



# ABSTRACTS IN URGENT CARE

- Managing Febrile Children
- Warming Local Anesthetics
- LP and SAH Detection
- Patients and Clinical Data
- Swimming and LQTS

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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.

## A New Approach to Managing Young Non-Toxic-Appearing Febrile Children

**Key point:** *Researchers suggest an emphasis on more-limited evaluation, now that vaccines have greatly reduced the likelihood of serious bacterial infections.*

**Citation:** Jhaveri R, Byington CL, Klein JO, Shapiro ED. Management of the non-toxic-appearing acutely febrile child: a 21st century approach. *J Pediatr.* 2011;59(2):159:181.

Since the 1970s, considerable attention has been paid to the management of febrile children aged  $\leq 3$  years without an obvious focus of infection. Recommendations have emphasized detection of serious bacterial infections (SBIs), including occult bacteremia (OB), and empirical antibiotic treatment for children considered to be at high risk. Management has been determined using a combination of clinical appearance, age, and laboratory tests, with more testing recommended for infants aged  $< 3$  months than for those aged 3 to 36 months.

Effective vaccines against *Haemophilus influenzae* type b (Hib) and *Streptococcus pneumoniae*, the two major causes of occult SBIs, have been universally available in the US since 1988 and 2000, respectively. The incidence of invasive Hib infection in children aged  $< 5$  years dropped by 99% between 1987 and 2007, and the incidence of pneumococcal OB is currently  $< 0.5\%$ . Urinary tract infections (UTIs) are now the most common SBI in febrile children without localizing signs. Considering these changes, researchers from four major pediatric departments suggest that recommendations for managing such children be updated.



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These researchers state that new guidelines should emphasize the importance of immediate antimicrobial therapy for an infant who is seriously ill or toxic appearing and a complete clinical and laboratory evaluation for high-risk febrile infants aged  $\leq 30$  days, as we have been doing. However, for intermediate-risk infants aged 31 to 90 days, acceptable management can range from complete evaluation to simply observation and follow-up. And for infants aged 3 to 36 months who have received  $\geq 2$  doses of both Hib and pneumococcal conjugate vaccines, evaluation only for UTI is warranted.

Published in *J Watch Infect Dis.* August 17, 2011—Robert S. Baltimore, MD. ■

## Warm Local Anesthetics Prior to Injection

**Key point:** *Warming reduces pain, even when the anesthetic is buffered.*

**Citation:** Hogan ME, vanderVaart S, Perampaladas K, et al. Systematic review and meta-analysis of the effect of warming local anesthetics on injection pain. *Ann Emerg Med.* 2011;58(1):86-98.e1.

Injection of local anesthetics causes pain at the injection site before providing anesthesia. Postulated methods to mitigate this pain include slowing the rate of injection; avoiding epinephrine, when possible; buffering; and warming the local anesthetic to body temperature prior to injection. These authors assessed injection pain in a meta-analysis of 18 randomized studies involving 831 patients who received either warmed (body temperature) or unwarmed (room temperature) subcutaneous or intradermal local anesthetic injections. The anesthetic was unbuffered in 10 studies.

Patients reported pain on either visual analog or numeric rating scales. Methods of warming included water baths, incubators, fluid warmers, baby food warmers, warming trays, and syringe warmers.

Patients reported less pain with warmed anesthetic than with room-temperature anesthetic (mean difference, 11 mm on a 100-mm scale). Even with buffered anesthetic, patients reported less pain with warming (mean difference, 7 mm).

Published in *J Watch Emerg Med.* August 12, 2011—Richard D. Zane, MD, FAAEM. ■

### When LP Is Not Necessary to Detect Subarachnoid Bleed

**Key point:** *CT performed within 6 hours of symptom onset in neurologically intact patients had 100% negative predictive value in this prospective multicenter study.*

**Citation:** Perry JJ, Stiell IG, Sivilotti ML, et al. Sensitivity of computed tomography performed within six hours of onset of headache for diagnosis of subarachnoid haemorrhage: prospective cohort study. *BMJ.* 2011;343:d4277.

