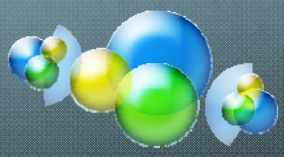
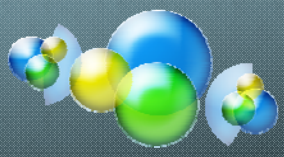
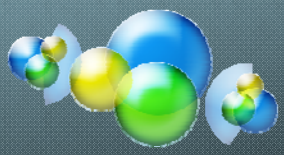


Hot Topics in Pediatric Emergency Medicine: Articles You Need To Know!

Richard M. Cantor MD FAAP/FACEP
Professor of Emergency Medicine and Pediatrics
Director of Pediatric Emergency Services
Medical Director, Upstate Poison Center
Golisano Children's Hospital
Syracuse, NY



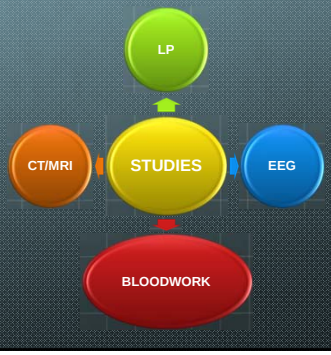
Article #1:
Are You Performing The Correct Workup For Children With Simple Febrile Convulsions?



CLINICAL PRACTICE GUIDELINE—FEBRILE SEIZURES: GUIDELINE FOR THE NEURODIAGNOSTIC EVALUATION OF THE CHILD WITH A SIMPLE FEBRILE SEIZURE

PEDIATRICS Volume 127, Number 2, February 2011

METHODS



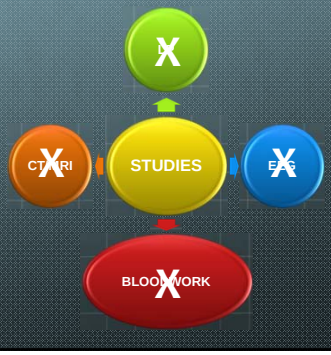
CONCLUSIONS

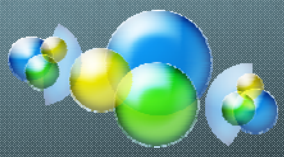
- Clinicians evaluating infants or young children after a simple febrile seizure should *direct their attention toward identifying the cause of the child's fever*
- Meningitis should be considered in the differential diagnosis
- For any infant between 6 and 12 months of age who presents with a seizure and fever, *a lumbar puncture is an option when the child is considered deficient in Haemophilus influenzae type b (Hib) or Streptococcus pneumoniae immunizations*

CONCLUSIONS

- A lumbar puncture is an option for children who are *pretreated with antibiotics*
- In general, a simple febrile seizure *does not usually require further evaluation, specifically electroencephalography, blood studies, or neuroimaging*

RECOMMENDATIONS

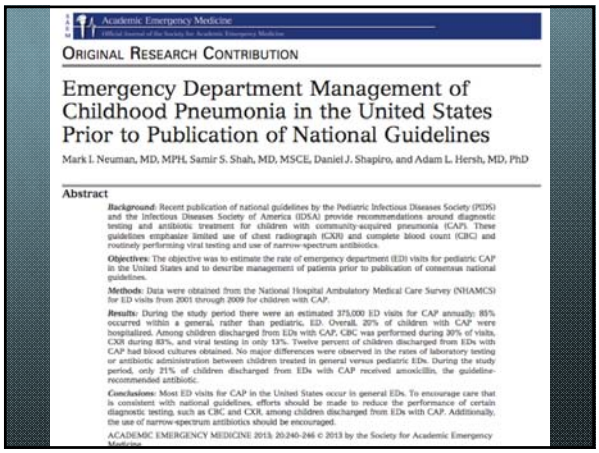




Article #2:
Are You Compliant With the Current Recommendations For The Treatment of Childhood Pneumonia?

