News and Views from the Literature

Atherosclerosis

Combining Coronary Calcium Scores and C-Reactive Protein Levels to Predict Cardiovascular Events

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[*Rev Cardiovasc Med.* 2003;4(2):117–118]

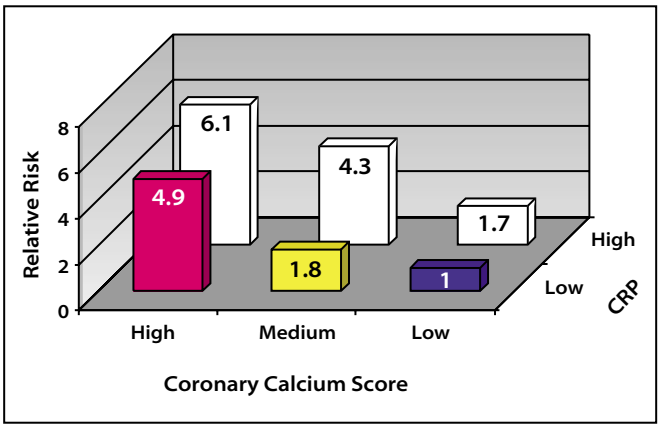
Combined Use of Computed Tomography Coronary Calcium Scores and C-Reactive Protein Levels in Predicting Cardiovascular Events in Nondiabetic Individuals

Park R, Detrano R, Xiang M, et al.

Circulation. 2002;106:2073–2077.

Coronary artery calcification detected by computed tomography scanning has been shown to correlate with the atherosclerotic burden and the quantitative coronary calcium score to predict the risk of future cardiovascular events in asymptomatic subjects. Similarly, levels of circulating C-reactive protein (CRP), an inflammatory marker, have been shown to predict risk when assayed with a high-sensitivity assay. In this prospective study, 967 asymptomatic subjects older than 45 years, with multiple cardiac risk factors but no diabetes, were recruited if their CRP levels were < 10 mg/L. All patients underwent electron-beam computed tomography and CRP measurements at baseline, and were followed for an average of 6.4 years. The calcium score was a signifi-

Figure 1. *Relative risks of nonfatal myocardial infarction or coronary death associated with high (≥75th percentile = 4.05 mg/L) and low (<4.05 mg/L) levels of C-reactive protein (CRP) and high (>142.1), medium (3.7–142.1), and low (<3.7) tertiles of coronary calcium scores.*



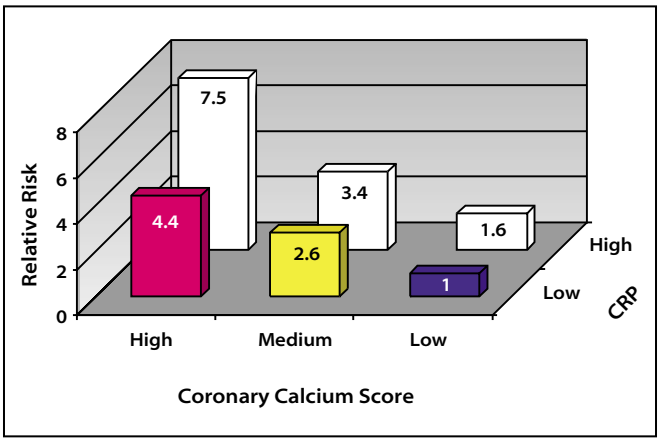


Figure 2. *Relative risks of nonfatal myocardial infarction, coronary death, coronary bypass surgery, or stroke (composite end point) associated with high (≥75th percentile = 4.05 mg/L) and low (<4.05 mg/L) levels of C-reactive protein (CRP) and high (>142.1), medium (3.7–142.1), and low (<3.7) tertiles of coronary calcium scores.*

cant and independent predictor of acute myocardial infarction or coronary death or a composite of cardiovascular events that included myocardial infarction, death, stroke, and revascularization ($P < .005$), whereas elevated CRP was a marginal predictor of myocardial infarction or coronary death ($P = .09$), but a significant predictor of the composite end point ($P = .03$). The subjects were divided into tertiles for coronary calcium scores: < 3.7, tertile 1; 3.7–142.1, tertile 2; and > 142.1, tertile 3. Within each tertile, those with elevated CRP (≥75th percentile of CRP level) had a higher relative risk for myocardial infarction as well as the composite end point (Figures 1 and 2). A lack of interaction between CRP and coronary calcium scores, along with the complementary predictive power of these two variables, suggests that these factors assess different aspects or mechanisms responsible for clinical events. Calcium likely reflects atherosclerosis, whereas CRP reflects the activity (ie, inflammatory activity) of the disease and, therefore, indicates a propensity to complications of atherosclerosis (plaque disruption and thrombosis), in which inflammation has been causally implicated. ■

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Hypertension

Angiotensin Receptor Blockers Versus Angiotensin Converting Enzyme Inhibitors and the Treatment of Hypertension in Diabetic Patients

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[*Rev Cardiovasc Med. 2003;4(2):118–121*]

With U.S. Food and Drug Administration approval of losartan, angiotensin receptor blockers (ARBs) have been available for use as a treatment for hypertension. The ability of these agents to selectively block the angiotensin receptor differs from the mechanism of the angiotensin converting enzyme (ACE) inhibitors, which block the conversion of angiotensin$_1$ to angiotensin$_2$ and inhibit the breakdown of bradykinin. The distinct differences in the mechanisms of these compounds have fueled an ongoing debate regarding the relative benefits of one over the other (or the combination of the two) for more effective treatment of hypertension in special populations, such as for diabetic patients or for the treatment of congestive heart failure.

We will review the findings of three important articles and their implications for the treatment of type 2 diabetics with nephropathy or microscopic albuminuria.

Effects of Losartan on Renal and Cardiovascular Outcomes in Patients with Type 2 Diabetes and Nephropathy

Brenner B, Cooper M, De Zeeuw D, et al.
N Engl J Med. 2001:345:861–869.

In a double-blind trial, Brenner and colleagues randomized 1513 patients to losartan (50–100 mg/d) or placebo in addition to conventional anti-hypertensive therapies except for ACE inhibitors. Patients included those who had been diagnosed with diabetic nephropathy. Nephropathy was defined as the presence on two occasions of a ratio of urinary albumin (mg/L) to creatinine