  - 275 v. 44
- No contrast: Less severely injured
- Parenchymal injuries seen: 38% of the non contrast studies
- Rib Fxs, Hematoma; free fluid
  - Sensitivity increased to 93%

DOES LIMITING ORAL CONTRAST DECREASE EMERGENCY DEPARTMENT LENGTH OF STAY?

- Univ of Utah
- LOS: IV v. IV and Oral contrast
- 184 Pts with CT
  - Appy, SBO, Free air, Diverticulitis
- 211: Historical control group
- Median ED LOS
  - 6.4 hrs v. 4.3 hrs
- Order to completion: 126 v. 52 min
- Time to OR or Admission: 2 hours greater
Oral Contrast for Appy

• 1,561 Pts
• Mean age: 10 yrs
• Vomiting 19% with appy
• Terminal ileum: 67% with appy
• Ileum or not: No Dx diff

META-ANALYSIS: SERUM CREATININE CHANGES FOLLOWING CONTRAST ENHANCED CT IMAGING
• Meta-analysis of 40 studies
• CIN following CT
• Mean age 44-74
• 33/40: Included pts with CKD
• Incidence: 0-25%: Pooled: 6.4%
• 20 studies followed renal function after CIN – 1.1% persisted
• Rate of renal replacement: 0.06%
• OR: CKD/DM: 2.3/3.1
Orthostatic VS

Annals of Emergency Medicine
Volume 20, Issue 6, Pages 606-610, June 1991
132 euvolemic, patients
Wide variation in Orthostatic vital signs
HR range ↓ 5.0 to ↑ 39.4; SBP: ↓ 20 to ↑ 25.7; DBP: ↓ 6.4 to ↑ 24.9;
43% had “positive”

Orthostatic VS

Ability to predict intravascular depletion?
Larry J. Baraff, et al. Orthostatic vital signs: Variation with age, specificity, and sensitivity in
detecting a 450-mL blood loss. The American
2, March 1992, Pages 99-103.
100 Blood donors v. 100 non donors
Alone: HR > 20/min most sensitive: 9%
HR > 20 or DBP decrease of 10, Sensitivity: 17%
Age: No clinically important differences
No combo of Ortho VS (spec 95%) sensitive to
detect 450 cc blood loss

Banana Bag?

• Li, S.F., et al. VITAMIN DEFICIENCIES IN ACUTELY INTOXICATED PATIENTS IN
THE ED Am J Emerg Med 26:792,
September 2008.
• 75 acutely intoxicated ED patients
(Bronx)
• ETOH Levels: 23 – 560!
• B12, Folate and Thiamine Levels
• 0/0/15%
Oxygen is Good??

Acute Myocardial Ischemia
LAD Vasc Resistance
Coronary Vasc Resistance
Coronary Blood Flow

COPD
Hypercapnea
Mortality

Stroke
Stroke Severity Score
Mortality

Rosenberg M. Comparison of Broselow tape measurements versus physician estimations of pediatric weights
The American Journal of Emergency Medicine; April, 2010

• 372 Patients
• Mean age: 45.7 months
• Obesity
  – Physician 26.4%
  – Broselow 16.0%

Shellfish?

  • “Iodine is not an allergen!”
  • Seafood = other food allergies and asthma
  • Prior contrast reaction = 7.17% risk
CT First?


30 Pts (50% immediate 50% 12 hours)
Progressive HA, mental status change and localizing neurological findings

“A good quality plain x-ray film is important in the diagnosis of this condition”

Glucose and Protein


50% of cases had GLC less than reference range

Hydration and Stones

  1 Article: No difference in pain, surgical removal rates or cystoscopy rates
  58 Pts
  20cc /hr v. 1 L/hr x 2 hours
  No difference: Hourly pain scores, Narcotic analgesic use or Passage rates
THE MANAGEMENT OF OESOPHAGEAL SOFT FOOD BOLUS OBSTRUCTION: A SYSTEMATIC REVIEW

- A review of published reports
- Hyoscine butylbromide: Ineffective
- Gas producers: 70% and cheap
- Glucagon: 1 RCT and 2 other studies
  No better than placebo
  (EZ gas (sodium bicarbonate, citric acid, simethicone) followed by 240ml of water)
- Endoscopy: 93%-100%; 55%-90%

MANAGEMENT OF PEDIATRIC CHEST PAIN USING A STANDARDIZED ASSESSMENT AND MANAGEMENT PLAN

- 406 children
- 7-21 yrs
- Division of Pediatric Cardiology
- 5 Pts 1%

- BEEM
- 5 Trials Assessed (ADCHF)
- Does Physician awareness of BNP Level...?
  - Length of Stay
  - Return Visits
  - Overall Costs
- “These RCT did not show unequivocal benefit to patients, clinicians, or society”

WPW

- Stable 38 year old female with narrow complex SVT of 186 bpm and a history of WPW
- Tx Options:
  - Cardizem
  - Adenosine
  - Procainamide
  - Jumper cables and a very big battery
Head CT and Syncope

