POEMs

Patient-Oriented Evidence That Matters

Use of Procalcitonin Guidance Reduces Antibiotic Duration in Hospitalized Patients

Clinical Question

Does the use of procalcitonin and C-reactive protein levels to guide antibiotic use decrease antibiotic duration in hospitalized patients?

Bottom Line

The meta-analysis showed decreased duration of antibiotic use in hospitalized patients with sepsis or respiratory tract infections with the use of procalcitonin guidance. Less research is available on the use of C-reactive protein for the same purpose. (Level of Evidence = 1a–)

Synopsis

The authors searched multiple databases, including PubMed and EMBASE, to find randomized controlled trials that evaluated the use of procalcitonin and C-reactive protein levels in determining antibiotic duration in hospitalized adults. The authors outlined a search strategy, performed a risk of bias assessment for included studies, and extracted data using a predefined form. It was unclear whether these functions were performed independently by the individual authors. Overall, 27 studies were included in the systematic review (25 studies examined the use of procalcitonin; two evaluated the use of C-reactive protein), and 21 of these were included in the meta-analysis. The risk of bias was high in most of the studies due to lack of masking. The primary outcome was duration of antibiotic use in patients with sepsis or respiratory infections. Although procalcitonin guidance resulted in statistically significant decreased duration of antibiotics in sepsis and respiratory infections (standardized mean difference = −0.59; 95% CI, −0.85 to −0.33), there was high heterogeneity for this result. There were no significant differences in secondary outcomes of length of stay, 28-day mortality, or recurrence of infection. The use of procalcitonin was associated with reduced in-hospital mortality (odds ratio = 0.62; 95% CI, 0.41 to 0.94). One of the two C-reactive protein studies showed a statistically significant decrease in duration of antibiotics using C-reactive protein guidance in critically ill patients. There were no effects of C-reactive protein guidance on any secondary outcomes.

Study design: Meta-analysis (randomized controlled trials)

Funding source: Unknown/not stated

Setting: Inpatient (any location)

Reference: *Elnajdy D, El-Dahiyat F. Antibiotics duration guided by biomarkers in hospitalized adult patients: a systematic review and meta-analysis.* Infect Dis (Lond). *2022;54(6):387-402.*

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Minimal Difference, if Any, in the Efficacy of Intramuscular vs. Intra-articular Steroid Injection for Knee Osteoarthritis

Clinical Question

Is an intramuscular glucocorticoid injection noninferior to an intra-articular glucocorticoid injection in reducing knee pain in adults with knee osteoarthritis?

Bottom Line

This study found that intra-articular glucocorticoid injection may work better for reducing pain from knee osteoarthritis at one month, but there was no significant difference in pain resolution between intra-articular injection and intramuscular injection at two months or six months. (Level of Evidence = 1b)

Synopsis

Intra-articular glucocorticoid injections are associated with greater cartilage loss and a rare but increased risk of joint infections and septic arthritis. The investigators identified adults (N = 145), 45 years and older, with knee osteoarthritis diagnosed by their primary care physician, presence of symptomatic knee osteoarthritis for at least three months, and moderate to severe knee pain over the past week (i.e., at least 3 on a scale of 0 to 10; 0 indicates no pain). Eligible participants randomly received (concealed allocation assignment) an intramuscular injection (40 mg triamcinolone acetonide) in the gluteal region or the same drug and dose given as an intra-articular injection in the index knee. Patients self-reported severity of knee pain at two, four, eight, 12, and 24 weeks after treatment using a previously validated knee pain scoring tool (0 to 100; 0 indicates extreme pain). Although the minimum clinically important difference for this tool is 9, the investigators chose to prespecify the noninferiority margin at 7. Per-protocol data were available for 138 (95%) of participants at 24 weeks.

Using per-protocol and intention-to-treat analyses, noninferiority could not be declared at four weeks because the lower limit of the 95% CI exceeded the noninferiority margin for intramuscular vs. intra-articular injections (–3.4; 95% CI, –10.1 to 3.3). However, intramuscular injection was declared noninferior to the intra-articular injection at eight weeks and 24 weeks. The investigators reported multiple secondary outcomes, all of which showed that the intramuscular injection was most effective at eight weeks after injection, the intra-articular injection was most effective at four weeks, and there were no significant group differences at any time points.

Study design: Randomized controlled trial (single-blinded)

Funding source: Foundation

Allocation: Concealed

Setting: Outpatient (primary care)

Reference: *Wang Q, Mol MF, Bos PK, et al. Effect of intramuscular vs intra-articular glucocorticoid injection on pain among adults with knee osteoarthritis: the KIS randomized clinical trial.* JAMA Netw Open. *2022;5(4):e224852.*

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Early Treatment of Screen-Detected Anal High-Grade Squamous Intraepithelial Lesions Reduces Progression to Cancer

Clinical Question

Does early treatment of screen-detected anal high-grade squamous intraepithelial lesions in patients living with HIV reduce the likelihood of progression to invasive anal cancer compared with active surveillance?

