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Coronary Artery Calcification Predicts All Cause Mortality in Hypertensive Males

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Background: Coronary artery calcifications (CAC) are a measure of atherosclerosis and are well accepted as a marker of the total atherosclerotic burden. We studied the long term prognostic effect of CAC in hypertensive patients.
Methods: We followed 423 participants of the INSIGHT (International Nifedipine Study Intervention as Goal for Hypertension Therapy) calcification sub-study, for the incidence of all cause mortality. All participants had hypertension without coronary artery disease (CAD) or peripheral vascular disease, were older than 55 years and had in addition to hypertension at least one major cardiovascular risk factor. All participants underwent a baseline dual slice CT for coronary calcium measurements, and were followed for a mean period of 14±0.5 years. Death was recorded from the ministry-of-interior-affairs registry.
Results: During the follow-up 94 patients died. Coronary artery calcifications [Total coronary calcium score (TCS) >0) was observed in 272 patients. CAC was more prevalent in those who died [82% in those who died as compared to 59% in those who survived ($p<0.001$)]. The annual death rate was 2.1% in those with CAC compared to 0.8% in those without CAC ($p<0.001$). Patients who died were slightly older, had higher systolic blood pressure, higher left ventricular mass, and lower kidney function and were more likely to have proteinuria. After adjustment for these covariates, CAC predicted mortality with an hazard ratio (HR) of 2.14 [95% confidence interval (CI) 1.62-4.63, P = 0.03]. Analysis by gender showed that CAC predicted mortality only in males (adjusted HR =3.31, 95%CI; 1.29-8.47 P=0.013 for males and HR=1.42 95% CI; 0.65-3.14 P=0.380 for females).
Conclusion: The presence of CAC independently predicts long term all cause mortality in high-risk asymptomatic hypertensive male.