ABSTRACTS IN URGENT CARE

- Surgery—or Not—for Appendicitis?
- Oral Analgesics and Musculoskeletal Extremity Pain
- What Patients Don't Know About Ionizing Radiation
- Risk with NSAIDs, Cox-2 Inhibitors, and Opioids in Fractures
- Inhaled Budesonide for COVID-19
- Spread of COVID-19 within the Household

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Nonoperative Management of Acute Appendicitis

Take-home point: This study adds to a growing body of literature suggesting that, in select patients, a nonsurgical approach to appendicitis management leads to similar outcomes.

Citation: Flum DR, Davidson GH, Monsell SE, et al. A randomized trial comparing antibiotics with appendectomy for appendicitis. *N Engl J Med*. 2020 Nov 12;383(20):1907-1919.

Relevance: Many patients prefer to not undergo surgery and/or are high risk for anesthesia-related problems. Determining the effectiveness of antibiotics alone for appendicitis holds promise for reducing need for surgery in this very common condition.

Study summary: This was a pragmatic, nonblinded, noninferiority randomized trial comparing antibiotic therapy (24 hours of IV antibiotics followed by 9 days of oral antibiotics for a total of a 10-day course) with surgical appendectomy in patients with imaging-confirmed appendicitis at 25 U.S. centers. Participants were randomly assigned to receive antibiotics or appendectomy. The primary outcome was 30-day health status, which was assessed with the use of the European Quality of Life–5 Dimensions (EQ-5D) questionnaire.

The authors enrolled 1,552 participants, with 776 randomized to the antibiotics-only group and the immediate appendectomy group. The mean 30-day EQ-5D scores were not significantly different, demonstrating noninferiority of antibiotics. A subgroup analysis of patients with appendicolith and those without also showed noninferiority of antibiotics with respect to the primary outcome. Rates of perforation and need for appendectomy within 90 days, however, were significantly higher among patients with appendicolith present on imaging.

Editor's comments: While this was a large study, caution should be exercised in interpreting these results too broadly, as surgical treatment for appendicitis remains the standard of care in the U.S. at this time. Patients with appendicoliths identified on CT were at higher risk for failing nonsurgical management. Patients in the antibiotics group were monitored in the hospital for 24 hours and received IV antibiotics initially; therefore, these results cannot be generally extrapolated to the care of urgent care patients with appendicitis. ■

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Efficacy of Oral Analgesics in Treatment of Acute Musculoskeletal Extremity Pain

Take-home point: There was no statistically significant difference in efficacy of five oral analgesic combinations used in the treatment of acute musculoskeletal extremity pain, including those without opioids.

Citation: Bijur P, Friedman B, Irizarry E, et al. A randomized trial comparing the efficacy of five oral analgesics for treatment of acute musculoskeletal extremity pain in the emergency department. *Ann Emerg Med*. 2021;77(3):345-356.

Relevance: Musculoskeletal pain is among the most common reasons for UC presentation. While minimizing suffering is a priority, it is also necessary to reduce risk for abuse by employing opioids only when truly indicated.

Study summary: This was a randomized double-blind superiority trial of five oral analgesic combination medications based in two academic emergency departments in the Bronx, NYC. The authors enrolled 600 patients complaining of acute musculoskeletal pain in one or more extremity of less than 7 days duration. Subjects were block randomized, with 120 patients in each group, and received either 400 mg ibuprofen/1,000 mg acetamino-

phen, 800 mg ibuprofen/1,000 mg acetaminophen, 30 mg codeine/300 mg acetaminophen, 5 mg hydrocodone/300mg acetaminophen, or 5 mg oxycodone/325 mg acetaminophen. The efficacy of the analgesics was assessed at 1 and 2 hours after baseline using a numeric rating scale (NRS). Patients who received rescue medication were asked to rate their pain immediately before receipt of the additional analgesics.

The mean reduction in pain scores from baseline to 1-hour post baseline ranged from 3.0-3.4 NRS units across the five groups with no statistically significant differences in treatment responses (p=0.69). The findings were similar again from baseline after 2 hours. Roughly one quarter of patients in each group received additional "rescue" analgesics, but this did not differ by group. The proportion of patients satisfied with pain relief and time to pain control, and preference for the same analgesic in the future, did not differ significantly by treatment group.

