ABSTRACTS IN URGENT CARE

- Normalization of vital signs and risk of acute PE
- Imaging trends for pediatric appendicitis
- Amoxicillin for rhinosinusitis
- Chronic headache after TBI in children
- Trends in physician referrals
- TIA diagnosis by neurologists vs ER physicians
- Oral dexamethasone for croup
- Pain score and time to analgesia
- Antibiotics and severe bleeding in older adults on warfarin
- Subclinical HSV shedding during antiviral therapy
- Accuracy of rapid influenza tests

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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.

Normalization of Vital Signs Does Not Reduce Risk for Acute Pulmonary Embolism

Key point: Up to one-third of patients whose abnormal triage vital signs reverted to normal values had PE.

Citation: Kline JA, Corredor DM, Hogg MM, et al. Normalization of vital signs does not reduce the probability of acute pulmonary embolism in symptomatic emergency department patients. *Acad Emerg Med*. 2012;19(1):11-17.

In a prospective single-center study, researchers evaluated whether normalization of vital signs in patients who present with symptoms of pulmonary embolism (PE) reduces the probability of the disease. Patients at an urban academic emergency department (ED) in North Carolina were enrolled if they were older than 17 years and had at least one predefined sign or symptom and one risk factor for PE.

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Of 192 patients, 35 (18%) were diagnosed with PE by computed tomography in the ED. In patients whose abnormal triage vital signs normalized at any time during their ED visit, incidence of PE was not lower than for patients whose vital signs did not normalize. The incidence of PE for patients with abnormal pulse rate, respiratory rate, shock index, or pulse oximetry at triage that subsequently normalized was 18%, 14%, 19%, and 33%, respectively.

Published in *J Watch Emerg Med*. February 17, 2012 — Diane M. Birnbaumer, MD, FACEP. ■

Imaging Trends for Pediatric Appendicitis: Use of Ultrasound Is Up and Use of CT Is Down

Key point: Ultrasound alone or with CT, but not CT alone, was associated with lower negative appendectomy rates

Citation: Bachur RG, Hennelly K, Callahan MJ, Monuteaux MD. Advanced radiologic imaging for pediatric appendicitis, 2005-2009: Trends and outcomes. *J Pediatr*. 2011 Dec 20; [epub ahead of print].

Use of computed tomography (CT) and ultrasound (US) imaging have improved the preoperative diagnosis of appendicitis in children with equivocal clinical findings. To exam-

ine imaging trends for appendicitis and whether imaging is associated with clinical outcomes, researchers retrospectively reviewed administrative data from 55,238 children with a diagnosis of appendicitis at 40 children's hospital emergency departments between 2005 and 2009.

Use of imaging modalities varied widely among institutions (interquartile ranges, 21%–49% of patients for CT and 2%–26% for US). The median institution imaging rate for patients with appendicitis was 48%. Girls and children younger than 5 years were significantly more likely to undergo an imaging study than boys and children older than 5 years. CT rates peaked at 35% in 2007 and significantly declined to 29% in 2009. US rates increased from 17% in 2005 to 25% in 2009. The negative appendectomy rate decreased from 0.044 in 2005 to 0.031 in 2009. Increased use of US or US plus CT was associated with lower negative appendectomy rates. Imaging was not associated with rates of rupture or return admissions.

Published in *J Watch Ped and Adol Med.* February 1, 2012 — F. Bruder Stapleton, MD. ■

Amoxicillin Has No Effect on Acute, Uncomplicated Bacterial Rhinosinusitis

Key point: Amoxicillin doesn't ameliorate the severity of acute, uncomplicated bacterial rhinosinusitis any better than placebo.

Citation: Garbutt JM, Banister C, Spitznagel E, Piccirillo JF. Amoxicillin for acute rhinositis: a randomized controlled trial. *JAMA*. 2012;307(7):685-692.

Some 160 patients with clinically confirmed disease (purulent nasal discharge and maxillary pain or facial tenderness) were randomized to receive either 1500 mg/day of amoxicillin or placebo for 10 days. In addition, all received a supply of symptomatic treatments (such as acetaminophen) for use as needed.

Patients' assessment of improvement in 16 sinus-related symptoms did not differ between groups at day 3 or at day 10. (While symptom scores did favor antibiotics at day 7, the authors judge the difference to be "too small to represent any clinically important change.") ■

Chronic Headache After Traumatic Brain Injury Is Common in Children

Key point: The prevalence of headache 3 months after mild TBI is highest in adolescents and girls.

