



Hematoma Blocks Effective for Closed Forearm Reduction

Take Home Point: Hematoma blocks are an effective method of achieving analgesia to facilitate closed reduction of forearm fractures.

Citation: Pitman G, Soeyland T, Popovic G, et al. Hematoma block is the most efficient technique for closed forearm fracture reduction: a retrospective cohort study. *Emerg Med J.* 2024; 41:595–601.

Relevance: Adequate closed reduction of wrist and forearm fractures acutely after injury is important to reduce risk of complications and need for surgery. Closed wrist and forearm fractures are common urgent care (UC) presentations. Hematoma blocks are particularly well suited for use in the UC setting since they require the use of only existing human resources and medical supplies which are routinely available.

Study Summary: This was a multicenter, retrospective, emergency department (ED) based, Australian study. The primary end point was ED length of stay (LOS), which was defined as the time between the patient's first interaction with a doctor and the time they were discharged. Analgesia methods compared were hematoma block (HB), Bier block (BB), and procedural sedation (PS). In addition to the common definition, complications of each method of anesthesia were measured; the failure of a block technique was also considered to be a complication.

The authors included 226 patients in their analysis. Of these, 107 underwent PS, 35 BB and 84 HB to reduce their fractures. Overall, the mean ED LOS was 220.09 minutes. The mean LOS for the HB, BB, and PS groups were 187.72, 227.24, and 239.29 respectively. The authors found that difference in LOS between HB and PS was statistically significant ($p=0.023$). Additionally, HB was associated with the lowest staff resource utilization compared. PS, while associated with longer LOS and higher resource utilization, did achieve higher first-attempt success rates, but PS was

also associated with highest rates of complications.

Editor's Comments: This was a relatively small, retrospective ED study. As there was no randomization, it's unclear to what extent clinician selection of anesthesia method may have biased results. Given that HB is usually the only option for anesthesia in UC settings, however, it is reassuring that it proved successful in many cases. Attempting HB may therefore reduce unnecessary ED referrals for displaced and angulated forearm fractures and is an easy skill that would be worthwhile for UC clinicians to develop comfort with. ■

Can We Treat Bacterial Vaginosis Without Antibiotics?

Take Home Point: In this study, vaginal dequalinium chloride was non-inferior to oral metronidazole for the treatment of bacterial vaginosis (BV).

Citation: Raba G, Durkech A, Malik T, et. al. Efficacy of Dequalinium Chloride vs Metronidazole for the Treatment of Bacterial Vaginosis: A Randomized Clinical Trial. *JAMA Netw Open.* 2024 May 1;7(5): e248661. doi: 10.1001/jamanetworkopen.2024.8661.

Relevance: BV is a common, distressing, and recurrent condition affecting predominantly women of reproductive age. Oral antibiotic regimens include metronidazole and clindamycin, however, increasing rates of bacterial resistance and the adverse consequences of repeat antibiotic use make finding therapeutic alternatives a worthwhile objective.

Study Summary: This was a multicenter, triple-blind, parallel, double-dummy, noninferiority randomized clinical trial, of patients with symptomatic BV recruited from 11 gynecological practices and 1 hospital in Poland, the Czech Republic, and Slovakia. Participants were randomized to receive vaginal tablets (containing either 10mg dequalinium chloride (DQC) or placebo) applied once daily for 6 days or oral tablets (containing 500mg metronidazole or placebo) taken twice daily for 7 days. Follow-up visits were performed between 7-11 days (visit 1) and 20- 40 days (visit 2) after the start of treatment. Vaginal samples were



Ivan Koay MBChB, MRCS, FRNZCUC, MD, is an Urgent Care Physician and Medical Lead for Kings College Hospital Urgent Treatment Centre, London, United Kingdom. He is also the Convenor for the Ireland and UK Faculty of the Royal New Zealand College of Urgent Care.

taken and the occurrence of adverse events recorded at each visit.

