Ten-year all-cause death in elderly patients undergoing percutaneous coronary intervention or coronary artery bypass grafting: a prespecified subgroup analysis of the SYNTAX Extended Survival study

M. Ono[1], K. Takahashi[1], H. Hara[1], C. Gao[2], R. Wang[2], P. Kappetein[3], F. Mohr[4], M. Mack[5], D. Holmes[6], M. Morice[7], P. Davierwala[4], S. Head[3], Y. Onuma[8], D. Thuijs[3], P. Serruys[9]

[1]Amsterdam UMC, Amsterdam, Netherlands (The); [2]Radboud University Medical Center, Department of Cardiology, Nijmegen, Netherlands (The); [3]Erasmus University Medical Centre, Department of Cardiothoracic Surgery, Rotterdam, Netherlands (The); [4]Heart Center of Leipzig, Department of Cardiac Surgery, Leipzig, Germany; [5]Baylor University Medical Center, Department of Cardiothoracic Surgery, Dallas, United States of America; [6]Mayo Clinic, Department of Cardiovascular Diseases and Internal Medicine, Rochester, United States of America; [7]Jacques Cartier Private Hospital, Département of Cardiologie, Massy, France; [8]National University of Ireland, Department of Cardiology, Galway, Ireland; [9]Imperial College London, NHLI, London, United Kingdom

On behalf of SYNTAX Extended Survival study investigators

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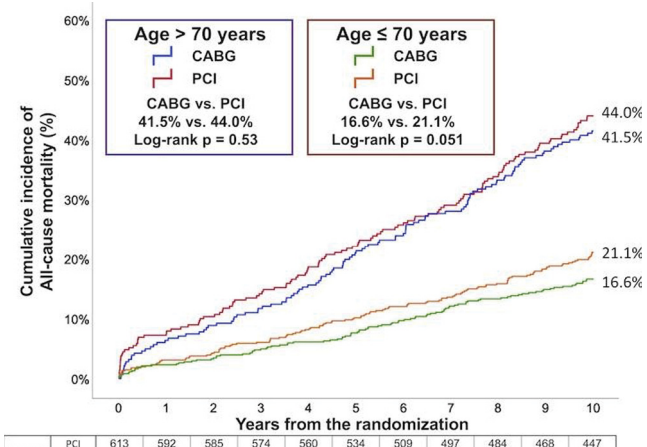
Background: Coronary artery disease is the leading cause of death among elderly men and women worldwide. The aging society worldwide will lead to increasing numbers of elderly patients with multivessel coronary artery disease. Although age is recognized as one of the most important factors in a decision-making for revascularization of multivessel coronary artery disease, the very long-term outcomes in patients undergoing revascularization by percutaneous coronary intervention (PCI) or coronary artery bypass grafting (CABG) is still unclear.

Objectives: The aim of the present study was to investigate the association between revascularization strategies and 10-year outcomes in elderly patients.

Methods: The SYNTAX Extended Survival (SYNTAXES) study (NCT 03417050) is an investigator-driven extension of follow-up of a multicentre, randomised controlled trial done in 85 hospitals across 18 North American and European countries, enrolling 1,800 patients with de novo three-vessel disease (3VD) and/or left main coronary artery disease (LMCAD) randomized to revascularization strategy with CABG versus PCI in the SYNTAX trial. Patients were divided into two groups according to the prespecified threshold of 70 years old; elderly patients (>70 years) and non-elderly patients (≤70 years). The primary endpoint of this study was all-cause death at 10 years.

Results: Out of 1,800 patients, 575 patients (31.9%) were classified as elderly (>70 years). The mean age ± standard deviation (SD) of the elderly patients and the non-elderly patients was 75.8±3.6 years and 60.1±7.4 years, respectively. Of note, elderly patients were more frequently female than non-elderly patients (33.6% vs. 17.1%, p<0.001). As expected, the elderly patients had higher prevalence of chronic kidney disease (43.4% vs. 7.9%, p<0.001), had higher anatomical SYNTAX score (30.2±11.8 vs 28.0±11.2 p<0.001) when compared to those of the non-elderly patients. Up to 10 years, all-cause death occurred in 42.7% and 18.9% in the elderly and non-elderly patients, respectively (Log-rank p<0.001). The cubic spline curve showed an exponentially increase in all-cause death at 10 years according to the increase of age both in the PCI arm and the CABG arm. At 10 years, there was no significant difference in the risk of all-cause death between CABG vs. PCI either in elderly patients (41.5% vs. 44.0%; Log-rank p=0.53) or non-elderly patients (16.6% vs. 21.1%; Log-rank p=0.051).

Conclusion: CABG and PCI were equipoise in terms of risk of all-cause death at 10 years in patients with de novo 3VD and/or LMCAD irrespective of their age when stratified according to the prespecified threshold of 70 years old.



Age <70	PCI	613	592	585	574	560	534	509	497	484	468	447
	CABG	612	593	582	572	563	548	522	507	500	491	477
Age ≥70	PCI	290	268	259	248	235	223	202	193	178	162	145
	CABG	285	263	256	248	237	216	205	193	179	166	156

Kaplan-Meier curves