Citation: Blume HK, Vavilala MS, Jaffe KM, et al. Headache after pediatric traumatic brain injury: a cohort study. *Pediatrics*. 2012;129(1):e31-39.

Prospective data on the prevalence of headache in children after traumatic brain injury (TBI) are lacking. In the multicenter Child Health After Injury Study, investigators prospectively compared the prevalence of headaches in randomly selected children (age range, 5–17 years) after treatment for TBI (512 cases) or arm fracture (137 controls). TBI was defined and graded (mild, moderate, or severe) on the basis of recent CDC and WHO definitions. Most mild TBIs resulted from falls or objects striking the head. Most moderate-to-severe TBIs resulted from motor vehicle or bicycle crashes or falls.

Parents or guardians completed a baseline survey soon after the child's injury and follow-up interviews at 3 and 12 months after the injury. Adolescents ≥14 years also were interviewed at follow-up.

At 3 months, the prevalence of headache was significantly higher in children with mild TBI (especially adolescents and girls) than in controls (43% vs. 26%) and in children aged 5–12 years with moderate or severe TBI than in controls aged 5–12 years (60% vs. 27%).

At 12 months, the prevalence of headaches did not differ significantly among children with mild TBI (41%), those with moderate-to-severe TBI (34%), and controls (34%). However, girls with mild TBI had a higher (but not statistically significant) prevalence of serious headache at 12 months than controls (27% and 10%).

Published in *J Watch Ped and Adol Med.* February 15, 2012 — Louis M. Bell, MD. ■

Rate of Physician Referrals On The Rise

Key point: The increase was particularly large for cardiac, gastrointestinal, orthopedic, dermatologic, and ear/nose/throat symptoms.

Citation: Barnett ML, Song Z, Landon BE. Trends in physician referrals in the United States, 1999-2009. *Arch Intern Med*. 2012;172(2):163-170.

Despite increased attention to the cost and quality of healthcare delivery, little is known about physician-to-physician referrals. Two major national databases were used to assess referrals in about 850,000 ambulatory care visits, with a focus on referrals from primary care physicians from 1999 to 2009.

The rate of visits resulting in a referral to another physician nearly doubled, from 4.8% to 9.3%, during the decade. Referrals from primary care physicians varied with the nature of the problem. Referral rates rose significantly for the following symptoms: cardiac (8.5% to 14.9%), dermatologic (10.1% to 15.4%), ear/nose/throat (4.5% to 8.5%), gastrointestinal (12.3% to 17.7%), and orthopedic (12.4% to 16.5%). Referral rates for other categories of symptoms, such as gynecologic, pulmonary, or urologic, did not change.

Published in *J Watch Gen Med.* February 2, 2012 — Thomas L. Schwenk, MD. ■

Neurologists Sometimes Disagree with Emergency Physicians' Diagnoses of TIA

Key point: Features associated with discordant TIA diagnoses between neurologists were headache, involuntary movement, and dizziness.

Citation: Schrock JW, Glasenapp M, Victor A, et al. Variables associated with discordance between emergency physician and neurologist diagnoses of transient ischemic attacks in the emergency department. *Ann Emerg Med*. 2012;59(1):19-26.

Patients who present with symptoms consistent with transient ischemic attack (TIA) require emergent evaluation, including imaging and specialty consultation, to confirm the diagnosis and initiate management. In a retrospective review of 429 adult patients who received emergency department (ED) diagnoses of TIA at a single academic center during a 4-year period, the authors evaluated how often neurologists disagreed with emergency physicians' diagnoses and whether ABCD^2 score ≥4 or atypical presenting features (headache, tingling, involuntary movement, seeing flashing lights or wavy lines, dizziness, confusion, incontinence) were associated with discordant diagnoses. The neurologists' diagnosis was the gold standard.

Overall, 156 patients (36%) received discordant diagnoses. Features associated with discordant diagnosis were headache, involuntary movement, and dizziness. Features associated with concordant diagnoses were tingling and ABCD^2 score ≥4.

Published in *J Watch Emerg Med.* February 3, 2012 — Richard D. Zane, MD, FAAEM. ■

How fast does oral dexamethasone work in mild to moderately severe croup? A randomized double-blinded clinical trial

Key point: For children with croup, an oral dose of 0.15 mg/kg dexamethasone offers benefit by 30 minutes.

