ABSTRACTS IN URGENT CARE

- Clinical prediction rule for ureteral stones
- Tetracaine for corneal abrasion
- New algorithm for DVT
- Home treatment for DVT
- Wheezing and pertussis

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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.

Clinical prediction rule for ureteral stones

Key point: A new clinical score may predict the presence of uncomplicated ureteral stones and reduce the need for CT scan.

Citation: Moore CL, Bomann S, Daniels B, et al. Derivation and validation of a clinical prediction rule for uncomplicated ureteral stone—the STONE score: Retrospective and prospective observational cohort studies. *BMJ.* 2014; 348:g2191.

In this two-phase trial, five factors were identified and then prospectively validated for prediction of ureteral stones and reduced likelihood of an alternative acute diagnosis. Phase one included a retrospective review of about 1000 patient charts, which revealed five predictors of ureteral stones. The predictors were gender (male 2 points, female 0 points), timing (<6 hours 3 points, 6-24 hours 1 point and >24 hours 0 points), race (black 0 points, non-black 3 points), nausea (none 0 points, nausea 1 point, emesis alone 2 points), and hematuria on dipstick (present 3, absent 0). Total possible score was 13 points. Both phases showed similar performance of the score divided into low 0-5 (<10%), moderate 6-9 (50%) and high 10-13 (90%) likelihood of a stone present.

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From an urgent care perspective, this new score might be used to decide on alternative methods of diagnosis of ureteral stones such as ultrasound, low-dose computed tomography or perhaps even no testing at all if further studies validate the tool. ■

Tetracaine for corneal abrasion

Key point: Short-term tetracaine does not appear to slow corneal abrasion healing.

Citation: Waldman N, Denise IK, Herbison P. Topical tetracaine used for 24 hours is safe and rated highly effective by patients for the treatment of pain caused by corneal abrasions: A double-blind, randomized clinical trial. *Acad Emerg Med.* 2014; 21(4):374-382.

Traditionally there has been a recommendation not to allow patients access to tetracaine for symptomatic treatment of a corneal abrasion. One fear was the concern about tetracaine's effect on healing on the cornea. This study attempted to determine if tetracaine is safe and effective when used by patients with corneal abrasions for a 24-hour period. The authors detail a 12-month prospective, randomized, double-blind study of tetracaine versus saline in patients treated in a tertiary care emergency room. A total of 116 patients were randomized (59 in tetracaine group). Tetracaine or saline drops were used every 30 minutes while awake. Follow up included re-exam at 48 hours and calls at 1 week and 1 month. No complications attributed to topical anesthesia were noted. Patient reports also showed tetracaine was more effective for symptom relief. For urgent care

providers, this study is interesting but because of its small size it is unlikely to change most physicians' opinions. ■

New algorithm for DVT

Key point: Upper extremity deep venous thrombosis may safely be evaluated by a new algorithm.

Citation: Kleinjan A, Di Nisio M, Beyer-Westendorf J, et al. Safety and feasibility of a diagnostic algorithm combining clinical probability, D-dimer testing, and ultrasonography for suspected upper extremity deep venous thrombosis: A prospective management study. *Ann Intern Med*. 2014;160(7):451-457.

Although use of decision-making rules including use of D-dimer and ultrasound for lower extremity deep venous thrombosis (DVT) have been well studied, rules for upper extremity DVT (UEDVT) have been less well studied if at all. Currently contrast venography is considered the gold standard in ruling out UEDVT. The authors reviewed 406 patients at 16 centers in the United States and Europe. A total of 390 patients completed the algorithm. The primary outcome evaluated was upper extremity DVT or pulmonary embolus in patients with a negative work up. The authors used Constans clinical decision score, D-dimer and if needed ultrasound. Constans clinical score includes three items that add a point (venous foreign material present, localized pain and unilateral edema) and one negative point (other diagnosis just as likely). Scores of two or above are considered likely; less than two is considered unlikely. Using a complex decision tree, the authors were able to rule out UEDVT with a failure rate of 0.4%. From an acute care perspective, this study is a good beginning but further confirmation of these results is needed before the algorithm should be adopted. ■

Home treatment for DVT

Key point: Home treatment of deep venous thrombosis may be a better choice in many patients.

Citation: Lozano F, Trujillo-Santos J, Barrón M, et al. Home versus in-hospital treatment of outpatients with acute deep venous thrombosis of the lower limbs. *J Vasc Surg*. 2014;59(5):1362-1367.

Despite recommendations for home treatment of deep venous thromboembolism (DVT) based on studies suggesting better outcomes and quality of life, many providers are reluctant to treat at home due to fears of negative outcomes. This study reviewed the records of patients in the RIETE database fitting their criteria of treatment with low-molecular-weight heparin or fondaparinux and no evidence of pulmonary embolus. The RIETE (Registro Informatizado de la Enfermedad TromboEmbólica) registry is an ongoing, international (Spain, France, Italy, Israel, Germany, Switzerland, Republic of Macedonia, and Brazil), multicenter, prospective registry of consecutive patients presenting with symptomatic acute venous thromboembolism. This database started in Spain in 2001 and grew to include the other countries. By 2012, the database had 13,493 patient that met criteria, of whom 4,456 were treated at home. The authors noted the percentage of patients treated at home increased yearly but was only half by 2012. The patients treated at home were compared with their hospitalized counterparts for outcomes. In their review of the two groups, those treated at home were younger, male and heavier. Hospitalized patients were more likely to have chronic medical problems such as heart and lung disease or cancer. The authors concluded that treatment at home was associated with better patient outcome. However, some of the patients treated at home did have serious complications including four deaths. From an urgent care perspective, this information should help our conversation with patients about the risks and benefits of location of treatment. ■

Wheezing and pertussis

Key point: Wheezing should not rule out the possibility of pertussis.

Citation: Taylor ZW, Ackerson B, Bronstein DE, et al. Wheezing in children with pertussis associated with delayed pertussis diagnosis. *Pediatr Infect Dis J*. 2014;33(4):351-354.

Recent outbreaks of pertussis including the one in California (June 2010) have raised the concern of many. Although it is mostly a persistent and annoying cough for adults it can result in severe cases, including death, in infants and younger children. The ability to diagnose the condition early and prevent transmission is important. The authors in this study looked at cases of pertussis with a desire to describe atypical cases. Waning immunity in adults and older children is likely the cause of mild cases. The authors hypothesized that atypical cases were also to blame for the reservoir of infections in adults and older children. In this retrospective cohort study, the authors used a database from Kaiser Permanente Southern California of patients with positive pertussis polymerase chain reaction tests. A total of 501 patients were identified from this 6-month period. The authors noted that wheezing was present in twice as many patients with a delayed diagnosis as those without wheezing (60% vs 29%). Although the study is limited by its retrospective nature, at the very least, the consideration of pertussis should be made for patients with mild wheezes and a possible exposure to pertussis. ■