Should We Screen Patients for Barrett's Esophagus?

No: The Case Against Screening

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Because the incidence of adenocarcinoma of the esophagus is rising in the United States and most experts consider Barrett's esophagus to be a precursor lesion to esophageal adenocarcinoma,[1] many physicians are interested in screening patients to identify Barrett's esophagus. If it is identified, routine endoscopic surveillance, including mucosal biopsy, is recommended.

Several gastroenterologic societies have issued guidelines for screening and surveillance that differ in their recommendations on who should be screened.[2] These range from individualizing screening based on the patient's perceived risk to considering screening for patients with long-standing reflux symptoms to screening only patients with "alarm symptoms."[2] However, careful review of the available evidence suggests that such screening and surveillance does not provide sufficient benefit to merit routine use in practice, especially in light of the costs involved.

The most important factor when considering the purported benefits of screening is that there are no randomized prospective trials demonstrating that periodic surveillance reduces morbidity or mortality from esophageal adenocarcinoma.[1,3] Retrospective data suggest that surveillance leads to earlier detection of cancers and longer survival time. However, there are other reasons why screened patients may appear to survive longer. It may be that the disease was found earlier in its course, and the patient did not actually live any longer because of the early diagnosis. Or, screening preferentially identified slower growing, more treatable tumors than those occurring in unscreened populations.[3] Opinions are mixed as to how much of a problem this is in these studies.[3,4]

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The retrospective data seem to show impressive risk reductions in patients who undergo surveillance. However, the reported risk reductions are relative risk reductions. The absolute risk reductions, assuming that screening is effective, are much less striking. Among the more than 3 million Americans with Barrett's esophagus, the annual rate of cancer is about 0.05 percent. The incidence of esophageal cancer in the United States is about 13,000 cases per year. About one-half of these are squamous cell cancers, which are not related to Barrett's esophagus. This leaves about 6,500 cancers per year that could potentially be diagnosed by screening.[1] However, only about 60 percent of patients with adenocarcinoma report at least weekly reflux symptoms before their diagnosis.[5,6] Screening the approximately 10 million Americans older than 50 years who have weekly reflux symptoms—those most at risk of Barrett's esophagus—would find at most 3,900 cases per year of adenocarcinoma. How to find the asymptomatic patients who also have Barrett's esophagus, and therefore the other 40 percent of adenocarcinomas, has not been addressed.[1]

Other than esophagectomy, no medical or surgical therapies for Barrett's esophagus have been shown to reduce rates of cancer.[1] One study suggests that most patients with surveillance-detected cancer die of their cancers,[4] but because esophageal cancer is rare, even in patients with Barrett's esophagus, only a small percentage of patients ▶

with Barrett's esophagus die from this disease.[3] Follow-up studies also show that most patients with high-grade dysplasia do not develop cancer.[3] A number of nonsurgical options are being studied and are becoming more widely used.[7] However, the most widely accepted treatment for high-grade dysplasia is still esophagectomy, because a substantial number of cancers are found at pathologic examination of specimens where high-grade dysplasia was identified. Also, surgical resection is considered curative of cancer, whereas less aggressive treatments may miss areas of malignancy and therefore do not cure the disease. All options, including esophagectomy, are based on limited evidence.[7]

Finally, there is the matter of cost. Endoscopy is expensive, and many patients must be screened to find a small number of cancers. Major complications occur in about 1 per 1,000 upper gastrointestinal endoscopy procedures.[1] A hypothetical mass screening of the more than 10 million Americans older than 50 years with at least weekly reflux symptoms would result in 10,000 major endoscopic complications (primarily perforation, bleeding, and aspiration) to find approximately 3,900 cancers.[1] Esophagectomy is far from a benign surgery. In one study, postoperative mortality was 9.4 percent and was the most common cause of death in patients with surveillance-detected cancers.[4] One cost-benefit analysis suggested that surveillance of only patients with Barrett's esophagus with dysplasia required $10,440 per quality-adjusted life-year saved, compared with no screening or surveillance. This figure looks highly cost-effective, but note that it refers to surveillance of patients with Barrett's esophagus and dysplasia. Finding these patients requires a substantial investment of money and resources, because many of them are asymptomatic. Expanding surveillance to every five years for all patients with Barrett's esophagus required $596,000 per quality-adjusted life-year saved.[8]

Although there is enthusiasm in some groups for screening patients for Barrett's esophagus, with the goal of reducing death from esophageal adenocarcinoma, review of the evidence does not show sufficient benefit to recommend such a program.

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