Citation: Cobrovoljac M, Geelhoed GC. How fast does oral dexamethasone work in mild to moderately severe croup? A randomized double-blinded clinical trial. *Emerg Med Australas*. 2012;24(1):79-85.

For children with croup controversy remains over dosage and time to onset of action of oral steroids. The Cochrane Collaboration and other reviews have suggested 0.6 mg/kg dexamethasone be used (despite some evidence that 0.15 mg/kg is effective) with no expectation of benefit before 4-6 hours.

This randomized double-blinded clinical trial examined whether 0.15 mg/kg dexamethasone works by 30 minutes. Children with croup older than 6 months presenting to a tertiary paediatric ED with a Westley croup score of mild to moderate range (scores 1-6 out of 17) were randomized to receive either 0.15 mg/kg dexamethasone or oral placebo solution.

Each group contained 35 children. There was a growing trend to a lower croup score in the dexamethasone group, evident from 10 minutes and statistically significant from 30 minutes.

For children with croup an oral dose of 0.15 mg/kg dexamethasone offers benefit by 30 minutes, much earlier than the 4 hours suggested by the Cochrane Collaboration. This result might encourage doctors to treat more children with all severities of croup being less worried about potential side-effects and delayed benefit.

Recording Pain Score at Triage Improves Time to Analgesia

Key point: Median time to analgesia dropped from 123 minutes at baseline to 78 minutes 1 year after triage pain scoring became mandatory at an emergency department in Australia.

Citation: Vazirani J, Knott JC, Mandatory pain scoring at triage reduces time to analgesia. *Ann Emerg Med*. 2012;59(2):134-8.e2.

In a prospective study at an emergency department in Australia, researchers evaluated the effect on time to analgesia of requiring triage nurses to record a numeric pain score in the electronic medical record for all patients and, separately, of a focused educational program for staff (1-hour didactic presentation on the need to improve time to analgesia).

During the 8 weeks before the scoring intervention, pain scores were recorded for 73% of patients; median time from patient arrival to administration of analgesia was 123 minutes. Eight weeks after the intervention, scores were recorded for 93% of patients (exceptions were critically ill patients who bypassed usual triage), and median time to analgesia decreased to 95 minutes. At 1 year, median time to analgesia was further reduced to 78 minutes. The focused educational program, which was initiated after the scoring intervention, did not have any additional effect on time to analgesia.

Published in *J Watch Emerg Med.* February 10, 2012 — Richard D. Zane, MD, FAAEM. ■

Antibiotics and Severe Bleeding Among Older Adults on Warfarin

Key point: In a case-control study, all concomitant antibiotics were associated with increased risk for bleeding.

Citation: Baillargeon J, Holmes HM, Lin YL, et al. Concurrent use of warfarin and antibiotics and the risk of bleeding in older adults. *Am J Med*. 2012;125(2):183-189.

Warfarin—the most commonly prescribed oral anticoagulant worldwide—has a narrow therapeutic range. Many drugs, including antibiotics, have been linked to bleeding in warfarin users. Patients receiving anticoagulants generally are older and have more comorbidities than the general population and may be at increased risk for this complication.

To assess the bleeding risk associated with concomitant warfarin and antibiotic use in older patients, researchers performed a case-control study involving a cohort of Medicare beneficiaries who were using warfarin continuously in 2007–2008. Within this group of 38,762 patients, 798 (2.1%) were hospitalized in 2008 for bleeding and met the study criteria. Each case patient was matched with three control patients from the cohort, based on age, sex, race/ethnicity, and indication for warfarin use. Controls were assigned an index month corresponding to the event date of the matched case.

Concomitant exposure to any antibiotic doubled the risk for a bleeding episode, compared with no such exposure (adjusted odds ratio, 2.0; 95% confidence interval, 1.6–2.5). The risk was further increased among individuals whose antibiotic prescriptions began ≤15 days before the index event (AOR, 2.4; 95% CI, 1.8–3.2). The six antibiotic categories examined were all associated with a significant risk for bleeding, but azole antifungals were associated with the greatest risk (AOR, 4.6; 95% CI, 1.9–11.0).

