



## ABSTRACTS IN URGENT CARE

- Reducing Inappropriate Prescriptions for Ped UTIs
- No Medications Are Risk-Free
- Faster Voiding for Clean-Catch Urine in Infants
- Spinal Manipulation for Low Back Pain
- Arrhythmia Risk No Higher with Azithromycin than with Amoxicillin
- How Soon is 'Too Soon' for hs-cTnT to Assess for AMI?
- New 'Leads' on Detecting MIs Faster

■ SEAN M. McNEELEY, MD and GLENN HARNETT, MD

Each month the College of Urgent Care Medicine (CUCM) provides a handful of abstracts from or related to urgent care practices or practitioners. Sean M. McNeeley, MD and Glenn Harnett, MD lead this effort.

### Taking Aim at Inappropriate Antibiotic Use in Children

**Key point:** Use of a standard protocol for urine culture follow-up and discontinuation of unnecessary empiric antibiotics was both effective and safe in a high-volume pediatric care network.

**Citation:** Saha D, Patel J, Buckingham D, et al. Urine culture follow-up and antimicrobial stewardship in a pediatric urgency care network. *Pediatrics*. March 16, 2017. [Epub ahead of print]

This quality improvement study's objective was to improve follow-up management of negative urine culture results in urgent care centers to reduce inappropriate antibiotic exposure in children. Using a multidisciplinary task force, the authors created and implemented a protocol for routine nurse and clinician follow-up of urine culture results, discontinuation of unnecessary antibiotics, and documentation in the medical record. The authors followed 910 patients who received empiric antibiotic therapy for UTIs but had negative urine culture results. Using the protocol, the antibiotic discontinuation rate increased from 4% to 84%, avoiding 3,429 (40%) of 8,648 antibiotic days prescribed. Of those patients who discontinued antibiotics, none was diagnosed with a UTI within 14 days of the initial urgent care encounter. The use of urine culture

follow-up management has immediate potential to improve antibiotic stewardship in the urgent care setting, with minimal burden on staff and clinician operational efficiency. ■

### New Data Measure Risks with Oral Corticosteroids

**Key point:** Remember—all medications have risks!

**Citation:** Waljee AK, Rogers MA, Lin P, et al. Short term use of oral corticosteroids and related harms among adults in the United States: population based cohort study. *BMJ*. 2017; 357:j1415.

This cohort study looks at patients with short-term steroid use (<30 days) and potential complications at 30 and 90 days out. Endpoints included fracture, sepsis, and blood clot. This study included 1.5 million patients 18-64 years of age. Over 1/3 used steroids in a 3-year period. The incidence of the endpoints was at least double for all three events. Study weaknesses include retrospective nature and lack of ability to randomize. For urgent care providers, the most important take away is that no medication is benign, and risks must be balanced with advantages of treatment. ■

### Faster Spontaneous Voiding for Clean-Catch Urine in Infants

**Key point:** Gentle suprapubic cutaneous stimulation with gauze soaked in cold fluid (the Quick-Wee method) was shown to increase the rate of spontaneous voiding in infants requiring a clean-catch urine sample.

**Citation:** Kaufman J, Fitzpatrick P, Tosif S, et al. Faster clean catch urine collection (Quick-Wee method) from infants: randomised controlled trial. *BMJ* 2017;357:j1341.



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This randomized controlled trial of 374 Australian infants 1-12 months of age was undertaken to determine if a simple stimulation technique would increase the rate of spontaneous voiding for a clean-catch urine within 5 minutes. Infants were randomized either to stimulation using gentle suprapubic stimulation with gauze soaked in cold fluid (the Quick-Wee method) or standard clean-catch urine collection with no stimulation. The Quick-Wee method resulted in a higher rate of successful urine sample collection (30%) than standard urine collection (9%). There was no statistical difference in contamination rates between the two methods, and both parents and clinicians reported greater satisfaction with the Quick-Wee method. Of note for U.S. urgent care clinicians, and in contrast to the current UK guidelines, the American Academy of Pediatrics guidelines for urine collection only recommend noninvasive urine samples for screening purposes. Invasive catheterization or suprapubic aspiration samples are required by the AAP guidelines for definitive diagnosis prior to starting antibiotic therapy. ■

**Some Studies Find Improvement and Low Risk in Manipulation for Back Pain**

*Key point: Modest benefit with spinal manipulation for low back pain noted.*

Citation: Paige NM, Miake-Lye IM, Booth MS, et al. Association of spinal manipulative therapy with clinical benefit and harm for acute low back pain: systematic review and meta-analysis. *JAMA*. 2017;317(14):1451-1460.

