Association of progression or regression of coronary artery atherosclerosis with long-term prognosis.

The association between coronary atherosclerosis progression or regression and long-term prognosis remains poorly defined. We assessed the association of atherosclerosis progression or regression with long-term mortality and factors that promote angiographic progression or regression of coronary atherosclerosis in patients with angiographically proven coronary artery disease. The study included 605 patients with coronary artery disease who underwent coronary angiography at baseline and at 2 years later. Pan-coronary artery tree quantitative coronary angiography was performed. Of 6259 coronary segments (10.3 lesions per patient) analyzed, 1790 non-stented segments with $\geq 25\%$ diameter stenosis at baseline were included. Atherosclerosis progression or regression was defined as a decrease or increase in the mean minimal lumen diameter (MLD) of the non-stented segments of $\geq 0.2$ mm in the 2-year angiography compared to baseline angiography. The primary outcome was all-cause mortality. Based on the change in mean MLD between baseline and 2-year angiography, patients were divided into 3 groups: the group with progression of atherosclerosis (n=53; 8.8%), the group with no progression...
or regression of atherosclerosis (n=472; 78.0%) and the group with regression of atherosclerosis (n=80; 13.2%). There were 126 deaths over 8-year follow-up: 17 deaths among patients with progression, 103 deaths among patients with no progression/regression and 6 deaths among patients with regression (Kaplan-Meier estimates of mortality, 37.5%, 25.2% and 8.9%, respectively; adjusted hazard ratio=1.16, 95% confidence interval 1.05 to 1.29, P=.004 for 0.1 mm reduction in mean MLD). Progression or regression of coronary atherosclerosis in non-treated coronary segments was significantly associated with 8-year mortality.