Executive Summary: The Management of Community-Acquired Pneumonia in Infants and Children Older Than 3 Months of Age: Clinical Practice Guidelines by the Pediatric Infectious Diseases Society and the Infectious Diseases Society of America

CID 2011:53 (1 October)



Academic Emergency Medicine

ORIGINAL RESEARCH CONTRIBUTION

Emergency Department Management of Childhood Pneumonia in the United States Prior to Publication of National Guidelines

Mark I. Neuman, MD, MPH, Samir S. Shah, MD, MSCE, Daniel J. Shapiro, and Adam L. Hersh, MD, PhD

Abstract

Background: Recent publication of national guidelines by the Pediatric Infectious Diseases Society (PIDS) and the Infectious Diseases Society of America (IDSA) provide recommendations around diagnostic testing and antibiotic treatment for children with community-acquired pneumonia (CAP). These guidelines emphasize limited use of chest radiograph (CXR) and complete blood count (CBC) and routinely performing viral testing and use of narrow-spectrum antibiotics.

Objectives: The objective was to estimate the rate of emergency department (ED) visits for pediatric CAP in the United States and to describe management of patients prior to publication of consensus national guidelines.

Methods: Data were obtained from the National Hospital Ambulatory Medical Care Survey (NHAMCS) for ED visits from 2005 through 2009 for children with CAP.

Results: During the study period there were an estimated 375,000 ED visits for CAP annually. 85% occurred within a general, rather than pediatric, ED. Overall, 20% of children with CAP were hospitalized. Among children discharged from EDs with CAP, CBC was performed during 39% of visits, CXR during 83%, and viral testing in only 13%. Twelve percent of children discharged from EDs with CAP had blood cultures obtained. No major differences were observed in the rates of laboratory testing or antibiotic administration between children treated in general versus pediatric EDs. During the study period, only 21% of children discharged from EDs with CAP received amoxicillin, the guideline-recommended antibiotic.

Conclusions: Most ED visits for CAP in the United States occur in general EDs. To encourage care that is consistent with national guidelines, efforts should be made to reduce the performance of certain diagnostic testing, such as CBC and CXR among children discharged from EDs with CAP. Additionally, the use of narrow-spectrum antibiotics should be encouraged.

ACADEMIC EMERGENCY MEDICINE 2013; 20:240–246 © 2013 by the Society for Academic Emergency Medicine

Who Should Be Hospitalized?

- Children and infants who have *respiratory distress and hypoxemia*
- Infants *less than 3–6 months of age with suspected bacterial CAP*
- Children and infants with suspected or documented CAP caused by a pathogen with increased virulence, such as *community-associated methicillin-resistant Staphylococcus aureus (CA-MRSA)*

Diagnostic Testing

- *Blood cultures should not be routinely performed* in nontoxic, fully immunized children with CAP managed in the outpatient setting
- Sensitive and specific tests for the *rapid diagnosis of influenza virus and other respiratory viruses* should be used in the evaluation of children with CAP
- Antibacterial therapy is *not necessary* for children, either outpatients or inpatients, *with a positive test for influenza virus* in the absence of clinical, laboratory, or radiographic findings that suggest bacterial coinfection

Diagnostic Testing

- *Routine measurement of the complete blood cell count is not necessary in all children with suspected CAP managed in the outpatient setting*, but in those with more serious disease it may provide useful information for clinical management in the context of the clinical examination and other laboratory and imaging studies
- *Acute-phase reactants*, such as the erythrocyte sedimentation rate (ESR), C-reactive protein (CRP) concentration, or serum procalcitonin concentration, *cannot be used as the sole determinant to distinguish between viral and bacterial causes of CAP*

Diagnostic Testing

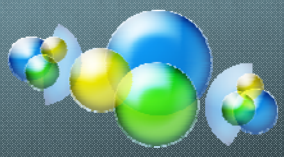
- *Routine chest radiographs are not necessary* for the confirmation of suspected CAP in patients well enough to be treated in the outpatient setting (after evaluation in the office, clinic, or emergency department setting

