ABSTRACTS IN URGENT CARE

On Hemorrhage and Warfarin, Pink Eye, Crying Infants, Superficial Venous Thrombosis, Troponin Assays, Colchicine for Gout, Topical Silver, Evaluation of PE, and Lumbar Puncture for Febrile Seizure in Babies

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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.

Upper Gastrointestinal Tract Hemorrhage, Warfarin, and Urinary Tract Antibiotics

Key point: Ciprofloxacin increased GI hemorrhage while on coumadin by twice as much, and cotrimoxazole by four times.

Citation: Fischer HD, Juurlink DN, Mamdani MM, et al. Hemorrhage during warfarin therapy associated with cotrimoxazole and other urinary tract anti-infective agents: A population-based study. *Arch Intern Med*. 2010;170(7):617-621.

Hemorrhage is a well-known side effect of long-term warfarin use in older patients. Interactions between warfarin and certain other drugs can increase the risk for this complication.

In a recent nested case-control study conducted using healthcare databases from Ontario, Canada, researchers examined the risk for upper gastrointestinal (GI) tract hemorrhage among patients receiving both warfarin and antibiotics commonly used to treat urinary tract infections.

The cohort consisted of 134,637 patients aged ≥66 years who had been continuously treated with warfarin for ≥180 days. Of these patients, 45,972 had received a concomitant prescription for an antibiotic of interest. The 2,151 patients (1.6%) who were hospitalized for upper GI tract hemorrhage during the study period were considered cases.

Cases were nearly four times as likely as controls to have received cotrimoxazole. Ciprofloxacin use was also associated with increased bleeding risk. No significant association was seen among hemorrhage and use of amoxicillin, ampicillin, nitrofurantoin, or norfloxacin.

Although increasing drug resistance among aerobic gram-negative bacilli has limited the use of cotrimoxazole, this agent is still prescribed for urinary tract infections caused by susceptible pathogens.

Among older patients taking warfarin, an antibiotic other than cotrimoxazole or ciprofloxacin should be prescribed. If an alternative is not feasible, both prothrombin time and the international normalized ratio should be monitored closely during and after antibiotic therapy.

[Published in *J Watch Infect Dis*, April 28, 2010—Larry M. Baddour, MD.] ■

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Pink Eye: To Treat or Not to Treat?

Key point: Four clinical factors helped identify children at low risk for bacterial conjunctivitis.

Citation: Identifying children at low risk for bacterial conjunctivitis. Meltzer JA, Kunkov S, Crain EF. *Arch Pediatr Adolesc Med*. 2010;164(3):263-267.

Acute conjunctivitis is a common childhood ailment that many practitioners treat with topical antibiotics, even though only 50% to 80% of cases are bacterial.

To identify clinical factors associated with low risk for bacterial conjunctivitis, investigators in New York City conducted a prospective observational cohort study involving 368 patients between 6 months and 17 years of age who presented with con-

junctival erythema, eye discharge, or both to a pediatric emergency department between April 2007 and March 2008.

Physicians filled out a checklist of signs and symptoms for each patient and obtained a conjunctival swab for bacterial culture. Cultures were negative (grew normal flora or no bacteria) in 130 patients (35%). Most positive cultures grew *Haemophilus influenzae* (68%) or *Streptococcus pneumoniae* (20%).

In multivariate regression analysis, the following factors were independently associated with negative cultures:

1. age ≥6 years
2. presentation during April through November
3. watery or no discharge
4. no glued eye in the morning

In a prediction model, a child who presented with all four clinical factors would have a negative culture 92% of the time, whereas a child who presented with none of these factors would have a negative culture 12% of the time.

This study identified four easy-to-remember clinical factors that clinicians can use to help identify children at low risk for bacterial conjunctivitis and prevent the use of unnecessary topical antibiotics. However, the seasonal variation in New York City might not be the same as that in other locations, making one of the predictors less reliable.

[Published in *J Watch Pediatr Adolesc Med*, April 7, 2010—Robin Drucker, MD.] ■

Corneal Abrasions in Crying Infants: A Red Herring?

Key point: Half of young infants had corneal abrasions at well-child visits.

