



ABSTRACTS IN URGENT CARE

- Immobilizing Ankle Fractures
- Treating Septic Olecranon Bursitis
- EKG Interpretation: Human vs Machine

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- preHEART Score and Prehospital Care
- Rethinking Otitis Media Management
- Boosters Limit Risk for COVID—but by How Much?

Casting vs Bracing for Ankle Fractures

Take-home point: Plaster casting was not superior to functional ankle bracing for certain ankle fractures.

Citation: Kearney R, McKeown R, Parsons H, et al. Use of cast immobilisation versus removable brace in adults with an ankle fracture: multicentre randomised controlled trial. *BMJ*. 2021;374:n1506.

Relevance: The management of fractures is an evolving discipline, steeped in dogma. The goal is to facilitate recovery with the lowest risk of complication which involves questioning historic practices of strict immobilization.

Study summary: This was a pragmatic, multicenter, superiority randomized controlled trial undertaken at 20 trauma units in the UK National Health Service (NHS). Participants were enrolled if they had nonoperative ankle fractures and were randomized 1:1 to each arm of the study. Participants wore the cast or brace for a minimum of 3 weeks. Blinding was not possible in this study. Patients with intraarticular, open, and/or displaced fractures were excluded. A follow-up questionnaire was used with the Olerud Molander ankle score, which consists of nine items (pain, stiffness, swelling, stair climbing, running, jumping, squatting, supports, and work or activities of daily living). Secondary outcomes of venous thromboembolism (VTE), pain, swelling, numbness around the foot, wound infection, and fracture healing were assessed separately with the Manchester-Oxford foot questionnaire and disability rating index.



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The authors enrolled 669 patients. They found no statistically significant difference in the Olerud Molander ankle score at 16 weeks. There were also no clinically relevant differences found in the disability rating index, Manchester-Oxford foot questionnaire. There were slightly higher numbers of complications in the removable brace group, particularly regarding wound breakdown (7 vs 15), wound infection (10 vs 19), and need for further surgery (4 vs 8).

Editor's comments: There was a 25% loss to follow-up in the study. The study was under-powered to detect a difference in the secondary outcomes of complications from each treatment arm. Full immobilization is generally still standard practice, and bracing alone should be reserved for situations where the fracture and follow-up have been discussed with the orthopedics expert assuming care of the patient. ■

Antibiotics Alone for Treatment of Septic Olecranon Bursitis

Take-home point: Oral antibiotics alone was an effective treatment for septic olecranon bursitis. Aspiration of olecranon bursitis may not always be necessary and may actually be riskier.

Citation: Beyde A, Thomas A, Colbenson K, et al. Efficacy of empiric antibiotic management of septic olecranon bursitis without bursal aspiration in emergency department patients. *Acad Emerg Med*. 2022;29(1):6-14.

Relevance: Treatment of olecranon bursitis with aspiration can lead to chronic sinus tract formation. Unless aspiration is necessary, both patients and providers would prefer to avoid this procedure.

Study summary: This was a retrospective observational cohort study in a quaternary care academic emergency room in Min-

“Resetting beliefs that all bacterial infections benefit from antibiotics could have broader implications in the management of other illnesses, such as sinusitis and bronchitis.”

nesota. Data were extracted using a standardized extraction process from electronic health records. The investigators performed manual chart reviews on the cases identified to ensure accuracy.

The authors found 266 cases of olecranon bursitis, of which only four had aspiration in the ED. Thirty-nine were admitted to the hospital from the ED, 76 were discharged from the ED without antibiotic therapy, and 147 were discharged from the ED with empiric oral antibiotic therapy for suspected septic olecranon bursitis. One hundred forty-seven subjects were treated with oral antibiotics alone. Of 134 who followed up, 118 (88%) had complete resolution without further treatment, 6% had a later aspiration procedure, and 6.7% were admitted for intravenous antibiotics. Interestingly, 29% of patients were discharged with no antibiotics and, among this group, 97% had resolution of their symptoms.

