On Cephalexin vs. Clindamycin, Intussusception in Children, Lidocaine with Epinephrine, Measuring Medication for Children, and AOM in Children Under 2

■ NAHUM KOVALSKI, BSc, MDCM

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.

Randomized Controlled Trial of Cephalexin Versus Clindamycin for Uncomplicated Pediatric Skin Infections

Key point: ***When it comes to curing skin infected with MRSA (methicillin-resistant Staphylococcus aureus), timely and proper wound cleaning and draining may be more important than the choice of antibiotic.***

Citation: Chen AE, Carroll KC, Diener-West M, et al. Pediatrics. 2011;127(3):e573-e580.

Researchers originally set out to compare the efficacy of two antibiotics commonly used to treat *Staph* skin infections, randomly giving 191 children either cephalexin, a classic anti-Staph antibiotic known to work against the most common strains of the bacterium but not methicillin-resistant *Staph* aureus (MRSA), or clindamycin, known to work better against the resistant strains.

Much to the researchers' surprise, drug choice didn't matter: 95% of the children in the study recovered completely within a week, regardless of which antibiotic they got.

The finding led the research team to conclude that proper wound care, not antibiotics, may have been the key to healing.

Proper wound care has always been the cornerstone of skin infection treatment but, the researchers say, in recent years more physicians have started prescribing antibiotics preemptively.

Although the Johns Hopkins investigators did not advocate against prescribing antibiotics for uncomplicated MRSA skin infections, they did call for studies that directly measure the benefit of drug therapy versus proper wound care. The best study, they say, would compare patients receiving placebo with those on antibiotics, along with proper wound cleaning, draining, and dressing.

The 191 children in the study, ages 6 months to 18 years, were treated for skin infections at Hopkins Children's from 2006 to 2009. Of these, 133 were infected with community-acquired MRSA, and the remainder had simple *Staph* infections with non-resistant strains of the bacterium.

At 48-hour to 72-hour follow-ups, children treated with both antibiotics showed similar rates of improvement; 94% in the cephalexin group improved and 97% in the clindamycin group improved. By one week, the infections were gone in 97% of patients receiving cephalexin and in 94% of those on clindamycin.

Those younger than 1 year of age and those whose infections were accompanied by fever were more prone to complications and more likely to be hospitalized. ■

Nahum Kovalski is an urgent care practitioner and assistant medical director/CIO at Terem Emergency Medical Centers in Jerusalem, Israel. He also sits on the *JUCM* Editorial Board.

Clinical Decision Rule for Intussusception in Children

Key point: A clinical decision rule identified low-risk patients who might not require further imaging beyond plain radiography.

Citation: Weihmiller SN, Buonomo C, Bachur R, et al. Risk stratification of children being evaluated for intussusception. *Pediatrics*. 2011;127(2):e296-e303.

In a prospective observational study, investigators developed a decision rule for diagnosis of intussusception based on clin-

ical and radiographic findings in 310 children (age range, 1 month to 6 years) who presented to a pediatric emergency department in the U.S. with clinically suspected intussusception.

Patients who had histories of intussusception, abdominal surgery, or gastrointestinal disorders were excluded.

Providers recorded selected historical and clinical findings before radiologic studies. On the basis of final radiology reports, plain radiographs were classified as positive (e.g., small bowel obstruction, target or crescent sign), possible positive (e.g., abnormal gas pattern, air fluid levels, dilated intestinal loops), or negative.

Overall, 38 patients (12%) had intussusception; none were younger than 5 months.

The authors used recursive partitioning analysis to create decision rules for identifying low-risk patients. A decision rule identified low-risk patients as those with negative radiographs who were ≤5 months or who were >5 months with diarrhea and no bilious emesis. The rule had sensitivity of 97%, negative predictive value (NPV) of 99%, and negative likelihood ratio (NLR) of 0.08 for identifying intussusception. Plain radiographs alone had sensitivity of 77%, NPV of 96%, and NLR of 0.29.

This decision rule is based on a small sample (only 38 patients had intussusception) and needs validation. However, the authors' recommendations make sense: All patients with suspected intussusception should undergo plain radiography. If radiographs are normal and the patient is either ≤5 months or >5 months with diarrhea and absence of bilious vomiting, then a period of observation and serial examinations without further imaging is advised.

Published in *J Watch Emerg Med*, February 25, 2011—Katherine Bakes, MD. ■

Lidocaine with Epinephrine Is Safe for Hand Surgery

Key point: The prevailing wisdom against use of epinephrine near end arteries appears to be wrong.

Citation: Chowdhry S, Seidenstricker L, Cooney DS, et al. Do not use epinephrine in digital blocks: Myth or truth? Part II. A retrospective review of 1111 cases. *Plast Reconstr Surg*. 2010;126(6):2035-2036.

In a single-center retrospective study involving more than 1,000 consecutive patients undergoing hand surgery, the use of epinephrine in digital blocks did not increase the risk for vascular compromise in the hand or digits. Compared with the 500 patients who received digital blocks with just lidocaine (dose range, 2 cc–10 cc; average, 5.7 cc), the 611 who had blocks with lidocaine plus epinephrine (1:100,000; average dosage, 4.33 cc) were no more likely to suffer from digital gangrene, nerve injury, or unusually delayed wound healing. In fact, no gangrene occurred in the epinephrine group.