Citation: Shope TR, Rieg TS, Kathiria NN. Corneal abrasions in young infants. *Pediatrics* 2010;125(3):e565-e569.

The differential diagnosis of unexplained crying in young infants includes life-threatening conditions such as bacterial infection and less serious—but presumably painful—conditions such as hair tourniquet and corneal abrasion.

Investigators examined the prevalence of corneal abrasion in 96 infants (age range: 1 week to 12 weeks) who presented *without* complaints of crying or eye trauma for well-child visits at a single pediatric clinic in Virginia. Examiners applied fluorescein dye drops into the infants' eyes and looked at their corneas with a ring-shaped magnifying glass with a cobalt blue light. After the exam, parents completed a questionnaire about infant behavior during the previous 24 hours, including crying and fussing (defined as not quite crying but not content).

Corneal abrasions were found in 49% of infants and were 1 mm to 3 mm long; infants with abrasions received acetaminophen and erythromycin eye ointment.

No significant associations were found between the presence of corneal abrasion and crying, fussing, age, fingernail length, or fingernail trimming practices.

The authors postulate that small corneal abrasions in young infants are common and might be asymptomatic (causing no change in normal infant behavior) and fast healing.

[Published in *J Watch Pediatr Adolesc Med,* April 7, 2010—Cornelius W. Van Niel, MD.] ■

Risk for Deep Venous Thrombosis in Patients with Superficial Venous Thrombosis

Key point: Among 600 patients with isolated superficial venous thrombosis, 10% experienced thromboembolic events within 3 months.

Citation: Decousus H, Quéré I, Presles E, et al. Superficial venous thrombosis and venous thromboembolism: A large, prospective epidemiologic study. *Ann Intern Med*. 2010;152 (4):218-224.

The role of anticoagulation in patients with superficial venous thrombosis is controversial, because their risk for deep venous thrombosis (DVT) or pulmonary embolism (PE), has not been evaluated thoroughly.

Researchers in France studied 844 patients who had been referred for diagnostic confirmation of superficial venous thrombosis and who had noncompressible hypoechoic areas >5 cm in length in lower limb superficial veins (as identified by ultrasonography). Median time between first symptoms and consultation was six days.

In 554 patients, the greater saphenous vein was involved; in 106 of these cases, thrombus extended to within 3 cm of the saphenofemoral junction.

One quarter of patients (210) had DVT or PE at study entry. Of the patients without baseline DVT or PE who were followed for three months, 10% developed DVT or PE, despite the fact that most received at least short-term anticoagulation therapy.

Most thromboembolic events (46 of 58) were symptomatic.

Risk for concurrent and subsequent DVT and PE in patients with superficial venous thrombosis might not be as insignificant as we thought. But, because this study involved a referral population with persistent symptoms, we can't be certain how generalizable the results are.

Uncertainty persists about when and whether patients with superficial venous thrombosis should be evaluated for DVT or receive anticoagulation therapy, although monitoring for symptoms during follow-up seems reasonable.

[Published in *J Watch Gen Medicine*, April 1, 2010—Richard Saitz, MD.] ■

High-sensitivity Troponin Assays

Key point: A new troponin assay was 100% sensitive for acute

myocardial infarction, when performed within four hours of presentation.

Citations: Januzzi JL, Bamberg F, Lee H, et al. High-sensitivity troponin T concentrations in acute chest pain patients evaluated with cardiac computed tomography. *Circulation*. 2010;121(10):1227-1234.

Diamond GA, Kaul S. How would the Reverend Bayes interpret high-sensitivity troponin? *Circulation*. 2010;121(0):1172-1175.

Investigators evaluated the diagnostic performance of a new high-sensitivity troponin T (hsTnT) assay in 377 patients with chest pain and low-to-intermediate risk for acute coronary syndromes (ACS) who presented to a high-volume emergency department in Boston.

All patients received usual initial care and underwent coronary angiography, at which time blood was drawn for a single hsTnT assay. Patients were followed for six months, and final diagnoses were assigned by two physicians who were blinded to the hsTnT results.

The investigators used a troponin level of 13 pg/mL (the 99th percentile in a normal reference population) as the diagnostic threshold. Overall, 16.4% of patients had hsTnT levels ≥13 pg/mL. Thirty-seven patients (9.8%) were judged to have ACS, including 29 with unstable angina.

