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Outcome of surgical revascularization for coronary artery disease after 30 years

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Objective: We report the long-term outcome of surgical revascularization in patients with coronary artery disease.

Methods: The institutional trial on Coronary Artery Disease and Surgical Therapy: Long-term Follow-up, is a 30-year follow-up study of 2728 patients with coronary artery disease who underwent surgical revascularization from April 1986 to December 1988. One-vessel coronary artery disease was found in 234 patients while 2 and 3-vessel diseases were found in 1021 and 1463 patients, respectively. Survival was analyzed according to age, gender, ejection fraction, and number of arterial and vein grafts (2165 males, mean age at coronary revascularization 59.4 ± 8.8 years).

Results: Mean duration of follow-up was 30.6 ± 1.2 years. Overall survival at this time point was 24.1%. Age-stratified survival was observed higher (40%) in those patients <50 years of age at that time of surgery compared to the other age groups, i.e. 50-59: 20%, 60-69: 10% and >70: 5% (p<0.001). Women had increased early mortality, hence have poorer survival (12%) than men (18%). However, when age (women=median 64.7, men=58.4, years) was considered between gender, no significant difference (p=0.13) in survival was observed. Interestingly, survival rate of patients with ejection fraction of <30% (n=826) was 6% which obviously fared well compared with 18% of those with ejection fraction of >30% (n=1902) at the time of coronary surgery. There was no significant difference between the use of a single internal mammary artery (IMA) [left or right] graft and use of 2 arterial grafts (combined left and right IMA or IMA and radial artery) on long-term survival (p= 0.014). However, the use of an arterial graft combined with vein grafts are favorable (p<0.001).

Conclusion: The findings in this study showed that after a relatively long-term follow-up, age-based survival was similar compared to the general population. Female gender demonstrated poorer survival than men. However, when this is adjusted for age, no significant difference was shown. Interestingly, several patients with severely reduced ejection fraction, considered inoperable by many cardiac surgeons and cardiologists at the time of revascularization have survived for >30 years. Use of one internal mammary artery graft demonstrated better survival than use of only vein grafts. Noteworthy is that the sole use of vein grafts may also lead to an acceptable long-term survival.