ABSTRACTS IN URGENT CARE

On Pediatric Sinusitis, Skin Testing for β-Lactam Reactions, Spinosad Approved for Head Lice, Inaccurate Medication Lists, Steroids for Children with CAP, Beclomethasone Rescue for Pediatric Asthma, Zinc for the Common Cold, and Doxylamine and Pyridoxine for Nausea and Vomiting of Pregnancy

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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.

Complications of Sinusitis in Children

Key point: Intracranial complications of pediatric sinusitis were more severe than intraorbital complications.

Citation: Goytia VK, Giannoni CM, Edwards MS. Intraorbital and intracranial extension of sinusitis: Comparative morbidity. *J Pediatr.* 2011;158(3):486-491.

Serious complications of sinusitis occur more often in children than in adults. Prompt diagnosis and treatment are necessary to minimize morbidity and the risk for permanent sequelae or death. In a recent study, investigators reviewed records from a large children's hospital to examine the presentation, course, and severity of two such complications: intraorbital extension (IOE) and intracranial extension (ICE).

The researchers identified 118 children aged 3 months through 18 years who had radiographic evidence of sinusitis and imaging findings of IOE or ICE between 1997 and 2006. Eighty-five children had IOE; among these children, 41 had subperiosteal abscess, 24 had subperiosteal phlegmon, and 20 had orbital cellulitis or orbital abscess. Of the 33 children with ICE, 20 had dural enhancement, 15 had epidural abscess, 16 had subdural empyema, 9 had frontal bone osteomyelitis/Pott's puffy tumor, 4 had brain abscess, and 1 had sinus thrombosis. Some children had more than one finding.

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Contrast-enhanced computed tomography of the orbit and sinuses was sufficient for medical decision making in IOE, whereas magnetic resonance imaging offered increased sensitivity to identify the location and extent of ICE.

Compared to children with IOE, those with ICE had a longer duration of headache before diagnosis and were more likely to have vomiting; they also had a longer hospital stay and a longer course of intravenous antibiotics. Most of those with ICE were initially treated with cefotaxime, vancomycin, and metronidazole. Until 2002 (when methicillin-resistant *Staphylococcus aureus* became a potential threat), most children with IOE were initially treated with cefuroxime alone or nafcillin plus cefotaxime; since then, the most common regimen has been clindamycin or vancomycin, plus cefotaxime.

Published in *J Watch Infect Dis*, April 6, 2011—Robert S. Baltimore, MD. ■

Skin Testing for β-Lactam Reactions

Key point: Most childhood rashes following β-lactam treatment are NOT allergic.

Citation: Caubet JC, Kaiser L, Lemaître B, et al. The role of penicillin in benign skin rashes in childhood: A prospective study based on drug rechallenge. *J Allergy Clin Immunol.* 2011;127(1):218-222.

β-lactam antibiotics are the most commonly prescribed pediatric medication worldwide and are frequently implicated in urticarial or maculopapular reactions that occur more than 1 hour after ingestion. These delayed reactions are likely T-cell mediated.

In a prospective observational study, researchers examined the

cause of non-immediate urticarial or maculopapular reactions that occurred up to 72 hours after β-lactam ingestion in 88 children (age range, 0–16 years) who presented to one emergency department in Switzerland. All patients underwent intradermal and patch skin testing, specific IgE determination (sIgE), viral serology, and oral challenge tests (OCTs).

Only six children had positive OCT reactions; all reactions were mild and similar to presenting rashes. Overall sensitivity, specificity, and negative predictive values of intradermal skin testing for identifying β-lactam allergy were 67%, 92%, and 97%, respectively; skin testing was more accurate for urticarial than maculopapular eruptions. Patch testing and sIgE determinations were not useful. Two-thirds of patients with negative OCTs had positive viral tests (mostly enteroviruses). Of note, three patients (50%) with positive OCTs had positive serology for acute Epstein-Barr virus infection.

Published in *J Watch Pediatr Adolesc Med,* February 23, 2011—David J. Amrol, MD. ■

Spinosad Now FDA Approved for Treating Head Lice

Key point: In two phase III trials, spinosad was significantly more effective than 1% permethrin.

