



On Imaging Head Injuries, Routine Cellulitis, Alteplase and Ischemic Stroke, Head Lice, Steroids for Pharyngitis, and Brain Injury in Children

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Each month, Dr. Nahum Kovalski reviews a handful of abstracts from, or relevant to, urgent care practices and practitioners. For the full reports, go to the source cited under each title.

Diagnostic Imaging Rates for Head Injury in the ED and States' Medical Malpractice Tort Reforms

Key point: *The authors found a 40% lower incidence of imaging in states with tort reform, compared with states that do not have it in place.*

Citation: Smith-Bindman R, McCulloch CE, Ding A, et al. *Am J Emerg Med.* 2010;Jul 12. [Epub ahead of print]

As recently as 2005, studies have found that nearly all physicians reported using defensive medical practices; ordering more diagnostic tests than medically indicated was the most frequently reported practice.

Emergency department physicians are particularly likely to report using defensive medicine. The American College of Emergency Physicians (ACEP) guidelines for neurologic imaging of patients seen in an emergency department for a head injury state that imaging should be used when the injury is severe, but considered discretionary in other cases.

The team used a sample of 8,588 Medicare-eligible women 65 years and older living in 10 U.S. states who presented to an emergency department with head injury between January 1992 and December 2001.

The study team defined the injury as “severe” when the

woman had lost consciousness or had presented with an open head wound. They assessed whether CT or MR exams had been performed with seven days of the visit.

Then, the researchers determined whether each state had medical tort reform legislation, classifying laws into four types:

1. Caps on monetary damages
2. Mandated periodic award payments (these allow losing defendants to pay in installments)
3. Collateral source offset rules (which deny compensation for losses that can be recouped from other sources)
4. Caps on attorney contingency fees (which limit how much the representing attorney can collect as a percentage of the award)

States with laws that limited monetary damages, mandated periodic award payments, or specified collateral source offset rules had 40% lower odds of imaging, whereas states that had laws that limited an attorney's contingency fees had higher odds of imaging compared to states without these laws.

“[Even] after adjusting for individual and community factors, the total number of laws remained significantly associated with the odds of imaging, and the effect of the individual laws was attenuated but not eliminated,” the authors wrote.

The team conceded that the increase in imaging over the decade studied could have been caused by other factors, such as increased availability and accessibility of MR and CT scanners, which may have filled a previously unmet need; patients' increasing assertiveness in requesting imaging; and a decreasing tolerance for uncertainty.

[Published in *AuntMinnie.com*, August 26, 2010—Kate Madden Yee. ■



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Causes and Treatment of Routine Cellulitis

Key point: Beta-hemolytic streptococci infection was implicated in most cases of nontraumatic cellulitis.

Citation: Jeng A, Beheshti M, Li J, et al. The role of β -hemolytic streptococci in causing diffuse, nonculturable cellulitis: A prospective investigation. *Medicine (Baltimore)*. 2010;89(4):217-226.

Cellulitis is a diffuse infection that causes redness, heat, and swelling of the skin and underlying soft tissue, particularly on the legs. It should be distinguished from cutaneous inflammation associated with a suppurative focus, such as an abscess, furuncle, or underlying osteomyelitis.

Findings from previous studies that made use of cultures, serology, immunofluorescent staining of skin biopsies for streptococcal antigens, and experimental models in animals have suggested that the vast majority of cases are caused by beta-hemolytic streptococci, not only Group A (*Streptococcus pyogenes*), but other groups as well. Some cases may be caused by *Staphylococcus aureus*, but the role of methicillin-resistant *S aureus* (MRSA) strains has been unclear.

Investigators evaluated 179 patients with cellulitis, excluding those with animal or human bites, foreign bodies, or neutropenia. The patients were tested for acute and convalescent titers of anti-streptolysin O and anti-DNaseB; the former helps to detect infection with streptococcal Groups A, C, and G; the latter detects Group A infections alone.

Along with results from blood cultures, these tests implicated beta-hemolytic streptococci in 73% of cases. In a medical center where MRSA was common in cutaneous abscesses and other skin and soft-tissue infections, 96% of patients receiving beta-lactam antibiotics ineffective against MRSA had a successful outcome.

The excellent response to beta-lactam antibiotics indicates that MRSA is a very uncommon cause of cellulitis. To treat patients with typical nonculturable cellulitis, clinicians can prescribe beta-lactam penicillins, such as parenteral oxacillin or oral dicloxacillin, or first-generation cephalosporins, such as parenteral cefazolin or oral cephalexin.

[Published in *J Watch Dermatol*, August 13, 2010—Jan V. Hirschmann, MD.] ■

Alteplase is Effective Up to 4.5 Hours After Onset of Ischemic Stroke

Key point: Although risk from alteplase was greater when administered at 3 to 4.5 hours, treatment was still beneficial.

