CONCLUSIONS
Radiation from a single CTCA carries a measurable risk for cancer, and that risk varies greatly depending on the patient’s age and gender. This LAR may be negligible for an 80-year-old man, but not for a 20-year-old woman. Women are more sensitive to the effects of radiation both for breast and lung cancer. Dose-reducing strategies, such as ECTCM, may reduce the LAR of cancer incidence from CTCA.

IMPLICATIONS FOR INTERNAL MEDICINE
Sixty-four slice CTCA provides helpful visualization of the coronary arteries with high sensitivity and specificity (negative predictive value >95%), while sparing patients the morbidity of cardiac catheterization, which is associated with a 1.7% rate of major complications. CTCA may emerge as the diagnostic test of choice for patients with intermediate probability of coronary artery disease; and it has been adopted as such in many emergency departments. However, the results of this study caution against indiscriminate use of this noninvasive test. While dose-reducing strategies, such as ECTCM, reduce risks, the LAR of cancer incidence associated with CTCA remain a concern, particularly in young women. In this population, alternate diagnostic methods for coronary artery disease that do not involve ionizing radiation should be considered.

Coronary Artery Disease

Optimal medical therapy with or without PCI for stable coronary disease (COURAGE)
Boden WE, O’Rourke RA, Teo KK, et al.

AIM
To determine whether percutaneous coronary intervention (PCI) reduces mortality and/or cardiac events in patients with stable coronary disease.

METHODS
More than 2,000 patients with stable coronary artery disease in 50 North American medical centers were randomized to PCI plus optimal medical management vs. optimal medical management alone. All patients had at least one coronary artery stenosis > 70% plus abnormal nuclear imaging, or at least one stenosis > 80%. Exclusion criteria included recent MI, class IV angina, ejection fraction < 30%, or clinical CHF. The targeted endpoint was death or coronary events, using intention-to-treat analysis.

RESULTS
Subjects were mostly men, mean age 61. Most had more than one reversible defect on nuclear imaging, and most had ≥2 significant stenoses on angiography. The two groups were not different in use of most typical cardiac medications, including aspirin, beta-blockers, angiotensin-converting enzyme (ACE) inhibitors, and statins at baseline and throughout the study (71-95% range for the different medications). Blood pressure control was excellent (average 124/70), as was low-density lipoprotein cholesterol (mean 71) in both groups. At 5 years, there was no statistical difference between the two groups in mortality (5.8% vs. 5.9%) or death/MI composite (19% in PCI group vs. 18.5% in medical management group). The PCI group had slightly lower angina scores at the end of the first and second years of the study, but this difference disappeared by the end of the study (year 5). The medical management group underwent more PCI procedures after randomization than did the intervention group (32% vs. 21%, P<0.01), however, the total number of procedures over the whole study were still far fewer in the medical management group. Similar numbers of subjects in each group eventually required coronary bypass grafting.

CONCLUSIONS
In patients with stable, multivessel coronary artery disease, PCI does not reduce mortality or cardiac events compared with optimal medical management, although it does reduce angina scores in the short-term. This study is limited by the patient population, which is overwhelmingly white men, most of whom were from the VA health system. Patients with left ventricular dysfunction and/or CHF were excluded, so these data are not necessarily generalizable to patients with these conditions. The medical management group had care that was superior to that usually available in practice. Finally, this study was done prior to the advent of drug-eluting stents, so these conclusions may or may not still apply.

IMPACT ON INTERNAL MEDICINE
The use of PCI therapies for acute and stable coronary disease is well accepted in many situations. PCI reduces
morbidity and mortality in acute coronary syndromes and is effective antiangina therapy, superior to medication alone. However, the use of elective PCI in patients with stable CAD has not been shown to reduce future coronary events or mortality. Previous studies have shown that PCI of occluded “culprit” vessels after MI does not alter future cardiac/mortality outcomes, and preoperative PCI does not change the risk for surgery or perioperative cardiovascular complications. Now, this large study shows that elective PCI does not reduce future cardiac events or death in a large group of patients with multivessel disease and high event rates. Two important points can be made. First, in patients with stable angina, this study lends support to a “conservative” medical management approach first, using the many medications that are known to reduce cardiac events and mortality, such as aspirin, beta-blockers, and statins. Cardiac catheterization (with possible PCI) can be reserved for patients who have progressive, limiting angina despite medical therapy, since the benefit of PCI in these patients would be to reduce angina, not to prevent MI and death. In other words, there is little downside to waiting, and this more conservative strategy may save money by preventing unnecessary catheterization procedures. Second, in patients who have undergone cardiac catheterization in nonacute situations, either for diagnostic purposes or to assess severity of disease, PCI can be reserved for patients who fail medical therapy. Such an approach would reduce costs and complications from the procedure and the medical therapy (clopidogrel) required after the procedure.

RELATED REFERENCE

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TYPE 2 DIABETES MELLITUS

Effect of rosiglitazone on the risk of myocardial infarction and death from cardiovascular causes

Nissen SE, Wolski K.

AIM
To determine whether the use of rosiglitazone in type 2 diabetes mellitus has an effect on cardiovascular outcomes.

METHODS
The authors pooled data from all placebo-controlled studies using rosiglitazone that lasted more than 6 months and reported cardiovascular outcomes. More than 40 studies were found, including published peer-reviewed articles, FDA Web site data, and pharmaceutical company files. Studies were excluded if there were zero events. Data were analyzed for risk for MI or cardiovascular death.

RESULTS
Over 27,000 subjects were included in the data set. MI was 43% more common in patients on rosiglitazone (RR, 1.43 [CI, 3-97]), and cardiovascular deaths were 64% more common, although this latter difference approached, but did not meet, statistical significance (RR, 1.64 [CI, -2 to – 197]). Overall event rates were low; only 0.5% of study participants had cardiovascular events, and mean follow-up was less than 1 year.

CONCLUSIONS
Rosiglitazone may increase risk for MI in patients with type 2 diabetes mellitus. However, the inherent limitations in this and all meta-analyses make firm conclusions based on this article impossible.

IMPLICATIONS FOR INTERNAL MEDICINE
This article received much attention in the media, portrayed as an example of a flaw in the FDA approval process for new medications. Rosiglitazone had become the leading branded medication for treatment of type 2 diabetes mellitus. Like the closely related thiazolidinedione (TZD) pioglitazone, it improves glycemic control, lowering glycosylated hemoglobin about 1-1.5%. However, previous studies have demonstrated and increased risk in congestive heart failure for both of these agents, in addition to weight gain and edema, and no studies to date shown improvements in microvascular and macrovascular “hard” outcomes. Since this particular article was released, there have been several articles reporting similar concerning findings. However, not all studies have reached this same conclusion. RECORD is an ongoing study designed to compare rosiglitazone to other oral agents as second “add-on” oral agents in diabetes. As a result of the publicity surrounding the NEJM report, an interim analysis was performed and published, showing no significant increase in coronary events or death in patients on rosiglitazone. Thus, it is still not possible to draw firm conclusions, although there are certainly concerns raised about the safety of