- Arch Intern Med 161:1889, August 13/27, 2001
  - 649 Adults admitted for syncope
  - CT of the head: 2% diagnostic yield
- Shukla GJ. Syncope. Circulation 2006;113:e715-e717
  - Stroke is a rare cause of syncope

Labs and Syncope

721 AMI Patients: Syncope CC: 4%
0.5% - 1.1%: Ischemic cause of syncope

2.1% + All had chest pain and ECG changes

- 32 Obstetrical Patients PDPH
- Conventional vs. Blood patch
- VAS Baseline: 8.2 v. 8.0
- 2 hrs: 1.0 v. 8.2
- 24 hrs: 0.7 vs. 7.8

Thoennissen, Jana, Herkner, Harald, Lang, Wilfried, Domanovits, Hans, Laggner, Anton N., Mullner, Marcus. Does bed rest after cervical or lumbar puncture prevent headache? A systematic review and meta-analysis
CMAJ 2001 165: 1311-1316

- In one RCT involving use of honey, 105 children aged 2-17 (mean, 5 years) were randomized to a single nighttime dose of honey, dextromethorphan or no treatment.
- Dextromethorphan was statistically superior to no treatment, and honey was statistically superior to dextromethorphan.

Insulin Bolus v. Infusion for DKA

- 0.1 U/kg/hr: No benefit and potential harm from bolus
  - IVF
  - Rate of GLC change
  - AG
  - LOS

Toe Fxs


- 339 Pts with toe Fxs
- 75.6% stubbing or crush injuries
- 1st: 38%
- 5th: 36%
- Conservative management
- No diff in outcome: toe, #, phalanx, age, co-morbidity, BMI, Fx type and location or intraarticular
Packing? Antibiotics?


48 pts 60% MRSA


2 trials in 1970s and 1980s. 2006 (52% MRSA)
2 prospective studies, 1 retrospective 441 pts 64% MRSA

NEW GUIDELINES FOR POTASSIUM REPLACEMENT IN CLINICAL PRACTICE: A CONTEMPORARY REVIEW BY THE NATIONAL COUNCIL ON POTASSIUM IN CLINICAL PRACTICE Cohn, J.N., et al, Arch Intern Med 160:2429, September 11, 2000

• Replace under 3.0
• Asymptomatic 3.0-3.5
  – Dietary supplement and restricting NaCl
• Oral is faster and safer: 10-15 min
• 20 mEq over 1 hour IV is safe, regardless of Cr. (0.25)
• Magnesium

Knee X-rays

• Ottawa Knee Rules
  – Age ≥ 55 yrs
  – Fibular head
  – Patella
  – Unable to flex to 90
  – Not bear wt immediately & ED
Knee X-rays

- Radiographs reduced: 26.4%
- Time: 85.7 min v. 118.8 min
- Cost: $80 v. $183
- Medicare: $63 ($45+$18)
- 4000 EDs
- $91 million

Ribs?


That diagnosis change the treatment of that patient? With rib fractures we are left with a diagnostic paradox: our clinical examination is sensitive but not specific, and our radiologic examination is specific but not sensitive. The presence or absence of a fracture does not seem to influence therapy.


- Univ of BC
- 927 Pts in 2 EDs: Retrospective Cohort
- A-Fib without acute underlying cause
- Conv PT Tx: 13.1%
- DC: 23.3%
- Chemical: 15.2%
- Rate Control: 26.4%
- No Spec Tx: 22%
- Stroke or Death at 30 Days and 1 Yr
  - 1% Rate/Rhythm/Sync
  - 2% No specific Tx for AF
Early short-term doxycycline therapy in patients with acute myocardial infarction and left ventricular dysfunction to prevent the ominous progression to adverse remodelling: the TiPTOP trial


- Italian Study
- 110 pts with primary PCI for 1st STEMI & LVEF < 40%
- Doxycycline: 100 BID PO x 7 Days
- 6 months: LV end-diastolic volume index (the primary endpoint), a marker of remodeling:
  Unchanged in Doxy pts, Sig Incr in Controls
- LVEF Increase: 12.1% v. 7.5%
- Infarct size: 5.5% v. 10.9%
- Composite of death, MI, CHF and stroke: 10.9% v. 25.5%

Left ventricular (LV) remodeling after myocardial infarction (MI), a leading cause of LV dysfunction and congestive heart failure (CHF), has been found to be mediated by matrix metalloproteinase (MMP) activation. Doxycycline is an MMP inhibitor

- LVEF Increase: 12.1% v. 7.5%
- Infarct size: 5.5% v. 10.9%
- Composite of death, MI, CHF and stroke: 10.9% v. 25.5%

The Cunningham Technique

https://www.youtube.com/watch?v=3ROfL8q4ks
• Children’s Hospital of Eastern Ontario
• Cardiac output measured in 44 (mean 6.6 yrs): Elective left heart catheterization
• CCRN and Cardiologist
  – Within 15 min of cardiac output measurement and end of procedure
  – Inter-rater: Slight then Fair
  – No statistical correlation between CO and CRT (some NL with low CO)