Citation: Implementation and outcome of thrombolysis with alteplase 3–4.5 h after an acute stroke: An updated analysis from SITS-ISTR. *Lancet Neurol*. 2010;9:866.

On the basis of reports published in September 2008 from two

large international studies, professional stroke organizations extended the recommended time between symptom onset and administration of alteplase from three to 4.5 hours. To assess implementation of the wider treatment window and its effects, investigators analyzed data for nearly 24,000 patients who were included in one of the study's stroke registry from 2002 to 2010.

Overall, 2,376 patients received alteplase between three and 4.5 hours after symptom onset; the proportion of patients who were treated within this window was three times higher in the last quarter of 2009 than in the first quarter of 2008.

Rates of poor outcomes were low:

- 7.1% of patients treated within three hours and 7.4% of those treated at three-to-4.5 hours had symptomatic intracerebral hemorrhage
- 12.3% and 12.0%, respectively, died within three months.

However, in analyses adjusted for confounding variables, patients treated at three to 4.5 hours had significantly higher rates of symptomatic intracerebral hemorrhage (one extra hemorrhage for every 200 patients) and three-month mortality (one extra death for every 333 patients), as well as significantly worse functional outcomes.

Median time from admission to treatment was 65 minutes before and after the reports. The authors conclude that the extended treatment window was implemented rapidly, with no overall increase in admission-to-treatment time, and that although risk from alteplase was greater when administered at three to 4.5 hours, treatment was still beneficial.

Although the U.S. FDA has not yet approved use of alteplase beyond three and up to 4.5 hours after onset of ischemic stroke symptoms, this evidence supports a wider treatment window and professional organizations recommend it.

[Published in *J Watch Emerg Med*, August 27, 2010—Kristi L. Koenig, MD, FACEP.] ■

Head Lice

Key point: Head lice have low contagion in classrooms, and infected children should not be restricted from school attendance.

Citation: Frankowski BL, Bocchini JA Jr, Council on School Health and Committee on Infectious Diseases. Head lice. *Pediatrics*. 2010;126(2):392-403.

The American Academy of Pediatrics (AAP) has released a revised clinical report on the management of head lice. It contains a great deal of practical information, including the following highlights:

Background Information

- Lice are common in children aged 3 to 12 years (estimates range from 6 million to 12 million cases per year in the U.S.).
- Empty egg casings or nits are easier to see than viable eggs on darker hair because they are whiter.

ABSTRACTS IN URGENT CARE

- Itching may not develop for four to six weeks after eggs hatch.
- “Lice cannot hop or fly; they crawl.”

Diagnosis

- Use of a louse comb facilitates detection of head lice.
- Children should not be sent home from school on the day of diagnosis because they have likely been infected for >1 month and pose little risk to others.
- Children who have had “head-to-head” contact with index cases should be checked.
- Although the intent of a properly worded letter from school is to encourage parents to check their children for lice at home, some experts believe letters cause unnecessary angst among parents.

Policy Recommendations

- Infected children should not be restricted from school attendance. Head lice have low contagion in classrooms.
- The AAP and the National Association of School Nurses discourage a no-nit policy because it is not based on science.
- Head-lice screening programs have not proven effective.

Treatment Recommendations

- Permethrin 1% (Nix) or pyrethrins (Rid, A-200, Pronto) are preferred treatments in communities where resistance has not been reported. Re-treatment nine days after initial therapy is recommended with both products.
- Manual removal of nits immediately after treatment is not necessary.
- Providing parents with instruction in the proper use of any treatment is critical.
- Alternative treatments include:
 - malathion 0.5% (Ovide); for children \geq years
 - benzyl alcohol 5% (Ulesfia); for children \geq 6 months
 - permethrin 5% (Elimite); for infants as young as 2 months
 - other treatments that require further evaluation include crotamiton 10% (Eurax), oral ivermectin (Stromectol; for children who weigh \geq 15 kg), oral sulfamethoxazole-trimethoprim (Septra), herbal products, occlusive agents (e.g., petrolatum shampoo), and desiccation.

I suspect that many clinicians must “negotiate” with families and schools about the best way to proceed when a child has lice. In addition to this report, the National Pediculosis Association website is an excellent source of information.

[Published in *J Watch Pediatr Adolesc Med*, August 25, 2010—Howard Baucher, MD.] ■

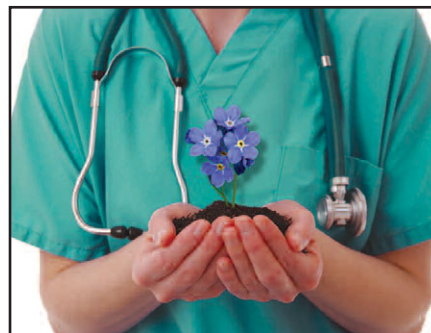
Systemic Steroids for Pharyngitis Pain?