Anti-Infective Treatment

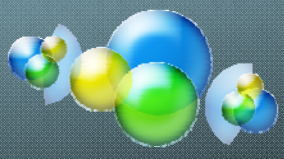
- Antimicrobial therapy is *not routinely required for preschool-aged children with CAP*, because viral pathogens are responsible for the great majority of clinical disease
- *Amoxicillin* should be used as first-line therapy for previously healthy, appropriately immunized infants and preschool children with mild to moderate CAP suspected to be of bacterial origin
- *Macrolide* antibiotics should be prescribed for treatment of children (primarily school-aged children and adolescents) evaluated in an outpatient setting with findings compatible with CAP caused by atypical pathogens

Anti-Infective Treatment

- Treatment courses of 10 days have been best studied, although shorter courses may be just as effective, particularly for more mild disease managed on an outpatient basis



Article #3:
How Are You Handling CHI In Infants and Children?



Identification of Children At Very Low Risk of Clinically Important Brain Injuries After Head Trauma: A Prospective Cohort Study

Lancet 2009; 374: 1160-1170

Identification of children at very low risk of clinically-important brain injuries after head trauma: a prospective cohort study

Nathan Kuppermann, James F Holmes, Peter S Dayan, John D Hoyle, Jr, Shireen M Atabaki, Richard Holubkov, Frances M Nadel, David Monroe, Rachel M Stanley, Dominic A Borgialli, Mohamed K Badawy, Jeff E Schunk, Kimberly S Quayle, Prashant Mahajan, Richard Lichenstein, Kathleen A Lillis, Michael G Tunik, Elizabeth S Jacobs, James M Callahan, Marc H Gorelick, Todd F Glass, Lois K Lee, Michael C Bachman, Arthur Cooper, Elizabeth C Powell, Michael J Gerardi, Kraig A Melville, J Paul Muizelaar, David W Wisner, Sally Jo Zuspan, J Michael Dean, Sandra L Wootton-Gorges, for the Pediatric Emergency Care Applied Research Network (PECARN)*

Lancet 2009; 374: 1160–70
Published Online September 15, 2009
http://dx.doi.org/10.1016/S0140-6736(09)61558-0
This online publication has been corrected. The corrected version first appeared at thelancet.com on January 14, 2010
See Comment page 1127

Summary

Background CT imaging of head-injured children has risks of radiation-induced malignancy. Our aim was to identify children at very low risk of clinically-important traumatic brain injuries (ciTBI) for whom CT might be unnecessary.

Methods We enrolled patients younger than 18 years presenting within 24 h of head trauma with Glasgow Coma Scale scores of 14–15 in 25 North American emergency departments. We derived and validated age-specific prediction rules for ciTBI (death from traumatic brain injury, neurosurgery, intubation >24 h, or hospital admission ≥2 nights).

Findings We enrolled and analysed 42 412 children (derivation and validation populations: 8502 and 2216 younger than 2 years, and 25 283 and 6411 aged 2 years and older). We obtained CT scans on 14 969 (35·3%); ciTBIs occurred in 376 (9·9%), and 60 (0·1%) underwent neurosurgery. In the validation population, the prediction rule for children younger than 2 years (normal mental status, no scalp haematoma except frontal, no loss of consciousness or loss of consciousness for less than 5 s, non-severe injury mechanism, no palpable skull fracture, and acting normally according to the parents) had a negative predictive value for ciTBI of 1175/1175 (100·0%, 95% CI 99·7–100·0) and sensitivity of 25/25 (100%, 86·3–100·0). 167 (24·1%) of 694 CT-imaged patients younger than 2 years were in this low-risk group. The prediction rule for children aged 2 years and older (normal mental status, no loss of consciousness, no vomiting, non-severe injury mechanism, no signs of basilar skull fracture, and no severe headache) had a negative predictive value of 3696/3698 (99·95%, 99·80–99·99) and sensitivity of 61/63 (96·8%, 89·0–99·6). 438 (19·7%) of 2223 CT-imaged patients aged 2 years and older were in this low-risk group. Neither rule missed neurosurgery in validation populations.

Interpretation These validated prediction rules identified children at very low risk of ciTBIs for whom CT can routinely be obviated.

