POEMs

Patient-Oriented Evidence that Matters

Back to one of my hobbyhorses; screening pitfalls. We have more evidence that PSA tests need to be interpreted with caution and that some screening tests for heart disease may do more harm than good. We also have evidence that gastro-oesophageal reflux does not appear to be related to H pylori infection. Editor

Clinical question

How common is prostate cancer among men with a prostate-specific antigen level of less than or equal to 4.0 ng/mL?

Bottom line

Prostate cancer, even high-grade disease, is found in older men with a so-called normal prostate-specific antigen (PSA) result. These study results can be interpreted in two ways. If you are anxious to do more biopsies and diagnose more prostate cancer, you could see the results as an impetus to lower the cutoff for a normal PSA result. On the other hand, it could also be seen as a reminder of just how imperfect a screening test the PSA is. It is wise to remember that although prostate cancer occurs in 17% of men, it only kills approximately 3% of them. Until we have the results of randomised controlled trials (not due until 2006) it is wise to be cautious about working up 'abnormal' PSA tests, and very hesitant about biopsying men with a PSA <= 4.0 ng/mL. (LOE = 1b)

Reference

Thompson IM, Pauler DK, Goodman PJ, et al. Prevalence of prostate cancer among men with a prostate-specific antigen level <= 4.0 ng per milliliter. N Engl J Med 2004; 350:2239-246.

Study design

Cohort (prospective)

Setting

Outpatient (any)

Synopsis

PSA is controversial as a screening test, since many of the cancers it detects would never have harmed the patient. Further, the treatment of the disease and the knowledge of having a diagnosis of cancer are not benign. The authors of this study further explore this issue by looking at a group of men in the placebo group of a trial of finasteride to prevent prostate cancer. Of the 9459 men in the placebo group, 1187 were excluded because they had at least one PSA value greater than 4.0 ng/mL. Another 3460 were excluded because they had at least one abnormal digital rectal examination, underwent prostate surgery, used finasteride when they shouldn't have, did not have a biopsy of their prostate at the end of the study, or did not have a biopsy at the proper time. This left a group of 2950 men who were aged 62 to 91 years at the time of their prostate biopsy who had consistently had annual PSA values less than or equal to 4.0 ng/mL during the seven-year study period leading up to the biopsy. One concern with this type of study is that the men would be at higher than average risk, perhaps volunteering for the study because of a personal concern regarding prostate cancer. This probably wasn't the case with this study, however, since only approximately 16% had a first-degree relative with the disease. Prostate cancer was found in 8.8% of the men with a PSA value of less than 1.0 ng/mL, 17% with a PSA between 1.1 and 2.0 ng/mL, 23.9% with a PSA between 2.1 and 3.0 ng/mL, and 26.9% with a PSA between 3.1 and 4.0 ng/mL. The likelihood of high-grade prostate cancer (Gleason score >= 7) was much lower: 0.9% with a PSA value of less than 1.0 ng/mL, 2.0% with a PSA between 1.1 and 2.0 ng/mL, 4.6% with a PSA between 2.1 and 3.0 ng/mL, and 6.7% with a PSA between 3.1 and 4.0 ng/mL.

** Patient-Oriented Evidence that Matters. See editorial (NZFP 2003; 30:150)*

Clinical question

Should high-tech means of screening be used to identify heart disease in asymptomatic individuals?

Bottom line

The United States Preventive Services Task Force recommends against routine screening of adults at low risk of heart disease using electrocardiography, exercise treadmill testing, or computerized tomography because the harms of screening outweigh the benefits. Even in patients at increased risk, there is insufficient evidence to support this type of testing. (grade D recommendation.) (LOE = 2b)

Reference

U.S. Preventive Services Task Force. Screening for coronary heart disease: recommendation statement. Ann Intern Med 2004; 140:W9-W24.

Study design

Practice guideline

Setting

Various (guideline)

Synopsis

Can screening for disease be harmful, even if the test itself is benign? There are actually many risks associated with screening for disease, which is a hard concept for many patients to grasp. The problem with screening occurs not with the people who truly have the disease (of course), but with patients who have a positive test result even though they don't really have the disease (i.e. false-positive results). These patients frequently undergo further testing to rule out the disease, may receive unnecessary treatment, and may be labelled as having a disease that they don't have, with all its attendant psychological and financial issues. There is also a risk of inappropriate reassurance of patients who do have the disease but receive a false-negative result. This is all true of screening for heart disease. The screening tests often used – a baseline electrocardiography (ECG), treadmill testing, or computerised tomography (CT), are fairly poor at distinguishing patients with heart disease from those without. In asymptomatic people, ECG changes are present in less than 10% of patients with heart disease. The positive predictive value of exercise stress testing ranges from 6% to 48%, meaning that up to 94% of patients with a positive stress test result are not at risk for a cardiovascular event. There are no data evaluating CT testing in asymptomatic patients. From this information the Task Force concluded that the risks outweigh the benefits in asymptomatic patients. The tests perform better in patients at high risk, but there is still significant risk of false-positive results. The Task Force concluded there is insufficient data to support the use of screening in these patients. They suggest you rely on the various clinical prediction rules available to estimate heart disease risk, and base management decisions on the results of these rules.

Clinical question

In patients with heartburn or gastroesophageal reflux, does testing for and eradicating Helicobacter pylori affect symptoms?

Bottom line

Testing and treating for H pylori does not affect reflux or heartburn symptoms in patients who already have symptoms. It is not protective against the development of symptoms in asymptomatic patients. (LOE = 1b)

Reference

Harvey RF, Lane JA, Murray LJ, et al. Randomised controlled trial of effects of helicobacter pylori infection and its eradication on heartburn and gastro-oesophageal reflux: Bristol helicobacter project. BMJ 2004; 328:1417-19.

Study design

Randomised controlled trial (double-blinded)

Setting

Population-based

Synopsis

The investigators started by inviting all patients of seven general practices in England aged 20 to 59 years to be screened for Helicobacter pylori infection. Of the 10 537 patients screened, 15.5% had active H pylori infection. At the same time, patients were asked about symptoms of heartburn and gastroesophageal reflux. Patients testing positive for H pylori were randomised (allocation concealment uncertain) to receive either placebo or eradication therapy with clarithromycin, ranitidine, and bismuth for two weeks. Eradication occurred in 91% of the treated patients. After two years of follow-up, visits for either heartburn or reflux were not diminished by treatment. In patients who were previously asymptomatic, eradication of H pylori had no effect on the future development of heartburn or reflux. Interestingly, in patients with reflux but without heartburn symptoms, patients undergoing H pylori eradication had only half the risk of developing heartburn symptoms over the next two years (odds ratio = 0.56; 95% CI, 0.35 - 0.9).