This study adds to the literature evidence that the venerable prohibition of the use of epinephrine in local anesthesia close to end arteries is based on a theoretical risk that virtually never materializes in practice.

Prior studies have shown that ischemia and infarction do not occur when lidocaine with epinephrine is used to diffusely infiltrate surgical sites on the hands.

This study shows that digital blocks with epinephrine are safe, as well. Of course, reasonable precautions should still be observed: There is no need to use more anesthetic than necessary, and epinephrine is best avoided in patients with severe peripheral vascular disease, such as Raynaud syndrome.

As in most surgical studies, the outcomes are linked to operator skill. Nevertheless, the overall message is that drawing up special anesthetic for hand surgery is unnecessary.

Published in *J Watch Dermatol*, *February 18, 2011*—Murad Alam, MD, MSCI. ■

Most Pediatric OTC Liquid Medications Have Inconsistent Dosing Directions and Measuring Devices

Key point: Better communication of dosing for over-the-counter drugs is necessary.

Citations: Yin HS, Wolf MS, Dreyer BP, et al. Evaluation of consistency in dosing directions and measuring devices for pediatric nonprescription liquid medications. *JAMA*. 2010;304(23): 2595-2602.

DeWalt DA. Ensuring safe and effective use of medication and health care: Perfecting the dismount. *JAMA*. 2010;304(23): 2641-2642.

In 2009, the FDA issued the following voluntary guidelines for over-the-counter (OTC) liquid medications:

1. All liquid OTCs should include a measuring device.
2. Measuring devices and directions should use consistent abbreviations and units of measurement.
3. Dosing devices should not have extraneous markings or hold more than the maximum dose.
4. Abbreviations should be standard and defined.
5. Decimals or fractions should be used cautiously.
6. Studies should confirm accurate use by consumers.

At the time the FDA issued its guidelines, researchers examined dosing devices and directions for 200 of the most commonly used pediatric OTC liquid medications. Seventy-four percent of the products contained a measuring device, and 98% of these had inconsistencies between dosing directions and device markings (including superfluous device markings in 81% and missing dose markings in 24%). Five percent of products used nonstandard units of measure (e.g., dram, cc, fluid ounce) and 55% used fractions. Most products did not state that the measuring device should be used only with the

associated product.

Risks associated with inaccurate dosing of OTC medications are well known. When we instruct parents to administer medications—whether OTC or prescription—we often fail to apply the same rigor to ensuring accurate drug delivery as we do to diagnosing and establishing a treatment plan. Patient safety must be our first priority.

Published in *J Watch Pediatr Adolesc Med*, January 12, 2011—F. Bruder Stapleton, MD. ■

Treatment of Acute Otitis Media in Children Under 2 Years of Age

Key point: 'Watch and wait' unless symptoms are severe or certain risk factors exist.

Citation: Hoberman A, Paradise JL, Rockette HE, et al. Treatment of acute otitis media in children under 2 years of age. *N Engl J Med*. 2011;364(2):105-115.

The authors randomly assigned 291 children 6 to 23 months of age, with acute otitis media diagnosed with the use of stringent criteria, to receive amoxicillin–clavulanate or placebo for 10 days. They measured symptomatic response and rates of clinical failure.

Among the children who received amoxicillin–clavulanate, 35% had initial resolution of symptoms by day 2, 61% by day 4, and 80% by day 7; among children who received placebo, 28% had initial resolution of symptoms by day 2, 54% by day 4, and 74% by day 7 (p=0.14 for the overall comparison).

For sustained resolution of symptoms, the corresponding values were 20%, 41%, and 67% with amoxicillin–clavulanate, as compared with 14%, 36%, and 53% with placebo (p=0.04 for the overall comparison). Mean symptom scores over the first 7 days were lower for the children treated with amoxicillin–clavulanate than for those who received placebo (p=0.02).

The rate of clinical failure — defined as the persistence of signs of acute infection on otoscopic examination — was also lower among the children treated with amoxicillin–clavulanate than among those who received placebo: 4% versus 23% at or before the visit on day 4 or 5 (P<0.001) and 16% versus 51% at or before the visit on day 10 to 12 (P<0.001). Mastoiditis developed in one child who received placebo.

Diarrhea and diaper-area dermatitis were more common among children who received amoxicillin–clavulanate. There were no significant changes in either group in the rates of nasopharyngeal colonization with non-susceptible *Streptococcus* pneumoniae.

Among children 6 to 23 months of age with acute otitis media, treatment with amoxicillin–clavulanate for 10 days tended to reduce the time to resolution of symptoms and reduced the overall symptom burden and the rate of persistent signs of acute infection on otoscopic examination.

Dr. Tzahi Grossman, Director of the Israeli Association of Pediatrics, noted that the conditions of examination as done in these studies were much more strict than those in the typical primary care environment. He noted that 2 out of 3 children with OM will heal without treatment. As such, the recommendation stands to watch and wait unless there are severe acute symptoms, high risk factors or other significant clinical issues. ■