Funding The Emergency Medical Services for Children Programme of the Maternal and Child Health Bureau, and the Maternal and Child Health Bureau Research Programme, Health Resources and Services Administration, US Department of Health and Human Services.

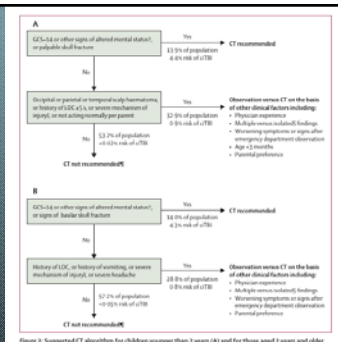
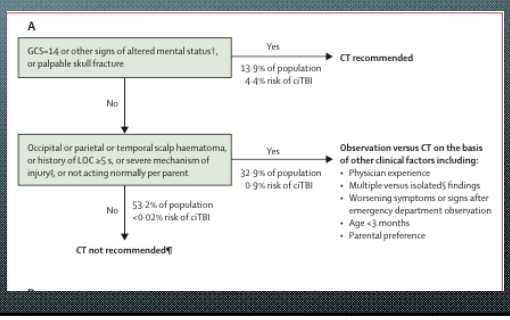


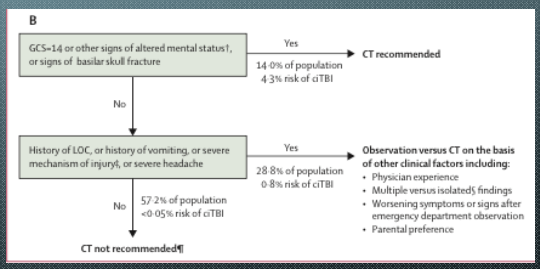
Figure 3: Suggested CT algorithm for children younger than 2 years (A) and for those aged 2 years and older (B) with GCS scores of 14–15 after head trauma*

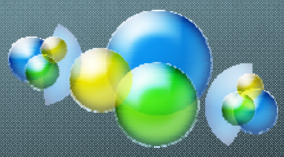
GCS=Glasgow Coma Scale. ciTBI=clinically-important traumatic brain injury. LOC=loss of consciousness. *Data are from the combined derivation and validation populations. †Other signs of altered mental status: agitation, somnolence, repetitive questioning, or slow response to verbal communication. ‡Severe mechanism of injury: motor vehicle crash with patient ejection, death of another passenger, or rollover; pedestrian or bicyclist without helmet struck by a motorised vehicle; falls of more than 0·9 m (3 feet) (or more than 1·5 m [5 feet] for panel B); or head struck by a high-impact object. §Patients with certain isolated findings (ie, with no other findings suggestive of traumatic brain injury), such as isolated LOC,[14–16] isolated headache,[17] isolated vomiting,[18] and certain types of isolated scalp haematomas in infants older than 3 months,[5,6] have a risk of ciTBI substantially lower than 1%. ¶Risk of ciTBI exceedingly low, generally lower than risk of CT-induced malignancies. Therefore, CT scans are not indicated for most patients in this group.

Suggested CT algorithm for *children younger than 2 years* with GCS scores of 14–15 after head trauma

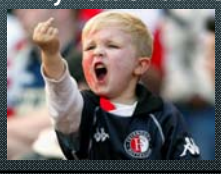


Suggested CT algorithm for *children 2 years and older* with GCS scores of 14–15 after head trauma





A Quick and Dirty Battle You Need to Win



The Child With a CHI Referred for a CT Scan

- These kids always arrive at the busiest times
- The children (and parents) are tired and hungry
- Your Hx and PE take all of 10 minutes
- Regardless of what you tell them, THEY WANT A CT SCAN

The Child With a CHI Referred for a CT Scan

- What to say to these parents
  - There have been large multicenter studies which provide guidelines for the evaluation of CHI in infants and children
  - This child does NOT meet criteria for a CT Scan
  - Radiation is harmful
  - The child will more than likely grow up to necessitate CT scanning in the future
  - You will probably have to sedate the child to do the study

THANK YOU!