

POEMs

Patient-Oriented Evidence That Matters

Fasting and Nonfasting Lipid Levels Similarly Predict Cardiovascular Disease Risk

Clinical Question

Are fasting lipid levels more predictive of cardiovascular outcomes than nonfasting lipid levels?

Bottom Line

Guidelines recommend checking lipid levels in nonfasting patients. They are easier to obtain and are equally predictive of subsequent cardiac events. Although triglyceride levels may be higher in nonfasting patients, cholesterol levels will be similar whether the patient was fasting or not. (Level of Evidence = 2c)

Synopsis

This study looked at 8,270 patients enrolled in a clinical trial of cholesterol lowering. The patients were between 40 and 79 years of age with hypertension and a total untreated cholesterol level of less than 250 mg per dL (6.47 mmol per L) with three additional risk factors for cardiovascular disease. Nonfasting and fasting lipid levels were obtained four weeks apart during the baseline period of the study. The average fasting and nonfasting total cholesterol and high-density lipoprotein cholesterol levels were similar. Triglyceride levels were modestly higher (25 mg per dL [0.3 mmol per L]) when measured in nonfasting patients. The hazard ratios, which in this case measured the cumulative risk of having a major

coronary event within 3.3 years, were similarly associated with fasting and nonfasting cholesterol levels. Results were similar for patients with and without previous cardiovascular disease and in treated and nontreated patients.

Study design: Cohort (retrospective)

Funding source: Industry and government

Setting: Outpatient (any)

Reference: Mora S, Chang CL, Moorthy MV, et al. Association of nonfasting vs fasting lipid levels with risk of major coronary events in the Anglo-Scandinavian cardiac outcomes trial-lipid lowering arm. *JAMA Intern Med.* 2019;179(7):898-905.

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Adding Ultrasonography to Mammography Increases False-Positive Findings Without an Increase in Cancer Detection

Clinical Question

Does the addition of screening ultrasonography add benefit or harm to screening mammography alone?

Bottom Line

Adding ultrasonography to screening mammography in women younger than 50 years at low, intermediate, or high breast cancer risk is not associated with an increase in breast cancer detection. It is associated with increased unnecessary biopsy recommendations and results in more frequent follow-up. (Level of Evidence = 2b)

Synopsis

The researchers compared the results from 6,081 women who were screened for breast cancer with mammography and ultrasonography, with 30,062 screening mammograms from 15,176 women drawn from 13 years of data from two breast cancer surveillance registries in the United States. When compared to the mammography-alone group, ultrasound screens were performed in women with dense breasts (74.3%), women more likely to be at higher risk of breast cancer, and women younger than 50 years. The cancer

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detection rate was similar across groups (5.4 vs. 5.5 per 1,000 screens), as was the development of cancer between screenings (interval cancer rate). The rate of unnecessary biopsies was more than twice as high for the combination screening (52.0 vs. 22.2 per 1,000 screens), as were calls for rescreening at shorter-than-normally-recommended intervals (relative risk = 3.10; 95% CI, 2.6 to 3.7).

Study design: Cohort (retrospective)

Funding source: Government

Setting: Outpatient (any)

Reference: Lee JM, Arao RF, Sprague BL, et al. Performance of screening ultrasonography as an adjunct to screening mammography in women across the spectrum of breast cancer risk [published correction appears in *JAMA Intern Med*. 2019;179(5):733]. *JAMA Intern Med*. 2019;179(5):658-667.

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C-Reactive Protein Guidance Safely Reduces Antibiotic Use in Patients with Acute Exacerbation of COPD

Clinical Question

Does knowledge of point-of-care C-reactive protein (CRP) level help physicians avoid prescribing antibiotics without sacrificing benefit in patients with an exacerbation of chronic obstructive pulmonary disease (COPD)?