The authors randomly assigned 151 women to receive DQC (n=73) or metronidazole (n=78). They found the clinical cure rate at visit 1 in the intention to treat (ITT) population analysis was 92.8% for the DQC group and 93.2% for the metronidazole group. The patient reported rate of clinical improvement was 88.1% for the DQC group and 92.9% for the metronidazole group. These results were not statistically different indicating non-inferiority of dequalinium chloride to metronidazole in treating BV.

Editor's Comments: This study supports the evidence of prior studies demonstrating similar efficacy of dequalinium chloride to traditional oral antibiotic regimens for the treatment of BV. Given the recurrent nature of BV, non-toxic, vaginal treatment options are a highly desirable alternative to oral antibiotics. DQC is not FDA approved and is not available over-the-counter or by prescription in U.S. currently. Vaginal DQC tablets are available, however, in Europe and in other parts of the world. This was a very well-designed trial which showed similar improvement in microbial and clinical response to DQC as oral metronidazole. For clinicians practicing in countries where vaginal DQC tablets are available, there seems to be little justification for not implementing this therapy instead of oral antibiotics for this very common UC condition. ■

Pediatric Pneumonia: Are Antibiotics Always Necessary?

Take Home Point: This study's results suggest that there is a cohort of children with pneumonia that may be managed without antibiotic treatment.

Citation: Shapiro D, Hall M, Hersh A, et. al. Outpatient Antibiotic Use and Treatment Failure Among Children with Pneumonia. *JAMA Netw Open*. 2024 Oct 1;7(10): e2441821. doi: 10.1001/jamanetworkopen.2024.41821.

Relevance: Present guidelines from the Infectious Diseases Society of America (IDSA) do not recommend antibiotic use routinely for preschool-aged children with mild pneumonia and reassuring vital signs in the outpatient setting. This is a strong recommendation based on high-quality evidence, owing to the reality that the vast majority of cases of pneumonia in this age group are viral in etiology. However, evidence suggests that the majority of such children are prescribed antibiotics. This study examines whether antibiotic outcomes differ between children with pneumonia based

on whether or not antibiotics are prescribed.

Study Summary: This was a retrospective cohort study using data from a U.S. Medicaid database which included insurance claims from hospitals, ambulatory care settings, and pharmacies in ten states. The primary exposure was receipt of oral antibiotics on the day or the next day of the index visit. The primary outcome was "treatment failure," which was defined as hospitalization from a diagnosis of pneumonia, visit and dispensation of antibiotics for pneumonia to an ED or UC center and complication from a diagnosis of pneumonia. The secondary outcome was "severe outcomes" defined as hospitalization or diagnosis of "complicated pneumonia."

The authors analyzed 103,854 children with pneumonia with a median age of 5. Among patients included 80.3% received antibiotics. They found children aged 1-4 years had the lowest proportion of receiving an antibiotic. Those visiting UC centers and outpatient clinics were more likely to receive antibiotics than those visiting ED. Treatment failure was uncommon and severe outcomes were rare, occurring in approximately 10% and 1% of all children, respectively. Antibiotic treatment was associated with an approximately 2.0 percentage point risk difference (10.7% antibiotic group vs 8.7% no antibiotic group) for treatment failure and 0.4 percentage point risk difference (1.1% antibiotic group vs 0.7% no antibiotic group) for severe outcomes. Children who experienced treatment failure commonly had chronic conditions (34%) and were seen in an ED setting in the majority of cases (56% of cases).

Editor's Comments: This was an entirely Medicaid (public insurance) cohort and results may not be generalizable to other populations. The authors presumed antibiotic prescribing equated to taking antibiotics which could not be confirmed based on the study design. The clinical reasoning and use (or lack thereof) of imaging to diagnose pneumonia was not included. This study does suggest that the vast majority of school aged children with pneumonia will do well with or without antibiotics. The children most likely to receive antibiotics were seen in outpatient settings, such as UC centers. This offers an opportunity to improve on stewardship when diagnosing pneumonia in school-aged children by either withholding antibiotics or prescribing them in a "wait-and-see" fashion with shared decision making with parents, especially when we have a low suspicion for bacterial etiology. ■

ChatGPT Provides Patient-Specific Answers

Take Home Point: ChatGPT, a large language model (LLM), may offer an effective solution for providing patient-specific information to parent's questions regarding clinical reasoning in the treatment of children.