Editor’s comments: This was a retrospective chart review study, but the data are compelling. Given the discomfort associated with aspiration, it appears that antibiotics alone for most cases of olecranon bursitis is a reasonable initial approach. ■

Computer EKG Interpretation

Take-home point: Patients with normal EKG computer interpretation rarely have significant ischemic events. Nevertheless, caution needs to be taken to not put too much trust in their accuracy.

Citation: Winters L, Dhillon R, Pannu G, et al. Emergent cardiac outcomes in patients with normal electrocardiograms in the emergency department. *Am J Emerg Med.* 2022;51:384-387.

Relevance: EKG interpretation is a complex skill that takes years of practice to hone. It can be tempting to simply trust the computer interpretation, especially when feeling uncertainty. However, UC clinicians should be aware of the accuracy and pitfalls of this practice.

Study summary: This was a retrospective chart review of adult patients presenting to the ED with computer-interpreted normal EKGs. All computer-read normal EKGs were included in the data reviewed. The data were then cross referenced with medical records and duplicate normal EKGs were discarded from final analysis. All the selected EKGs then underwent final review by a cardiologist, whose opinion was considered the “gold standard.” Clinical outcomes and laboratory data were also collected for final analysis.

The authors identified 8,306 EKGs performed during the study period, of which 1,747 (21%) were read as normal and 989 were included for final analysis. Following cardiology review, 184 (18.6%) of the 989 EKGs had discrepant interpretation. Sixty (6.1%) were defined as potentially clinically significant changes. The discrepancies included findings such as nonspecific T-wave abnormality and prolonged QTc. Thirty-five percent of these patients with discrepancies in the EKG reading were admitted. No patient with a normal EKG was taken emergently for cardiac catheterization. Few patients (0.6%) underwent nonemergent cardiac catheterization, and two out of 989 patients had a cardiac intervention.

Editor’s comments: This study is limited by retrospective analysis and interobserver variability, as cardiologist review was used as a gold standard. It was apparent that patients with normal EKGs in this group of ED patients had low immediate and short-term risk of bad outcomes. However, findings other than ischemia may be missed more easily if clinicians rely exclusively on computer review. ■

‘preHEART’ Score for Prehospital Care Cardiac Event Risk Assessment

Take-home point: pre-HEART score had excellent test characteristics for risk stratifying patients in the prehospital setting.

Citation: Sagel D, Vlarr P, Roosmalen R, et al. Prehospital risk stratification in patients with chest pain. *Emerg Med J.* 2021; 38:814-819.

Relevance: Risk stratifying patients with chest pain in the prehospital setting could prove useful for extrapolation to UC settings.

Study summary: This was a prospective derivation study consisting of patients taken by emergency medical services with chest pain to one university and two regional hospitals in the Netherlands. Patients enrolled had a HEART score calculated by EMS providers as well as a POC troponin recorded. Retrospective chart reviews were done to assess major adverse cardiac events (MACE) or acute MI (aMI) within 3 days of presentation. A subsequent validation cohort was enrolled to validate the preHEART scoring.

The authors enrolled 1,208 patients into the index cohort for prevalidation of the preHEART score. MACE within that cohort occurred in 123 patients, with nine deaths and 114 aMIs. The median HEART Score was 5 in the initial cohort. The NPV, PPV, and AUC were 98.4% (95% CI 96.4% to 99.3%), 35.5% (95% CI 31.8% to 39.3%), and 0.81 (95% CI 0.78 to 0.85), respectively. Three components showed significant discrimination between MACE and no MACE in the initial cohort—history ($p < 0.01$), ECG findings

($p < 0.01$), and troponin levels ($p < 0.01$). preHEART score was then derived with history, ECG findings, age, troponin levels, and male sex (as a single risk factor) being independent predictors of MACE. Using the new derivation, the index cohort preHEART score actually outperformed the HEART score ($p = 0.01$) and troponin levels alone (the strongest single MACE predictor overall) ($p < 0.01$). In a subsequent validation cohort, the preHEART score again performed better than the HEART score with an NPV, a PPV, and an AUC of 99.4% (95% CI 96.0 to 99.9), 50.0% (95% CI 37.3 to 62.7) and 0.84 (95% CI 0.79 to 0.88), respectively.

