Diabetic patients have a high prevalence of coronary artery disease (CAD), but timely diagnosis of CAD remains challenging. We assessed the ability of coronary computed tomography angiography (CCTA) to detect CAD in diabetic patients and to predict subsequent cardiac events. We analyzed 140 diabetic patients without known CAD undergoing CCTA; 1,782 patients without diabetes were used as a control group. Besides calcium scoring and the degree of the most severe stenosis, the atherosclerotic burden score counting the number of segments having either a nonstenotic plaque or a stenosis was recorded. The primary end point was a composite of hard cardiac events defined as all-cause death, nonfatal myocardial infarction, or unstable angina requiring hospitalization. During a mean follow-up of 33 months, there were seven events in the diabetic group and 24 events in the control group. The best predictor in diabetic patients was the atherosclerotic burden score: the annual event rate ranged from 0.5% for patients with 9 lesions, resulting in a hazard ratio (HR) of 1.3 (95% CI 1.1-1.7) for each additional lesion (P = 0.005). For comparison, in nondiabetic patients the annual event rate ranged from 0.3 to 2.2%, respectively, resulting in an HR of 1.2 (95% CI 1.1-1.3, P < 0.001). The atherosclerotic burden score improved the prognostic value of conventional risk factors significantly.
In diabetic patients without known CAD, CCTA can identify a patient group at particularly high risk for subsequent hard cardiac events.