This systematic review looks at spinal manipulation as a treatment for low back pain. The main outcome assessed was pain, with an attempt to look for potential harm. There was improvement noted in some but not all studies. Heterogeneity of results not explainable by variables present further confused this review. No serious long-term adverse events were reported. For the urgent care provider, this is one more modality that may benefit and is unlikely to cause significant harm. Patients should understand it is not a perfect answer, but one possible treatment. ■

**No Increased Arrhythmia Risk with Azithromycin vs Amoxicillin**

*Key point: Azithromycin use was associated with an increased risk of ventricular arrhythmia when compared with nonuse of antibiotics but not did not increase risk of arrhythmias when compared with amoxicillin use.*

Citation: Trifirò G, de Ridder M, Sultana J, et al. Use of azithromycin and risk of ventricular arrhythmia. *CMAJ*. 2017;189:560-568.

This retrospective nested case-control study captured over 14 million new outpatient antibiotic users (no antibiotic use within the prior year) aged 85 or younger over a 13-year period. They

identified 12,874 (0.1%) users that developed a ventricular arrhythmia during the study period. Of those, 30 developed a ventricular arrhythmia while concurrently taking azithromycin. These 30 patients were compared to up to 100 control patients of the same age, sex, index date and database. Results revealed that compared with nonuse of antibiotics, the current use of azithromycin was associated with an increased risk of ventricular arrhythmias (OR 1.97, 95% CI 1.35-2.86). However, when comparing current use of azithromycin to current use of amoxicillin, there was no increase in risk of arrhythmias. The authors speculate that confounding by indication likely played a major role in the assessment of the association between current azithromycin use and ventricular arrhythmias because the increased risk disappeared when current amoxicillin use was used as the comparator. *Confounding by indication* refers to the increased baseline risk of ventricular arrhythmias associated with the indication of the antibiotic use (ie, the infection) rather than the exposure itself (ie, azithromycin). Caution is suggested in interpreting these results, as this study's findings conflict with several previous studies of potential azithromycin arrhythmic effects. ■

**Ruling Out AMI with a Single Cardiac Troponin Enzyme Sample is Risky**

*Key point: A single hs-cTnT concentration level below the limit of detection, in combination with a normal ECG, may successfully rule out AMI in patients presenting with possible acute coronary syndrome. Data do not yet support this approach when the troponin level is drawn within 3 hours of symptom onset.*

Citation: Pickering JW, Than MP, Cullen L, et al. Rapid rule-out of acute myocardial infarction with a single high-sensitivity cardiac troponin t measurement below the limit of detection: a collaborative meta-analysis. *Ann Intern Med*. April 18, 2017. [Epub ahead of print]

This article details a systemic review of recent prospective studies of patients presenting to EDs with symptoms suggestive of possible acute coronary syndrome who also had an ECG and a high-sensitivity cardiac troponin test (hs-cTnT) performed. The use of hs-cTnT levels has been shown in prior studies to reliably detect very low concentrations of troponin T. The authors hypothesized that an hs-cTnT below the threshold of detection combined with a normal ECG may reliably rule out AMI in patients presenting with chest pain. Results indicated that patients with hs-cTnT levels below the limit of detection who also presented with a normal ECG had a very low risk for AMI or serious adverse cardiac events within 30 days. The sensitivity point approached 99%. However, patients with AMI who present very early after symptom onset may not have detectable troponin levels. In fact, this study revealed that 50% of patients who were determined to have false negative results had their initial troponin level drawn within 3 hours of symptom onset.

*“A new CEB could be a timely means to detect myocardial infarction.”*

For this reason, the authors reiterate current guidelines that a single hs-cTnT level drawn within 3 hours of symptom onset is insufficient to reliably exclude patients with AMI. Urgent care clinicians should continue to use caution when attempting to “rule out” AMI with a single cardiac troponin enzyme sample, especially if it is not a high sensitivity assay. ■

**Newly Discovered Biomarker May Help Detect Myocardial Ischemia Faster**

*Key point: A new cardiac electrical biomarker may improve timely detection of myocardial ischemia in patients.*

*Citation: Nketiah E, McCord J, Koenig G. Cardiac electrical*

*biomarker response during percutaneous coronary intervention. JACC. 2017;69(11); poster contributions.*

Results of this small (N=12), prospective study of patients with acute coronary syndrome indicate that a new cardiac electrical biomarker (CEB) could be an efficient and timely means to detect myocardial infarction. The newly identified CEB provides a measure of dipolar energy in a 12-lead ECG, derived from three leads (I, aVF, and V2), and appears to have the capability to detect myocardial ischemia in real time. The researchers suggest that an obstruction of blood flow induced during percutaneous coronary intervention (PCI) causes localized myocardial ischemia, to which the new CEB may show a response. Ultimately, they concluded that the CEB shows a positive response to balloon and stent inflation during PCI, with a stronger response to balloon inflation in larger arteries, cases involving infarction, and in more severe stenosis. These findings may help inform decisions of when—and where—it is advisable for urgent care providers to refer patients presenting with symptoms of MI. (Disclosure: VectraCor, an advertiser in JUCM, is involved in research and development of related products.) ■

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