Editor's comments: This was a study conducted in two urban EDs with a relatively heterogenous population, potentially limiting generalizability. The doses of opioids were low, and higher doses of opioids were not assessed. ■

Patients' Perceptions of Doses of Ionizing Radiation from Medical Imaging

Take-home point: Patients undergoing medical imaging have inaccurate perceptions about the associated doses of radiation.

Citation: Bastiani L, Paolicchi F, Faggioni L, et al. Patient perceptions and knowledge of ionizing radiation from medical imaging. *JAMA Netw Open*. 2021;1;4(10):e2128561.

Relevance: Patients commonly request diagnostic imaging studies that would result in ionizing radiation exposure. Urgent care clinicians should be aware of what level of ionizing radiation exposure and risk understanding patients are likely to have.

Study summary: This was a multicenter, nationwide survey study with prospective data collection of patients awaiting medical imaging examinations of all modalities in 16 Italian hospitals. Patients were asked questions aimed to explore their knowledge about ionizing radiation risks using the "Knowledge About Ionizing Radiation Questionnaire" (KIRQ).

The authors found that 98.5% of the 2,866 survey respondents reported having undergone at least one radiological test in their lifetime. More than half (55.1%) of respondents did not know that a chest computed tomography (CT) delivers more radiation than chest radiography (XR). Further, 44.4% of patients rated their knowledge about radiation risks as inadequate. They reported being informed about radiation risks through media (eg, radio and television [27.6%]) and from the internet (eg, Facebook and other social media [25.3%]). And 80.4% expressed a preference to receive information of radiation exposure from healthcare professionals. Patient factors associated with better ionizing radiation knowledge were higher educational level, adequate self-perception of radiation knowledge, higher number of imaging examinations performed, and having received radiation information from a healthcare professional.

Editor's comments: The results suggest that patients are likely to have inadequate understanding of ionizing radiation doses associated with medical imaging and their potential biologic effects. The vast majority of patients indicated that they would like to be educated about radiation from healthcare professionals. ■

Nonunion Risk in Treatment of Fractures with Nonselective NSAIDs, COX-2 Inhibitors, and Opioids

Take-home point: Results of this study suggest that COX-2 inhibitor use, but not nonselective NSAIDs, were associated with a greater risk of fracture nonunion.

Citation: George M, Baker J, Leonard C, et. al. Risk of nonunion with nonselective NSAIDs, COX-2 inhibitors, and opioids. *J Bone Joint Surg Am*. 2020;102(14):1230-1238.

Relevance: Historically, there have been largely theoretical concerns about the use of NSAIDs and the risk of fracture healing based on mostly nonclinical studies.

Study summary: This was a cohort-based study using a large healthcare claims database across the U.S. The authors focused on long-bone fractures and the prescription claims that were associated with the injuries. Filled prescription claims on the date of injury or the next 30 days were analyzed for nonselective NSAIDs, selective COX-2 inhibitors, and/or opioids. Nonunion episodes were identified by classification of claims as outpatient and inpatient treatments and visits.

The authors found 339,864 fracture episodes among 326,876 patients, with 304,721 episodes in patients with no prior NSAID or COX-2 prescriptions, and 269,841 episodes in patients with no prior opioid use. The prescription filling rates identified within 30 days of a fracture were 7.4% of an NSAID, 0.8% of a COX-2-inhibitor, and 45.9% of an opioid prescription. The filling of nonselective-NSAID prescriptions after fracture was not associated with nonunion (OR=1.07), while COX-2-inhibitor prescription was associated with a greater risk of a nonunion diagnosis plus procedure (OR=1.84) and of a nonunion diagnosis alone (OR=1.48). Prior use of NSAID or COX-2 inhibitor was associated with an increased risk of nonunion (OR=1.36 and 1.76, respectively).