Among patients without ACS, those with elevated hsTnT were significantly more likely than those without elevated levels to have complex medical histories, cardiac abnormalities, coronary artery disease, and greater left ventricular mass. The negative predictive value of a single four-hour hsTnT was 100% for myocardial infarction (MI) and 96% for all ACS, including unstable angina. The positive predictive value for MI was 11%.

For serious diseases, tests with 100% negative predictive value allow clinicians to move on to consider alternative diagnoses. As we learn more about high-sensitivity troponin, "rule-out MI" regimens might become shorter.

[Published in *J Watch Emerg Med*, April 16, 2010—J. Stephen Bohan, MD, MS, FACP, FACEP.]

25. Revisiting Colchicine for Acute Gout

Key point: Low-dose colchicine was reasonably effective and nontoxic.

Citation: Terkeltaub RA, Furst DE, Bennett K, et al. High versus low dosing of oral colchicine for early acute gout flare: Twenty-four–hour outcome of the first multicenter, randomized, double-blind, placebo-controlled, parallel-group, dose-comparison colchicine study. *Arthritis Rheum*. 201062(4): 1060-1068.

In years past, patients with acute gout were treated with oral colchicine, given every one to two hours until pain subsided or intolerable gastrointestinal side effects occurred. Although this approach has been abandoned, largely, a well-tolerated colchicine regimen would be a useful alternative for patients with contraindications to nonsteroidal anti-inflammatory drugs (NSAIDs) or corticosteroids.

In an industry-sponsored randomized trial, 184 patients with acute gout flares received high-dose colchicine (1.2 mg initially, followed by 0.6 mg hourly for six hours), low-dose colchicine (1.2 mg initially, followed by 0.6 mg 1 hour later), or placebo. The primary endpoint—a reduction of ≥50% on a pain-score index at 24 hours—occurred in 38% of low-dose colchicine recipients, 33% of high-dose colchicine recipients, and 16% of placebo recipients.

Differences between either colchicine group and the placebo group were significant.

Adverse gastrointestinal events were significantly more common with high-dose colchicine (77%) than with low-dose colchicine (37%) or with placebo (27%).

At first glance, the response rate to low-dose colchicine seems unimpressive. However, one wouldn't expect dramatic resolution at 24 hours. (The authors used a 24-hour endpoint to avoid prolonged use of placebo for this painful condition.) If a longer trial were to identify a low-dose colchicine regimen that compared favorably to NSAIDs or steroids, colchicine for acute gout flares could make a comeback.

[Published in *J Watch Gen Med*, April 16, 2010—Allan S. Brett, MD.] ■

Topical Silver for Preventing Wound Infection

Key point: Not only is there no clear evidence that silver-containing creams help improve outcomes from burns and other wounds, but they may actually slow down healing in patients with partial-thickness burns.

Citation: Storm-Versloot MN, Vos CG, Ubbink DT, et al. *The Cochrane Library*. Available at: *www2.cochrane.org/reviews/en/ab006478.html*.

Wound dressings and creams containing silver are used widely. It is thought that silver may help wounds to heal faster and prevent infection, though the authors confessed that they did not know if this was true.

This review identified 26 trials (involving 2,066 participants) comparing silver-containing dressings or creams versus dressings or creams that did not contain silver. Twenty of the trials were on burn wounds, while the other trials were on a mixture of wound types. Most studies were small and of poor quality.

After examining them all, the authors concluded that there is not enough evidence to support the use of silver-containing

dressings or creams, as generally these treatments did not promote wound healing or prevent wound infections.

Some evidence from a number of small, poor-quality studies suggested that one silver-containing compound (silver sulphadiazine) has no effect on infection, and actually slows down healing in patients with partial-thickness burns. ■

Incidental Findings on CT Angiography for Evaluation of PE

Key point: In a study of CT angiography in ED patients, incidental findings were more than twice as common as PE.

Citations: Hall WB, Truitt SG, Scheunemann LP, et al. The prevalence of clinically relevant incidental findings on chest computed tomographic angiograms ordered to diagnose pulmonary embolism. *Arch Intern Med*. 2009;169(21):1961-1965.