Citation: Hunter R, Thammasitboon S, Rahman S, et al. Using ChatGPT to Provide Patient-Specific Answers to Parental Questions in the PICU. *Pediatrics*. 2024;154(5):e2024066615.

Relevance: Parents of sick children can be overwhelmed by medical terminology and may struggle to understand communication from clinicians, especially in complex cases. Clinicians struggle with finding sufficient time to answer parents' questions and ensure adequate understanding. Using an LLM (a form of generative artificial intelligence [AI]) may help parents to better understand the care of their child.

Study Summary: This was a cross-sectional study using simulated clinical scenarios to evaluate ChatGPT's ability to provide answers to common questions which arise from parents with children hospitalized in a pediatric intensive care unit (PICU) setting. The authors evaluated ChatGPT's answers through PICU physician assessments of accuracy, empathy, understandability, and completeness. The AI used was the premium version of ChatGPT, and the authors selected the 3 most common PICU admissions for clinical scenarios: sepsis, respiratory failure, and status epilepticus.

The authors assessed 8 questions for each of the 3 scenarios, for a total of 24 prompt-response pairs. ChatGPT's responses revealed high scores in accuracy, empathy, understandability, and completeness. Additionally, 97% of all questions were judged to be answered completely. Understandability was exceptionally high. Less than 3% of physician reviews rated answers as more incorrect than correct, and follow-up assessments revealed no evidence that these inaccuracies would likely cause harm to patients.

Editor's Comments: This was a simulated PICU study, so it's unclear if these results will translate to real-world UC clinical scenarios. The main limitation of this study was that the quality of the answers provided by ChatGPT was assessed by doctors, not the target audience (ie, patients/parents). This is, however, a pervasive issue: clinicians being time-limited in explaining diagnostic and therapeutic reasoning and patients/parents asking similar

questions frequently. Future studies in other, real-world practice settings of the effectiveness of this practice and both clinician and patient satisfaction with the experience would be helpful to better assess if the use of LLMs for this task is practical. ■

Barriers to Adopting New Evidence into Practice

Take Home Point: Multiple factors beyond knowledge and awareness of new evidence were found to affect the adoption of new evidence into clinical practice.

Citation: Alexander C, Purdy E, Reynolds A, et. al. The Buddy Study: Local reach, adoption and implementation following a randomized controlled trial of conservative management of fifth metacarpal neck fractures. *Emerg Med Australas*. 2024 Apr 16. doi: 10.1111/1742-6723.14412

Relevance: Widespread changes in clinical practice frequently lag many years behind the publication of persuasive new evidence. Many patients suffer less than ideal outcomes resulting from these delays in clinicians integrating new evidence into their practice.

Study Summary: This was a mixed methodology ED based study in Queensland, Australia. It was comprised of a review of uncomplicated fifth metacarpal fractures (ie, Boxer's fracture), a questionnaire sent to ED staff, and a semi-structured interview conducted with ED staff.

This specific ED had conducted and published a randomized controlled trial (called the "buddy study") that showed similar outcomes for patients with uncomplicated fifth metacarpal neck fractures treated with buddy taping (ie, taping the little finger to the ring finger) compared to plaster splint. This study's questionnaires and interviews were conducted three years after the publication of the "buddy study." The questionnaire had 17% response rate, and the 28 semi-structured interviews were conducted across a mix of clinicians.

The authors found that 6% of patients received buddy taping treatment for fifth metacarpal fractures prior to the publication of the "buddy study," compared to 28% after the publication. 69% of questionnaire respondents were aware of the study and its results and 57% considered buddy taping as part of their practice. Key barriers to adoption cited by respondents were related to lack of knowledge of the evidence. However, respondents also cited the lack of institutional endorsement of the evidence and lack of incorporation into guidelines and protocols as reasons for

not adopting the buddy taping practice.