Citation: FDA approves head lice treatment for children and adults [press release]. Silver Spring, MD: Food and Drug Administration; Jan 18, 2011. (http://viajwat.ch/htaUMf).

Approximately 6-12 million head lice infestations occur in the US each year, most of them among young children. Although various remedies are available, the American Academy of Pediatrics currently recommends topical 1% permethrin as the first-line treatment. Spinosad (Natroba), which received FDA approval on January 18, 2011, for use in patients aged ≥4 years, now provides an additional option.

Spinosad has a unique mechanism of action, causing paralysis and death of lice. Like permethrin, this product is a nonprescription topical agent. It is applied to dry hair/scalp, left on for 10 minutes, and then rinsed.

FDA approval was based on two manufacturer-sponsored, phase III, multicenter, randomized trials in which spinosad without nit combing was compared against 1% permethrin with nit combing under home-use conditions; a total of 949 participants from 391 households were involved. Retreatment was administered if live lice were present after 7 days. Among primary patients (the youngest household members with ≥3 live lice on day 0), spinosad-treated participants were significantly more likely than permethrin-treated ones to be lice free 14 days after the final treatment (approximately 86% vs 44%).

In addition, most spinosad-treated patients required only one treatment, whereas most permethrin-treated patients required two. Both agents were well tolerated, with no serious adverse events reported. Rates of eye and scalp irritation—the most common side effects—were similar between groups; application-site erythema occurred less frequently in the spinosad-treated patients.

Published in *J Watch Infect Dis,* February 9, 2011—Lynn L. Estes, PharmD . ■

Medication List Obtained at ED Triage Is Often Inaccurate

Key point: Lists for 37% of patients at a single emergency department omitted medications or included discontinued medications.

Citation: Mazer M, Deroos F, Hollander JE, et al. Medication history taking in emergency department triage is inaccurate and incomplete. *Acad Emerg Med.* 2011;18(1):102-104.

The Joint Commission is focusing on medication errors as a major cause of morbidity and mortality. In a prospective, cross-sectional study, researchers evaluated the accuracy of medication lists obtained at triage for 1797 adult patients who presented to a single urban academic emergency department (ED).

Nurses obtained lists from patients at triage as part of usual care. If the patient was unable to provide a list, a prior medication list in the electronic medical record was used, if available. Later during the ED visit, trained research associates administered surveys asking patients to verify all prescription and nonprescription medications that they were taking; 92% completed the survey.

Discrepancies between the initial and later lists were identified for 38% of patients; 28% of initial lists omitted medications, and 10% included medications that the patient was no longer taking.

Published in *J Watch Emerg Med,* February 4, 2011—Diane M. Birnbaumer, MD. ■

Steroids for Children with Community-Acquired Pneumonia?

Key point: Hospital length of stay was shorter in children who received corticosteroids — but only for those with wheezing .

Citation: Weiss AK, Hall M, Lee GE, et al. Adjunct corticosteroids in children hospitalized with community-acquired pneumonia. *Pediatrics.* 2011;127(2):e255-e263.

Some data suggest that corticosteroids have an ameliorative effect in adults with community-acquired pneumonia (CAP), presumably because these agents downregulate inflammatory cytokines, resulting in quicker resolution of disease. In a recent retrospective cohort study, researchers examined whether corticosteroids might benefit children with CAP. They analyzed data for 20,703 CAP patients aged 1 - 18 years who were discharged from any of 38 hospitals in 2006 or 2007.

A total of 7234 (35%) patients received adjunctive corticosteroids, but the proportion varied greatly among centers (1%–51%). Across all age groups, length of stay (LOS) was shorter for children who received steroids than for those who did not. The median LOS was

3 days for all children; 10% of steroid recipients and 20% of nonrecipients had an LOS >7 days. Among the children who received β-agonists (presumably an indicator of wheezing), LOS was shorter for steroid recipients than for nonrecipients. However, among those who did not receive β-agonists, the LOS was slightly longer for steroid recipients than for nonrecipients

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Occasional Rescue with Beclomethasone in Children with Controlled Asthma Is a Possible Alternative to Daily Meds

Key point: In children with mild, controlled asthma, occasional rescue with beclomethasone plus albuterol works better than albuterol alone and doesn't retard linear growth.