Key point: A meta-analysis suggests modest benefit.

Citation: Wing A, Volla-Roel C, Yeh B, et al. Effectiveness of corticosteroid treatment in acute pharyngitis: A systematic review of the literature. *Acad Emerg Med*. 2010;17(5):476-483.

A 2009 meta-analysis suggested that administration of corticosteroids for patients with acute pharyngitis increases the likelihood of pain resolution at 24 and 48 hours and hastens pain relief by approximately six hours, particularly in patients with positive bacteriologic tests or presence of exudate.

In the current study, researchers conducted a meta-analysis of the eight



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trials included in the prior analysis plus two additional randomized, controlled trials in which corticosteroids (alone or in combination with antibiotics) were compared with placebo or standard therapy in adults, children, or both.

The 10 studies involved 1,096 patients. Seven studies used dexamethasone (0.6 mg/kg to a maximum of 10 mg orally), and three used prednisone (60 mg orally), betamethasone (2 mL intramuscularly), or cortisone (500 or 600 mg intramuscularly). In pooled analyses, corticosteroids decreased the time to clinically significant pain relief by 4.5 hours. However, at 24 hours, the mean reduction in pain scores associated with corticosteroids (0.9 points on a 10-point visual analog scale) was not clinically significant. No serious adverse events were attributable to corticosteroids.

This study and the prior analysis show a modest improvement in time to pain relief when steroids are added to usual treatment for acute pharyngitis.

Although the data are not compelling, a single oral dose of corticosteroids (e.g., 60 mg of prednisone) is a reasonable option for adults with acute severe pharyngitis with bacterial etiology or exudate.

[Published in *J Watch Emerg Med*, June 4, 2010—Diane M. Birnbaumer, MD, FACEP.] ■

Symptoms Following Mild Brain Injury in Children

Key point: Most children will be symptom-free by 1 year.

Citation: Barlow KM, Crawford S, Stevenson A, et al. Epidemiology of post-concussion syndrome in pediatric mild traumatic brain injury. *Pediatrics*. 2010;126(2):e374-e381.

matic brain injury. *Pediatrics*. 2010;126(2):e374-e381.

Mild traumatic brain injury (mTBI) occurs in an estimated 692 per 100,000 children younger than 15 years in the U.S. To determine the incidence and natural history of post-concussion symptoms in children with mTBI, researchers at an emergency department in Canada prospectively compared physical, cognitive, emotional, and behavioral symptoms in 670 children with mTBI (age range, 0–18 years) and 197 children with extracranial injury (controls).

The definition of mTBI was admission Glasgow Coma Scale score of 13 to 15, loss of consciousness or altered mental status for <20 minutes, absence of focal neurological deficits, and post-traumatic amnesia for <24 hours.

Parents completed several questionnaires (including a concussion-specific symptom inventory) seven to 10 days after the injury (for pre-injury and current symptom assessment), two weeks later, and then monthly until symptoms resolved.

Pre-injury symptom scores were similar in the two groups. Three months after injury, significantly more children with mTBI than controls were symptomatic (11.0% vs. 0.5%); this significant difference persisted at one year (2.3% vs. 0.01%, respectively).

The most common symptoms at one month were fatigue, more emotional, irritability, and headache.

Age older than 6 years and more-severe mTBI were significantly related to persistence of symptoms.

Parents often ask if their children will have symptoms after mTBI. The vast majority of children will be symptom free by one year.

[Published in *J Watch Pediatr Adolesc Med*, August 25, 2010—Howard Bauchner, MD.] ■

“Bouncebacks” continued from page 29

1. fever
2. abdominal pain
3. weight loss
4. urinary retention.

A reasonable initial approach to a patient with low back pain without acute surgical symptoms may be conservative therapy, such as NSAIDs, muscle relaxants, and pain medications. Educate the patient to pursue further evaluation if the pain does not improve within a defined period of time.

Finally, if the mechanism of injury and exam are inconsistent with the diagnosis, an alternate diagnosis should be considered and definite follow-up arranged. The etiology of the patient’s pain may not be found on the initial visit, but you can always make sure you follow these golden rules of high-risk patients:

- You first must recognize them.

- Review your documentation, thoughts, vitals, and any inconsistencies that may be in the history and/or exam.
- Consciously work on a positive relationship with your patients throughout the evaluation, which will not only facilitate communication and enhance the medicine you deliver, but help in risk management issues
- Make sure appropriate and timely follow-up is discussed, documented, and arranged if possible. ■

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