Standard teaching is that lumbar puncture (LP) is essential in patients with suspected subarachnoid hemorrhage (SAH) despite normal head computed tomography (CT) scans. Researchers prospectively enrolled 3132 consecutive neurologically intact patients older than 15 who underwent head CT with third-generation multislice scanners to evaluate nontraumatic acute headache or headache with syncope at 11 tertiary emergency departments in Canada from 2000 to 2009. LP was performed at the discretion of the treating physician. Experienced radiologists who were blinded to the study interpreted all CT scans. SAH was defined by subarachnoid blood on CT, aneurysm on cerebral angiography, or xanthochromia in cerebrospinal fluid.

Mean headache peak pain severity was 8.7 on a 0–10 scale. LP was performed in 49% of patients after negative CT scans. Overall, 240 patients (7.7%) were diagnosed with SAH. The sensitivity of head CT for SAH was 92.9%, and the negative predictive value (NPV) was 99.4%. Emergency physicians identified all but three cases of SAH; all three patients were scanned >6 hours after headache onset. Among 953 patients who were scanned within 6 hours of symptom onset, head CT had 100% sensitivity and 100% NPV. Follow-up at 1 and 6 months did not identify any cases of missed SAH.

Published in *J Watch Emerg Med.* August 5, 2011—Kristi L. Koenig, MD, FACEP. ■

### Patients Comprehend Clinical Data Best When Expressed as Percentages

**Key point:** *In this relatively educated population, one-third fully understood the data. This has implications for leaving treatment decisions solely to patients.*

**Citation:** Woloshin S, Schwartz LM. Communicating data about the benefits and harms of treatment: A randomized trial. *Ann Intern Med.* 2011;155(2):87–96.

To determine how best to present data to patients on the bene-

fits and harms of treatments, researchers randomly assigned nearly 3000 US adults from a nationally representative cohort to receive drug information in one of five numeric formats. Data were presented in tables as natural frequencies (x in 1000); variable frequencies (x in 100, x in 1000, etc., as needed to maintain the numerator >1); percentages; percentages and natural frequencies; or percentages and variable frequencies. Participants were asked 18 questions that assessed their interpretation of the data, which outlined the expected benefits and adverse effects associated with treatment. The study was conducted online.

The mean number of correct responses was between 13 and 14 in all five groups. However, the proportion of participants who correctly answered at least 16 of the 18 questions was greatest for those receiving data as percentages and variable frequencies (35%) or percentages only (34%); it was lowest for data presented only as frequencies (26%).

Published in *J Watch Gen Med.* August 23, 2011—Jamaluddin Moloo, MD, MPH. ■

### Loss of Consciousness While Swimming: Think of Long QT Syndrome

**Key point:** *In a case series of 10 children with LQTS and documented history of water-related syncope, failure to consider LQTS after the event was common*

**Citation:** Albertella L, Crawford J, Skinner JR. Presentation and outcome of water-related events in children with long QT syndrome. *Arch Dis Child.* 2011;96(8):704–707.

Exercise, including swimming, is a known risk factor for dysrhythmia in children with long QT syndrome (LQTS). Investigators examined the presentation, outcomes, and time to final diagnosis in 10 children with LQTS and a history of water-related syncope prior to diagnosis.

Age at the time of the water-related syncope event ranged from 3–14 years. Six children developed syncope during underwater swimming (three while racing), two developed syncope after swimming, one child had loss of consciousness and slipped through a flotation device, and another had a near drowning that required prolonged resuscitation and caused severe neurocognitive deficits. Diagnosis of LQTS was made at the time of the water event in six children and after 1 to 17 years in the others. One child who had been diagnosed with epilepsy and was receiving antiepileptics later died during a hockey game. Posthumous diagnosis of LQTS was made with genetic analysis. Five patients had a family history of sudden death or water-related syncope events. All patients were treated with  $\beta$ -blockers, and three required intracardiac defibrillators (two also had left cardiac sympathectomy). The initial corrected QT interval ranged from 450–600 milliseconds. Nine patients had LQTS type 1 with mutations of the *KCNQ1* gene; the genotype could not be identified in one case.

Published in *J Watch Pediatr and Adolesc Med.* August 3, 2011—F. Bruder Stapleton, MD. ■