Bottom Line

Immediate treatment of screen-detected anal high-grade squamous intraepithelial lesions reduces the likelihood of progression to invasive anal cancer (number needed to treat = 111 over 26 months). The study was not powered to detect a reduction in mortality. (Level of Evidence = 1b)

Synopsis

People with HIV are at the highest risk of anal cancer. Although not addressed by the U.S. Preventive Services Task Force, some clinicians recommend screening for anal cancer in this group using liquid-based anal cytology (similar to screening for cervical cancer) and high-resolution anoscopy. The study invited people 35 years and older with HIV to receive anal cancer screening. The median age was 51 years, 78% were men, and 42% were Black. Groups were balanced at the start of the study, and analysis was by intention to treat. Of 10,723 people who were screened, 4,459 were given a diagnosis of anal high-grade squamous intraepithelial lesions and were randomized to receive immediate treatment or active surveillance.

Treatment was selected by the clinician and could include ablative or topical therapies (e.g., fluorouracil, imiquimod [Aldara]). All participants received high-resolution anoscopy to evaluate for recurrence (treatment group) or progression (active surveillance group). Follow-up and adherence to the assigned treatment was excellent. Anal cancer detected during the median 26-month follow-up period occurred significantly less often in the treatment group than in the active surveillance group (9 vs. 21). This corresponds to rates of progression to anal cancer of 173 per 100,000 person-years vs. 402 per 100,000 person-years and overall incidences of progression of 0.9% vs. 1.8% (number needed to treat = 111 over 26 months). More serious adverse events occurred in the immediate treatment

group, including pain, infection related to biopsy, and skin ulceration, but these were rare.

Study design: Randomized controlled trial (nonblinded)

Funding source: Government

Allocation: Concealed

Setting: Outpatient (any)

Reference: *Palefsky JM, Lee JY, Jay N, et al.; ANCHOR Investigators Group. Treatment of anal high-grade squamous intraepithelial lesions to prevent anal cancer.* N Engl J Med. *2022;386(24):2273-2282.*

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USPSTF Recommends Against Initiating Aspirin for Primary Prevention of CVD in Adults 60 Years or Older

Clinical Question

Should primary care clinicians recommend low-dose aspirin for the primary prevention of cardiovascular disease (CVD) in adults 60 years or older?

Bottom Line

In this updated review, the U.S. Preventive Services Task Force (USPSTF) recommends against initiating low-dose aspirin (81 mg daily) for the primary prevention of CVD in adults 60 years or older (D recommendation). The USPSTF recommends shared decision-making regarding the initiation of low-dose aspirin for the primary prevention of CVD in adults 40 to 59 years of age with a 10% or greater risk of CVD and without an increased risk of bleeding (C recommendation). Risk factors for bleeding include older age, history of peptic ulcer disease, alcoholism, liver disease, long-term nonsteroidal anti-inflammatory drug or steroid use, and anticoagulant therapy. (Level of Evidence = 1a)

Synopsis

The USPSTF found adequate evidence that low-dose aspirin used for the primary prevention of CVD reduces the risk of major cardiovascular events. There is no high-quality evidence, however, that low-dose aspirin reduces the risk of cardiovascular mortality or all-cause mortality. Evidence remains uncertain for a benefit of reducing the risk of colorectal cancer. Potential harms include a significant risk of major bleeding events, with increasing risk proportional to increasing age. New recommendations (which replace the 2016 guidelines) include considering aspirin for high-risk individuals at 40 years of age instead of 50 and no longer recommending aspirin for primary prevention in adults 60 years or older. For patients already taking aspirin or choosing to start taking aspirin, the USPSTF recommends stopping aspirin at approximately 75 years of age. The American Heart Association recommends shared decision-making regarding the use of aspirin for the primary prevention of CVD in high-risk adults 40 to 70 years of age who do not have an increased risk of bleeding. A previous Top 20 POEM (https://www.aafp.org/pubs/afp/content/top-poems/2020.html) found that there was no net cardiovascular benefit and no effect on cancer incidence or mortality in four of the most recent large trials performed in an era of better cardiovascular risk factor management and screening for colorectal cancer.

Study design: Practice guideline

Funding source: Government

Setting: Population-based

Reference: *Davidson KW, Barry MJ, Mangione CM, et al. Aspirin use to prevent cardiovascular disease: US Preventive Services Task Force recommendation statement.* JAMA. *2022;327(16):1577-1584.*

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Editor's Note: Dr. Ebell is deputy editor for evidence-based medicine for *AFP* and cofounder and editor-in-chief of Essential Evidence Plus, published by Wiley-Blackwell. ■