Editor's comments: These data are based on insurance claims of filled prescriptions and there is no accounting for the use of nonprescribed NSAIDs. There may have been a bias to nonunion in the opioid-prescribing group because opioids are often prescribed for more severe fracture. While observational, these data cast significant doubt on the strict prohibition of nonselective NSAIDs for fracture-related analgesia. ■

COVID-19 Abstracts

Inhaled Budesonide for COVID-19 Treatment

Take-home point: Inhaled budesonide reduced time to recovery and potentially prevents hospital admissions for patients with COVID-19.

Citation: Yu L, Bafadhel M, Dorward J, et al. Inhaled budesonide for COVID-19 in people at high risk of complications in the community in the UK (PRINCIPLE): a randomised, controlled, open-label, adaptive platform trial. *Lancet*. 2021;398(10303):853-855.

Relevance: Finding effective treatments that will reduce recovery time and prevent hospitalization of patients with COVID-19 will help health systems cope with pandemic surges.

Study summary: This was a multicenter, open-label, multiarm, prospective, randomized controlled, adaptive platform trial of interventions against COVID-19 in people aged 65 years or older or 50 years or older with comorbidities, done remotely from a central trial site and at primary care centers in the United Kingdom. The platform trial allows for multiple treatments for the same disease to be assessed simultaneously. The interventions assessed in PRINCIPLE were hydroxychloroquine, azithromycin, doxycycline, colchicine, favipiravir, and, in this study, inhaled budesonide. Eligible participants were those who were diagnosed with COVID-19 via PCR-confirmed test or symptoms in the preceding 14 days. Eligible participants were randomized via a web-based randomization system to inhaled budesonide, usual care, or other treatments. Participants received usual care plus inhaled budesonide 800 µg twice daily for 14 days. Participants were followed up through an online, daily symptom diary for 28 days after randomization, supplemented with telephone calls on days 7, 14, and 28.

Out of 4,700 patients randomized, 1,073 receiving budesonide, 1,988 received usual care alone, and 1,639 received other treatments. The median time to recovery was 11 days in the inhaled budesonide group compared with 15 days in the usual care group. Nine percent of participants were admitted to the hospital or died due to COVID-19 in the inhaled budesonide group compared with 11% in the usual care group.

Editor's comments: This study was UK-based and used high doses of budesonide, which may not be available in other countries/healthcare settings. Alternative inhaled corticosteroids that may be available elsewhere were not studied, and therefore their efficacy cannot be extrapolated from this study. Efficacy of inhaled budesonide treatment against newer variants of COVID-19 is also unclear. ■

Household COVID-19 Infection Risks

Take-home point: In this study, children had similar infection risks as adults within the same household.

Citation: Dawood F, Porucznik C, Veguilla V, et al. Incidence rates, household infection risk, and clinical characteristics of SARS-CoV-2 infection among children and adults in Utah and New York City, New York. *JAMA Pediatr*. 2022;176(1):59-67.

Relevance: Our knowledge of COVID-19 infection and transmission continues to evolve. Understanding the transmissibility of the disease amongst adults and children will help inform prevention strategies.

Study summary: This was a convenience sample cohort study of households with one or more children up to 17 years of age from New York City and selected counties in Utah. At enrollment, telephone and online surveys were performed to collect data regarding the composition of households, ethnicity, school and childcare attendance, medical histories, and previous COVID-19 infections. Participants were asked to self-collect midturbinate flocked nasal swabs in viral transport media every week, regardless of illness symptoms.

The authors enrolled 1,236 participants from 310 households with 14% under 4 years of age, 25% ages 5 to 11 years, 13% ages 12 to 17 years, and 47% 18 years or older. Among the adults, 57% received one or more doses of a COVID-19 vaccine during the study period, with 19% partially vaccinated and 38% fully vaccinated. Thirty-six percent reported COVID-19 symptoms during the study period, with 8% having incident infections confirmed by RT-PCR. There were no incident infections in adults postvaccination. There was a 0.4%–0.8% risk of infection per week among study households. Adults and children of all ages had similar risks of infection, but half of COVID-19 infections among children were asymptomatic. Measured and subjective fever were infrequent symptoms among both adults and children. Households were also noted to be common sites for transmission of infection.

Editor's comments: This study offers several valuable insights about COVID-19 symptomatology and risk of infection in children and adults. However, it's unclear if these trends will be comparable with newer variants of COVID-19. ■