Citation: Martinez FD, Chinchilli VM, Morgan WJ, et al. Use of beclomethasone dipropionate as rescue treatment for children with mild persistent asthma (TREXA): a randomized, double-blind, placebo-controlled trial. *The Lancet*. 2011;377 (9766): 650-657.

Some 300 children with controlled asthma were randomized to one of four groups: "combined" (twice daily beclomethasone; rescue with beclomethasone plus albuterol); "daily" (twice daily beclomethasone; rescue with placebo plus albuterol); "rescue" (twice daily placebo; rescue with beclomethasone plus albuterol); and "placebo" (twice daily placebo; rescue with placebo plus albuterol).

After 44 weeks, the frequencies both of exacerbations and treatment failure were lower in all three treatment groups, compared with the placebo group. However, linear growth was slower in the daily and combined groups than in the rescue and placebo groups.

The authors conclude that their results "suggest that inhaled corticosteroids used as rescue together with albuterol show benefits over rescue albuterol alone and avoids the growth effects associated with use of daily inhaled corticosteroids." ■

Zinc for the Common Cold

Key point: Zinc administered within 24 hours of onset of symptoms reduces the duration and severity of the common cold in healthy people. When supplemented for at least 5 months, it reduces cold incidence.

Citation: Singh M, Das RR. Zinc for the common cold. *Cochrane Database of Systematic Reviews 2011, Issue 2. Art. No.: CD001364. DOI: 10.1002/14651858.CD001364.pub3.*

In an update of a 1999 Cochrane review, the authors examined zinc's efficacy both in shortening the duration of colds and in preventing them. They considered the results of 15 randomized trials, totaling over 1300 participants.

Zinc supplements significantly reduced the severity of cold symptoms as well as the length of illness. Among people taking zinc within 24 hours of the start of symptoms, the risk for still having symptoms at the 7-day mark was about half that of those not taking zinc. In preventing colds, zinc supplements taken for at least 5 months conferred a risk for catching a cold that was only two-thirds that of controls.

Zinc's side effects included a bad taste and nausea. ■

Doxylamine and Pyridoxine for Nausea and Vomiting of Pregnancy

Key point: New combined formulation is effective and well-tolerated

Citation: Koren G, Clark S, Hankins GD, et al. Effectiveness of delayed-release doxylamine and pyridoxine for nausea and vomiting of pregnancy: A randomized placebo controlled trial. *Am J Obstet Gynecol*. 2010;203(6):571.e1-e7.

Nausea and vomiting of pregnancy (NVP) is common and can be debilitating. The combination of doxylamine succinate and pyridoxine hydrochloride (Bendectin) was voluntarily discontinued in 1983 by the manufacturer because of alleged birth defects in offspring of users. These claims were subsequently shown to be unfounded and the litigations were rejected, but no product has since been FDA-approved for NVP.

Now, investigators have conducted a randomized controlled trial, sponsored by a different manufacturer, to assess efficacy of a new delayed-release formulation of the same two agents (Diclectin). Two-hundred-eighty women with pregnancies of 7-14 weeks' gestation and NVP that was resistant to dietary and lifestyle management were randomized to receive placebo or Diclectin (10 mg of each agent; dosages were escalated as needed). The primary outcome was improvement as measured with a 15-point pregnancy emesis scale to assess symptoms and quality of life.

Diclectin, compared with placebo, was associated with greater improvements in emesis scores (change from baseline, −4.8 vs −3.9; *P*=0.006) and quality of life, with a trend toward fewer missed days of work in the Diclectin group. Substantially more women in the Diclectin group (49% vs 33%, *P*=0.009) asked to continue using their assigned treatment at the end of the 15-day trial period. Adverse events did not differ between groups.

The discontinuation (which was not based on definitive safety concerns) of an effective tool in the battle against nausea and vomiting of pregnancy was followed by a marked rise in hospitalizations for this condition. Taken together with previous findings supporting Diclectin's safety, these data, which offer compelling evidence of the efficacy and tolerability of a new formulation of an old pair of agents, should reassure patients, providers, epidemiologists, litigators, and regulatory agencies alike.

Published in *J Watch Women's Health*, January 6, 2011—Allison Bryant, MD, MPH ■