Published in *J Watch Infect Dis.* February 22, 2012 — Neil M. Ampel, MD. ■

Standard-dose and high-dose daily antiviral therapy for short episodes of genital HSV-2 reactivation: three randomised, open-label, cross-over trials

Key point: Short episodes of subclinical shedding of HSV occurred frequently, even during high-dose regimens of antivirals.

Citation: Johnston C, Saracino M, Kuntz S. Standard-dose and high-dose daily antiviral therapy for short episodes of genital HSV-2 reactivation: three randomised, open-label, cross-over trials. *The Lancet*. Early Online Publication, 5 January 2012 doi:10.1016/S0140-6736(11)61750-9.

HSV-2-seropositive, HIV-seronegative people were enrolled at the University of Washington Virology Research Clinic (WA, USA). The authors did three separate but complementary open-label cross-over studies comparing no medication with aciclovir 400 mg twice daily (standard-dose aciclovir), valaciclovir 500 mg daily (standard-dose valaciclovir) with aciclovir 800 mg three times daily (high-dose aciclovir), and standard-dose valaciclovir with valaciclovir 1 g three times daily (high-dose valaciclovir).

Of 113 participants randomised, 90 were eligible. Participants collected 23,605 swabs; 1,272 (5.4%) were HSV-positive. The frequency of HSV shedding was significantly higher in the no medication group (n=384, 18.1% of swabs) than in the standard-dose aciclovir group (25, 1.2%; incidence rate ratio [IRR] 0.05, 95% CI 0.03—0.08). High-dose aciclovir was associated with less shedding than standard-dose valaciclovir (198 [4.2%] *vs* 209 [4.5%]; IRR 0.79, 95% CI 0.63—1.00). Shedding was less frequent in the high-dose valaciclovir group than in the standard-dose valaciclovir group (164 [3.3%] *vs* 292 [5.8%]; 0.54, 0.44—0.66). The number of episodes per person-year did not differ significantly for standard-dose valaciclovir (22.6) versus high-dose aciclovir (20.2; *p*=0.54), and standard-dose valaciclovir (14.9) versus high-dose valaciclovir (16.5; *p*=0.34), but did for no medication (28.7) and standard-dose aciclovir (10·0; *P*=0·001).

Median episode duration was longer for no medication than for standard-dose aciclovir (13 h *vs* 7 h; *P*=0.01) and for standard-dose valaciclovir than for high-dose valaciclovir (10 h *vs* 7 h; *P*=0.03), but did not differ significantly between standard-dose valaciclovir and high-dose aciclovir (8 h *vs* 8 h; *P*=0.23). Likewise, maximum log10 copies of HSV detected per mL was higher for no medication than for standard dose aciclovir (3.3 *vs* 2.9; *P*=0.02), and for standard-dose valaciclovir than for high-dose valaciclovir (2.5 *vs* 3.0; *P*=0.001), but no significant difference was recorded for standard-dose valaciclovir versus high-dose aciclovir (2.7 *vs* 2.8; *P*=0.66). 80% of episodes were subclinical in all study groups. Except for a higher frequency of headaches with high-dose valaciclovir (n=13, 30%) than with other regimens, all regimens were well tolerated.

Short bursts of subclinical genital HSV reactivation are frequent, even during high-dose antiherpes therapy, and probably account for continued transmission of HSV during suppressive antiviral therapy. More potent antiviral therapy is needed to eliminate HSV transmission. ■

Accuracy of Rapid Influenza Diagnostic Tests A Meta-analysis

Key point: Two meta-analyses offer cautionary notes about the diagnosis and treatment of influenza.

Citation: Chartrand C, Leeflang MM, Minion J, et al. Accuracy of rapid influenza diagnostic tests: a meta-analysis. *Ann Intern Med*. 2012 Feb 27 [Epub ahead of print]

One analyzed the accuracy of rapid diagnostic tests for influenza. The analysis was based on 159 studies that compared rapid testing with a reference standard of either viral culture or reverse-transcriptase polymerase chain reaction. The authors found that the rapid tests had a specificity of 98% but a sensitivity of only 54% in adults and 67% in children. Thus, they write, a positive test is unlikely to be a false-positive, but a negative test "has a reasonable likelihood of being false negative."

The authors of the other meta-analysis—on the benefits and harms from available antiviral drugs—point to the low quality of evidence from the 74 available studies. On the basis of that evidence, they conclude that "oral oseltamivir and inhaled zanamivir may provide a net benefit over no treatment." The benefits identified included lower mortality and shorter duration of symptoms. ■