



ABSTRACTS IN URGENT CARE

- Adverse Events Unlikely in Patients with Negative Findings on Cardiac Evaluation
- Urinalysis Is Useful Even in Infants Younger Than 3 Months
- Outpatient Treatment of Deep Vein Thrombosis May Be Safe with Rivaroxaban
- Clinical Guidelines Should Be Streamlined
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■ SEAN M. MCNEELEY, MD

Each month the Urgent Care College of Physicians (UCCOP) provides a handful of abstracts from or related to urgent care practices or practitioners. Sean McNeeley, MD, leads this effort.

Adverse Events Unlikely in Patients with Negative Findings on Cardiac Evaluation

Key point: Adverse events in patients admitted with negative findings on cardiac evaluation are very infrequent.

Citation: Weinstock MB, Weingart S, Orth F, et al. Risk for clinically relevant adverse cardiac events in patients with chest pain at hospital admission. *JAMA Intern Med* 2015;175:1207–1212.

In this 5-year retrospective study of patients seen in an emergency department for symptoms potentially representing ischemic chest pain, the authors reviewed outcomes for patients admitted to a hospital to assess whether they died or experienced myocardial infarction, life-threatening arrhythmia, or respiratory or cardiac arrest. Of the 45,416 potential patients considered, 11,230 met criteria for symptoms and for negative findings on emergency department evaluation, including electrocardiographic findings and serial biomarkers. Only 20 patients met criteria for a primary endpoint event. Secondary ex-

clusion of abnormal vital signs, abnormal electrocardiographic findings, left bundle branch block, and pacemaker rhythm left only 4 patients for data review. A secondary endpoint of possible myocardial infarction increased the number only to 62, and only 28 of those did not have abnormal vital signs or electrocardiographic findings in the emergency department. For the urgent care provider, the study's findings will not likely change case management, because a second set of cardiac enzymes was reviewed. However, the report does provide prospective information on the likelihood of these endpoints in patients with negative findings on initial evaluation. ■

Urinalysis Is Useful Even in Infants Younger Than 3 Months

Key point: Urinalysis seems to produce reliable findings even in young infants.

Citation: Schroeder AR, Chang PW, Shen MW, et al. Diagnostic accuracy of the urinalysis for urinary tract infection in infants <3 months of age. *Pediatrics* 2015;135:965–971.

The authors of this study note that past study findings have called into question the sensitivity of urinalysis for patients younger than 3 months of age. There has been some uncertainty about whether this lack of sensitivity is due to using urine culture as the gold standard. The concern here is the possibility



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of false positive culture results. Therefore, the authors chose to look at patients with positive findings for the same bacteria on both a urine culture and a blood culture because such patients are most likely to have an infection. In evaluating 245 infants, the authors found a sensitivity of 97.6% for leukocyte esterase. The specificity of leukocyte esterase was calculated at 94% among 115 patients with negative results on urine cultures. Although infants younger than 3 months are uncommonly seen in the urgent care setting, these findings are good to keep in mind. ■

Outpatient Treatment of Deep Vein Thrombosis May Be Safe with Rivaroxaban

Key point: Outpatient treatment of deep vein thrombosis may be safe with new oral medications.

Citation: Beam DM, Kahler ZP, Kline JA. Immediate discharge and home treatment with rivaroxaban of low-risk venous thromboembolism diagnosed in two U.S. emergency departments: a one-year preplanned analysis. *Acad Emerg Med* 2015;22:788–795.

As medicine advances, more patients are being sent home rather than being admitted to hospitals. In this study, patients with low-risk venous thromboembolism (VTE) were treated with rivaroxaban as outpatients and then reexamined after 2 to 5 weeks and 3 to 6 months. Low risk was determined by modified Hestia criteria (adequate blood pressure, normal risk for anticoagulation, no other medical issue needing admission, no coagulopathy, not pregnant or incarcerated). A total of 71 (51%) patients with deep vein thrombosis and 35 (27%) with pulmonary embolism fit criteria for the intervention. No patients had recurrent VTE while receiving therapy. Also, the percentage in whom there was a significant bleed was zero. For the urgent care provider, these findings indicate the direction in which ther-

apy for VTE is heading. Urgent care centers with the ability to test for VTE may wish to partner with patients' primary care physicians on outpatient therapy in appropriate cases. ■

Clinical Guidelines Should Be Streamlined

Key point: Should clinical guidelines be simpler?

Citation: Benhorin J, Bodenheimer M, Brown M, et al; Multi-center Cardiac Research Group. Improving clinical practice guidelines for practicing cardiologists. *Am J Cardiol* 2015; 115:1773–1776.

In addition to reviewing original research, this column looks from time to time at articles about ideas that are important to medicine as a whole. Although this article focused on cardiology guidelines, the authors' suggestions for changes to how policies are produced are applicable to clinical guidelines for many diseases. In general, they suggest that guidelines are too long and complex and should be condensed. They propose removing expert opinion or consensus statements, leaving only results of quality studies to outline a treatment path and to show how harm can occur. They also question the inclusion of studies from other countries because of issues regarding uncertain quality. From an urgent care perspective, this article brings up an important concept: Although we know much, we are still learning. In addition, little research has been done regarding the care of patients presenting to urgent care centers, so practicing in that environment requires decision-making without having absolute answers. Guidelines are complex, but so are patients. Understanding the reasons behind the guidelines often helps more than the guidelines themselves do. More research in the urgent care setting would be quite useful.

