PERCUTANEOUS CORONARY INTERVENTION VS OUTCOMES FOLLOWING SURGICAL REPAIR OF HEART

Aim There is still no consensus whether percutaneous coronary intervention (PCI) is as safe and effective as coronary artery bypass grafting (CABG) for left main coronary artery (LMCA) disease. Until recently, European and US guidelines recommended CABG as the standard of care for LMCA disease management. However, numerous recent studies suggest that PCI with drug eluting stents (DES) has a low risk of mortality at medium and long-term follow-up after left main stenting. This has resulted in European guidelines suggesting that PCI may be effective in treating anatomically simple LMCA disease, while CABG is still the gold standard for more complex lesions. These changes have been largely informed by six RCTs which have compared PCI vs CABG in LMCA disease. However, the results of these studies have not been straightforward, with often conflicting results. The continuing lack of consensus coupled with the recent publication of 5- and 10-year data from some of these studies necessitated an updated systematic review and meta-analysis.

Methods A systematic search was performed of the MEDLINE (via PubMed), EMBASE, Cochrane and clinicaltrials.gov databases from inception to December 20th, 2020. Only RCTs which compared PCI and CABG in LMCA disease were included. Studies were required to have a minimum follow-up of one year and to report all-cause mortality as an outcome at a minimum. Selected studies were analysed using the random effects model. Outcomes measured included all-cause mortality, MACCE, myocardial infarction (MI), stroke, and revascularization. Follow up points were 30 days, 1 year, 5 years and 10 years. Where MI was concerned, meta-analysis was performed twice using the originally published EXCEL data classified according to the third universal definition of MI.

Results Six RCTs with a total population of 4700 were included in the analysis. For all-cause mortality PCI was non-inferior to CABG at all time points (30 days (OR 0.6), 1 year (OR 0.77), 5 years (OR 1.41), 10 years (OR 1.08), MACCE favoured PCI at 30 days (OR 0.83 P < 0.01), and CABG at 5 years (OR 1.45, P < 0.001). No difference was seen at 1 year (OR 1.20) and 10 years (1.01). There was no significant difference in MI occurrence between the PCI and CABG groups at 30 days (OR 0.77), 1 year (1.10), or 10 years (OR 1.01). Using the original 5-year EXCEL trial MI definition, 5-year MI rates were higher for PCI than CABG (OR 1.66, P < 0.05). When the re-analysed EXCEL data (using the third universal definition of MI) was included instead, the 5-year data further favoured CABG, with 7.5% MI rates in the PCI group compared to 3.6% in the CABG group (OR 2.19, P < 0.001). For stroke, PCI was favourable to CABG at 30 days (OR 0.40, P < 0.05) and 1 year (OR 0.63 P < 0.001), with no difference at 5 years (OR 0.86) and 10 years (OR 0.78). Revascularisation favoured CABG at 1 year (OR 2.03, P < 0.001), and 5 years (OR 1.81, P < 0.001), with no differences at the other time-points.

Conclusions The results of this meta-analysis show that PCI may be considered as an alternative to CABG for uncomplicated LMCA disease. However, more complex lesions may still benefit from CABG. CABG may be of benefit where future revascularisation would rather be avoided, as lower rates of revascularisation were observed in the CABG groups at 1 year and 5 years. Further clinical trials examining this research question are needed.

OUTCOMES FOLLOWING SURGICAL REPAIR OF ANOMALOUS AORTIC ORIGIN OF CORONARY ARTERIES

Introduction Although coronary arteries that arise from the opposite sinus of Valsalva have a known association with sudden cardiac death, they most commonly present to cardiologists and cardiac surgeons with symptoms of either typical or atypical angina. This retrospective study aimed to examine the outcomes of a consecutive set of patients who underwent surgical repair of their anomalous coronary arteries under the care of one cardiac surgeon from 2010 to date.

Methods The hospital cardiac surgery records were searched for keywords to identify all retrospective cases of coronary artery anomalies since 2010. Eligible patients were contacted and surveyed about their symptoms and their electronic healthcare records were checked. Only patients who...
underwent a primary procedure to correct their anomalous coronary artery were selected for this study to reduce the confounding impact of other procedures on the outcomes.

**Results** Twelve eligible cases of anomalous aortic origin of a coronary artery were identified. The mean age of patients was 52.9 years. The male to female ratio was 2:1 and the mean logistic EuroSCORE was 2.15. In eight cases (67%) the right coronary artery originated from the left sinus and in four cases (33%) the left coronary artery, or its associated branches, originated from the right sinus. All cases had a malignant course and all patients were symptomatic. Eleven patients (92%) had complete resolution (n=2, 17%) or significant improvement (n=9, 75%) of their preoperative symptoms with only one patient (8%) reporting no significant improvement. There were no mortalities, however two patients had significant complications related to myocardial ischaemia during surgery. There were no recorded major adverse cardiac events or deaths at five years (table 1).

**Conclusion** This small cohort of anomalous coronary artery repairs suggest that these are relatively safe procedures. This study also suggests that repair should be considered in this age group when patients are symptomatic.