Editor's comments: Study based on population in the Netherlands limits generalizability. Additionally, POC troponin testing by EMS (or in UC for that matter) is not widely available in the U.S. Depending on location, preHEART score calculation may be beyond the scope of practice of EMS. ■

Are We Getting It Wrong? Rethinking Acute Otitis Media Management

Take-home point: Practical and symptomatic treatment of acute otitis media (AOM) without antibiotics is safe in most children presenting to urgent care.

Citation: Frost H, Hersh A. Rethinking our approach to management of acute otitis media. *JAMA Pediatr.* February 21, 2022. Epub ahead of print.

Relevance: Unnecessary use of antibiotics leads to increased resistance and other adverse side effects. Our ability to reduce prescribing of broad-spectrum and long courses of antibiotics can help patient safety.

Study summary: This was an editorial regarding the treatment of AOM in children. Present American Academy of Pediatrics (AAP) guidelines for treating AOM recommend children over 24 months with nonsevere AOM be treated with observation or a delayed prescription. However, more than 95% of children with AOM are prescribed an antibiotic, of which more than 95% are immediate and 94% are for a duration of 10 days. Unnecessary use of antibiotics causes children significant harm, with 2.5 million adverse drug events reported by parents annually.

The authors suggest pragmatic, broad-reaching approaches to reduce unnecessary prescribing. They suggest a framework of defaulting to symptom management with no antibiotic, with an antibiotic required only in select circumstances or if a child's health does not improve. Additionally, resetting beliefs that all bacterial infections benefit from antibiotics could have broader implications in the management of other illnesses, such as sinusitis and bronchitis, as well.

Editor's comments: This as a position paper and not research.

However, the references cited by the authors support their position. Essentially, they highlight that providers treating AOM generally do not follow established guidelines, and that patients and themselves would benefit if they adhered to the guidelines. ■

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COVID-19 Abstracts

Three vs Two Doses of BNT162b2 (Pfizer-BioNTech) mRNA Vaccine

Take-home point: There was an association between receiving a booster dose and reduction in the odds of testing positive for COVID-19, potentially counteracting waning immunity in the short term.

Citation: Patalon T, Gazit S, Pitzer V, et al. Odds of testing positive for SARS-CoV-2 following receipt of 3 vs 2 doses of the BNT162b2 mRNA vaccine. *JAMA Intern Med.* 2022;182(2):179-184.

Relevance: The necessity and effect of COVID-19 "boosters" have been hotly debated. This study addresses to what extent odds of contracting COVID are reduced by receiving a third dose of the Pfizer mRNA vaccine.

Study summary: This was a retrospective case-control study evaluating vaccine strategy efficacy in the Maccabi Healthcare Services in Israel. Two complementary approaches were used—a test-negative design and a matched case-control design. Participants who had a positive PCR result were deemed cases, and those that tested negative were classified as controls. Once a participant tested positive, they were excluded from further analysis. Among the 306,710 participants who did not have previous documented COVID-19 infection, a total of 500,232 PCR tests were performed. The authors found that a third dose of the mRNA vaccine BNT162b2 provided additional protection against COVID-19 infection. They estimated an 83% to 87% reduction in the odds of testing positive for COVID-19 after at least 2 weeks following receipt of the booster third dose compared with receiving two doses.

Editor's comments: The study is based in Israel, which may reduce generalizability. The efficacy of other vaccines was not investigated. These data, as always with rapidly emerging new strains, may not apply to subsequent strains of the virus. ■