Rethinking Oxygen in ST-Elevation Myocardial Infarction

Key point: Oxygen is not beneficial in ST-elevation myocardial infarction, and it may even be harmful.

Citation: Stub D, Smith K, Bernard S, et al; AVOID Investigators. Air versus oxygen in ST-segment-elevation myocardial infarction. *Circulation* 2015;116:131:2143–2150.

In this multicenter randomized controlled study, 441 patients with ST-elevation myocardial infarction (MI) and no hypoxia were provided with 8 L/min of oxygen or room air. The study's primary endpoint was size of MI, based on cardiac biomarkers. Secondary endpoints included recurrence, arrhythmia, and size of MI determined by magnetic resonance imaging at 6 months. The authors note that in previous studies, investigators questioned the benefit of supplemental oxygen and even suggested a possible harmful effect. They also note that 90% of patients with ST-elevation MI are given supplemental oxygen. They found no benefit for high-flow oxygen therapy. They also found

potential harm, as indicated by increased creatine kinase levels and infarct size after 6 months. For the urgent care provider, this study is interesting. However, because of the study's small sample size and the use of high-flow oxygen, it is still unclear whether stopping the use of oxygen, especially at lower doses such as 2 L/min, is warranted. Further studies are needed for clarification. ■

Antibiotic Exposure Is Correlated with Development of Juvenile Idiopathic Arthritis

Key point: There is yet another reason to avoid antibiotics if possible.

Citation: Horton DB, Scott FI, Haynes K, et al. Antibiotic exposure and juvenile idiopathic arthritis: a case-control study. *Pediatrics* 2015;136:E333-3343.

Antibiotic resistance is not the only reason to avoid antibiotics when possible. Other issues include the uncertainty of long-term effects and the potential for allergic reaction. The authors in this case-control study looked at patients with juvenile idiopathic arthritis (JIA) and exposure to antibiotics. A total of 152 patients were each matched to 10 study participants without JIA who also had antibiotic exposure information since before the age of 3 months. Antibiotic exposure did appear to correlate with the potential for developing JIA. Proximity of use and amount of antibiotic courses also seemed to increase the likelihood. Although the study's findings are nowhere near strong enough to prove causality, they do provide reason for concern about one more possible adverse outcome of antibiotic use. ■

More Concussions Found in Children, and More Are Treated in Ambulatory Care

Key point: The number of concussions diagnosed annually is increasing, and the location of concussion care is also changing.

Citation: Taylor AM, Nigrovic LE, Saillant ML, et al. Trends in ambulatory care for children with concussion and minor head injury from eastern Massachusetts between 2007 and 2013. *J Pediatr* 2015 June 23. doi: 10.1016/j.jpeds.2015.05.036. [Epub ahead of print.]

Because of a significant increase in attention to concussions in children, more children with concussion are presenting for treatment. In this study of insurance submissions to 4 large companies, the authors analyzed the number of claims over a 7-year period, as well as the location and use of computed tomography scanning. In that period, the number of visits for concussions increased more than fourfold. However, the number of visits *per concussion* also increased from 1 to 1.7. Although overall treatment costs increased 34%, the good news is that the cost per individual diagnosed decreased 31%. This is accounted for by the movement of health-care visits to primary care and specialty

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care. Considering that 3.3% of the pediatric population (those between the ages of 6 and 21 years) experienced a concussion in the 7-year study period, it would be good for urgent care providers to be familiar with concussion treatment. (See also our online-only article, “Concussion Care Adds Value to an Urgent Care Sports, Camp, and School Physical Program,” at <http://www.jucm.com/concussion-care-adds-value-to-an-urgent-care-sports-camp-and-school-physical-program/>.) ■

Appendicitis: Antibiotics Versus Appendectomy

Key point: Are antibiotics better than appendectomy for appendicitis?

Citation: Salminen P, Paajanen H, Rautio T, et al. Antibiotic therapy vs appendectomy for treatment of uncomplicated acute appendicitis: the APPAC randomized clinical trial. *JAMA* 2015;313:2340-2348.

In a randomized controlled 3-year study of 530 patients in Finland, the authors compared outcomes for surgery versus antibiotics to treat appendicitis that had been proven by computed tomography. Patients were randomized to undergo either treatment with intravenous ertapenem for 3 days, followed by 7 days of oral levofloxacin and metronidazole, or treatment with open appendectomy. Study endpoints included successful appendectomy or discharge from the hospital without need for surgery and no recurrence of appendicitis within 1 year. There were 273 patients in the surgical group and 257 in the antibiotic group. In 70 patients, antibiotic therapy failed within 1 year. The authors noted that antibiotics did not meet their criteria for noninferiority. No major complications were noted. From the perspective of an urgent care provider, these findings are mostly informational about potential new treatments. For physicians in general, the question of not removing an appendix when it is reasonably safe to do so does include the risk of later appendicitis recurrence. As one of our urgent care colleagues put it, “Do you want to risk having the appendicitis recur later when surgery is less safe, for example, in older age or on an international vacation?” Only time and further study will help answer that question. ■