Bottom Line

CRP guidance, regarding the likelihood that antibiotics will be helpful for patients with acute exacerbation of COPD, safely reduces antibiotic use (number needed to treat = 5). Physicians were advised that antibiotics are unlikely to be helpful if the CRP level is less than 20 mg per L (190.48 nmol per L); that antibiotics may be helpful if the CRP level is 20 to 40 mg per L (190.48 to 380.96 nmol per L), especially in the presence of purulent sputum; and that antibiotics are likely to be helpful if the CRP level is greater than 40 mg per L. (Level of Evidence = 1b-)

Synopsis

CRP is an inflammatory biomarker elevated in patients with pneumonia and bacterial rhinosinusitis, and is recommended by United Kingdom guidelines to help physicians avoid prescribing

antibiotics in patients with acute lower respiratory tract infection. These authors wondered if the use of CRP would also be effective in patients with an acute exacerbation of COPD. The researchers recruited 653 patients 40 years and older with documented COPD who were experiencing an exacerbation. The patients were randomized to usual care or care guided by the results of a point-of-care CRP test. The guidance provided was that antibiotics are unlikely to be helpful if the CRP level is less than 20 mg per L, that they may be helpful if the CRP level is 20 to 40 mg per L (especially if the patient also has purulent sputum), and that they are likely to be beneficial if the CRP level is greater than 40 mg per L. They were also told that the decision should be guided by all patient factors, not just CRP level. All patients met at least one of the Anthonisen criteria (increased dyspnea, increased sputum volume, and increased sputum purulence). The mean age of patients was 68 years, 52% were men, and most had Global Initiative on Obstructive Lung Disease stage 2 or 3 severity of their COPD. Patients were telephoned at one and two weeks and were seen in person at four weeks; data on antibiotic use were available for 83%. The primary outcome was antibiotic use, which occurred significantly less often with CRP-guided care (57% vs. 77%; $P < .05$; number needed to treat = 5). At two weeks, patients in the CRP-guided group had greater improvement in their COPD severity score. The distribution of CRP was as follows: 76% were less than 20 mg per L, 12% were 20 to 40 mg per L, and 12% were greater than 40 mg per L. There were also no differences among groups in other prescriptions, follow-up visits or hospitalizations in the next six months, or the likelihood of pneumonia. The effect of CRP guidance was greater in patients who had more of the Anthonisen criteria and was statistically significant only for those with at least two of the criteria.

Study design: Randomized controlled trial (nonblinded)

Funding source: Government

Allocation: Uncertain

Setting: Outpatient (primary care)

Reference: Butler CC, Gillespie D, White P, et al. C-reactive protein testing to guide antibiotic prescribing for COPD exacerbations. *N Engl J Med*. 2019;381(2):111-120.

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Addition of Steroids Improves Outcomes in Children and Adults with CAP

Clinical Question

In adults and children with community-acquired pneumonia (CAP), does the addition of corticosteroid treatment to usual care improve outcomes?

Bottom Line

Adding corticosteroid treatment to the management of CAP is beneficial for children and adults. Treatment decreases clinical failures, time in the hospital, and the risk of death in adults with severe pneumonia. (Level of Evidence = 1a)

Synopsis

To conduct this systematic review and meta-analysis, the authors searched four databases without language restriction, including Cochrane CENTRAL, and identified 17 randomized controlled trials with a total of 2,264 cases of radiographically confirmed pneumonia in children and adults treated with corticosteroid vs. placebo or no treatment in addition to usual care. Two investigators independently selected the trials for inclusion and abstracted the data. The corticosteroid varied in type, dosage, and route, with the average dosage in adults being 40 to 50 mg of prednisone equivalents daily for an average of seven days. Corticosteroids decreased mortality

in adults with severe CAP (relative risk = 0.58; 95% CI, 0.4 to 0.84) but not nonsevere CAP. Treatment resulted in a reduced time to clinical cure, fewer clinical failures, shorter overall hospital stays, fewer intensive care unit stays, and reduced rates of pneumonia complications. In children, corticosteroid treatment reduced the likelihood of clinical failure and decreased the time to clinical cure. Children's mortality rates, studied in only two trials, were not different. Hyperglycemia occurred more often with corticosteroid treatment. The researchers did not evaluate the risk of publication bias. Study results were homogeneous across studies for most outcomes.

Study design: Meta-analysis (randomized controlled trials)

Funding source: Unknown/not stated

Setting: Inpatient (any location)

Reference: *Seagraves T, Gottlieb M. Are corticosteroids beneficial in the treatment of community-acquired pneumonia? Ann Emerg Med. 2019;74(1):e1-e3.*

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