

Coronary atherosclerotic burden – a predictor of non-fatal cardiovascular events and cardiac death

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Aim: To analyse the impact of coronary atherosclerotic burden quantified with coronary computed tomography angiography (CCTA) based scores on non-fatal cardiovascular (CV) events in coronary patients during ten-years follow up and compare them with previously published event rates of cardiac death.

Material and Methods: We used standard clinical and demographic data of patients with suspected coronary heart disease referred to CCTA from January to June 2008. Agatston calcium score (CACS), Computed tomography (CT) -Leaman score (CT-LeSc), segment involvement score (SIS) and segment stenosis score (SSS) were calculated. CT-LeSc \geq 5.52 was defined by upper tertile as high burden, and SIS and SSS \geq 5. Survival analysis and regression models with aforementioned CT scores for outcomes of cardiovascular death and composite outcome of non-fatal cardiovascular (CV) events (myocardial infarction + stent +coronary artery bypass graft) were compared ending with June 2018.

Results: The median CT-LeSc, SIS, SSS and CACS were 3.2, 2.0, 3.0 and 16.7, respectively. Of 261 patients (mean follow-up of 120.6 \pm 16.1 months), 10 (3.8%) experienced cardiac death (mean follow-up 77 months) and 31 (11.9%) composite of non-fatal CV events (mean follow-up of 115 months). Event-free survival of patients with high atherosclerotic burden evaluated with all four CT scores was shorter than in patients with low burden. Cox regression models indicate that beside hypertension and hyperlipidaemia CT scores above cut-off value were significantly associated with cardiac death (HR of 8.21 for SIS, 7.93 for SSS, 38.03 for CT-LeSc and 9.84 for CACS) and composite of non-fatal CV events (HR of 7.41 for SIS, 11.25 for SSS, 14.66 for CT-LeSc and 4.01 for CACS).

Conclusion: CT specific scores that quantify total coronary atherosclerosis on CCTA were significantly associated with non-fatal cardiovascular events and cardiovascular death during ten-year follow up¹⁻³.

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LITERATURE

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