Computed tomographic pulmonary angiography to diagnose pulmonary embolism: The good, the bad, and the ugly. Schattner A. *Arch Intern Med*. 2009;169(21):1966-1968.

Computed tomography angiography is the gold standard for diagnosing pulmonary embolism (PE) in the emergency department because of its simplicity, high sensitivity, and availability. It also, often, identifies alternative explanations for symptoms and signs in patients who do not have PE. However, the test also reveals incidental findings, such as pulmonary nodules and adenopathy, that do not contribute to determining the cause of a patient's symptoms and signs; follow-up of such findings rarely alters patient outcomes but adds cost, radiation exposure, and patient anxiety.

To determine the prevalence of incidental findings, these authors reviewed 589 CT angiograms (CTAs) ordered to evaluate for PE at a single academic medical center ED during 2003 and 2005. Overall, 9% of CTAs were positive for PE. Other findings were present in 81% of CTAs and provided alternative explanations for symptoms in 33% of all patients.

New incidental findings (mostly masses and nodules) that required clinical or radiologic follow-up were present in 24% of CTAs; such findings were 2.5 times more common than PE.

The authors suggest a more structured approach to diagnosing PE that includes appropriate D-dimer testing and high-quality nonportable chest radiography.

An editorialist offers a scheme for reducing use of CTAs that involves D-dimer testing, leg ultrasonography, and V/Q scanning (with clear-cut reporting guidelines) instead of CT, with CTAs reserved for patients with indeterminate V/Q scans.

One would hope that EDs use a more rational approach to PE diagnosis now than in 2003 to 2005, especially given the well-documented downsides of excessive testing.

A rational approach—such as use of Wells or Geneva scores, D-dimer testing, and high-quality chest radiography to identify patients at low risk for PE—would not only avoid irradiating patients when they present but also allay the need for repeat scans to chase incidental findings.

[Published in *J Watch Emerg Med*, January 8, 2010—J. Stephen Bohan, MD, MS, FACP, FACEP.] ■

Utility of Lumbar Puncture for First Simple Febrile Seizure Among Children 6 to 18 Months of Age

Key point: LP is not needed for young children with first simple febrile seizure.

Citation: Kimia AA, Capraro AJ, Hummel D, et al. Utility of lumbar puncture for first simple febrile seizure among children 6 to 18 months of age. *Pediatrics*. 2009;123(1):6-12.

Although first simple febrile seizure (FSFS) usually is not the sole manifestation of bacterial meningitis, the American Academy of Pediatrics (AAP) practice parameter for the diagnostic evaluation of FSFS in children recommends that lumbar puncture (LP) be "strongly considered" for patients younger than 12 months and "considered" for those aged 12 to 18 months (*Pediatrics*, 1996;97:769).

Investigators challenged this recommendation in the era of *Haemophilus influenzae* type B and pneumococcal conjugate vaccines. The investigators retrospectively reviewed charts of *well-appearing children* aged 6 to 18 months who presented within 12 hours after FSFS to a single emergency department in Boston between 1995 and 2006.

The primary outcome was the rate of bacterial meningitis. Secondary outcomes were compliance with the AAP practice parameter and temporal trends in the performance of LP.

Of 704 patients, 27% were younger than 12 months. Overall, 8% of patients were hospitalized, and 10% had received at least one dose of antibiotics before their ED visit. LP was attempted in 271 cases (38%), and cerebrospinal fluid (CSF) was obtained in 260. Ten cases (3.8%) had CSF pleocytosis (median white cell count, 1 cell/mm3). No CSF culture was positive for a pathogen, and no patients with CSF pleocytosis had positive blood cultures. None of the 704 patients returned to the hospital with bacterial meningitis. During the study period, LP was performed in 70% of patients younger than 12 months and in 25% of those aged 12 to 18 months, with rates decreasing over time in both age groups.

The authors recommend changing the wording of the AAP practice parameter to simply state that "meningitis should be considered in the differential diagnosis for any febrile child, and LP should be performed if there are clinical signs or symptoms of concern."

[Published in *J Watch Emerg Med*, February 27, 2009—Jill M. Baren, MD, MBE, FACEP, FAAP.] ■