Coronary computed tomography angiography vs functional testing for stable coronary artery disease: long-term outcomes meta-analysis

De Campos D.; Saleiro C.; Puga L.; Lopes J.; M Gomes AR.; Sousa JP.; Goncalves L.; Teixeira R.

University Hospitals of Coimbra, Cardiology, Coimbra, Portugal

Funding Acknowledgements: Type of funding sources: None.

BACKGROUND The emerging role of coronary computed tomography angiography (CCTA) has been acknowledged in the 2019 Guidelines of the European Society of Cardiology recommending it's as the initial diagnostic strategy for most patients with suspected stable coronary artery disease (CAD). However, it is unclear how CCTA performs compared with the standard approach of functional testing (FT). We performed an updated meta-analysis to clarify the question, analyzing outcomes beyond one year of follow-up.

METHODS We searched PubMed for studies comparing clinical outcomes with ≥1 year of follow-up between initial CCTA vs FT strategy in patients with suspected stable CAD. Occurrence of all-cause mortality and non-fatal acute coronary syndrome (ACS) was the combined primary outcome. Secondary outcomes included non-fatal myocardial infarction (MI), the use of longer-term investigations, revascularization procedures and new medication use.

RESULTS A total of 29,579 patients underwent either CCTA (n = 14,457) or FT (n = 15,122) and were followed for a mean of 1.75 years. CCTA was associated with a comparable all-cause mortality and non-fatal ACS to FT (2.64% vs 2.65%; risk ratio [RR], 0.97; 95% CI, 0.76-1.22). However, a 41% reduction in non-fatal MI was evident after CCTA testing (RR 0.59, 95% CI 0.41-0.83; P = 0.003). Compared with FT, patients undergoing CCTA were less likely to downstream additional testing (28.85% vs 33.86%; odds ratio [OR], 0.47, 95%CI 0.21-1.01; P = 0.05) and more prone to pursue coronary revascularization (OR 1.72; 95%CI 1.11-2.66; P = 0.01). Significant heterogeneity for invasive coronary angiography and revascularization was noted. CCTA patients had a non significant increase in new medication use, namely aspirin or statin therapy.

CONCLUSIONS In patients with suspected stable CAD, initial evaluation with CCTA was associated with a long-term 41% decrease in non-fatal MI and 53% reduction in downstream testing. Despite these differences, CCTA strategy was associated with a similar risk of long-term all-cause mortality and non-fatal ACS.

Abstract Figure.