Editor's Comments: The primary limitation of this study is a very low response rate of 17%. It is impossible to know anything about the opinions and practices of the 83% of clinicians who did not respond, who may be categorically unlike the respondents in many ways. The most interesting finding was that even among clinicians who were aware of the evidence, practice did not always change. The reasons they cite reflect the current reality and the double-edged sword nature of guidelines. As clinical guidelines have proliferated, clinicians are increasingly compelled to adhere them for a myriad of reasons ranging from insurance reimbursements to medico-legal liability. Therefore, this study alludes to the responsibility of professional societies and institutions to update their guidelines and recommendations frequently and incorporate new evidence to maximize the likelihood that such evidence will affect clinicians' practices. ■

Management of Elevated Blood Pressure in the Acute Setting

Take Home Point: Presently, best available evidence suggests a practical, common-sense approach for the treatment of asymptomatic elevated blood pressure (BP) readings, including repeating the BP measurement with appropriate measurement technique and addressing all underlying conditions such as pain, anxiety, or other underlying illnesses.

Citation: Bress A, Anderson T, Flack T, et. al. The Management of Elevated Blood Pressure in the Acute Care Setting: A Scientific Statement From the American Heart Association. *Hypertension*. 2024 Aug;81(8): e94-e106. doi: 10.1161/HYP.000000000000238.

Relevance: The presence of asymptomatic, elevated BP in the acute care setting is extremely common and distressing for patients. The American Heart Association (AHA) therefore produced a synthesized scientific statement to address this issue.

Study Summary: This was a scientific statement produced by the AHA incorporating the best available evidence to address treatment of elevated BP readings in the acute setting. The authors defined elevated BP as ≥ 130 mm Hg systolic BP (SBP) or ≥ 80 mm Hg diastolic BP (DBP) recorded

with multiple readings in multiple settings. Hypertensive crisis, importantly, as well as hypertensive urgency are specifically recommended as terms that should be avoided to limit unnecessary treatment of asymptotically elevated BP. The authors now recommend referring to BPs in the range previously defined as "hypertensive urgency" (SBP/DBP $\geq 180/110$ – 120 mmHg) now be called "asymptomatic markedly elevated blood pressure;" they emphasize that regardless of the BP value, this does not require treatment in the absence of evidence of acute end organ damage.

Factors affecting BP measurements include the device type, validation and calibration status of the device, BP cuff placement, cuff size, patient position (eg, supine, seated), and situational factors (eg, anxiety, pain). Evaluation of elevated BP includes a thorough history and physical examination. The physical examination includes a focus on comparing bilateral pulses, auscultating the heart and lungs, and performing a fundoscopic examination. Other investigations suggested including a basic metabolic panel (CMP), a complete blood count (CBC), a chest radiograph (CXR), and a 12-lead electrocardiogram (ECG). Thankfully, the guidelines do not specifically recommend or compel these be ordered in the acute setting.

For patients presenting with asymptomatic elevated BP, initiating anti-hypertensive treatment can help address healthcare disparities, particularly in disenfranchised groups. Careful follow-up with primary care providers (PCP) is encouraged for ongoing management of hypertension to reduce associated complications and morbidity. Accessibility of primary and follow-up care also remains a challenge for specific groups of patients.

Editor's Comments: The authors of the statement identified several areas of future studies due to present gaps in evidence. These areas include improving the understanding of the risks versus benefits for short-term/immediate initiation of anti-hypertensive agents from the ED and UC setting for asymptomatic patients. Current evidence is conflicting about the short-term risks of deferring anti-hypertensive treatment to a primary care provider or specialist follow-up. The guidelines do make reference to obtaining a CBC, BMP, ECG, and CXR, however, they do not specifically recommend or suggest these are immediately necessary to obtain in the acute setting (ie, during an UC visit) unless there's concern for acute organ injury. ■