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Life after transcatheter aortic valve implantation: quality still matters

R Gurvitch, J G Webb

Transcatheter aortic valve implantation (TAVI) is a relatively new technology rapidly gaining clinical acceptance for treatment of severe symptomatic aortic stenosis. Thus far the procedure has been primarily limited to patients at prohibitive or high surgical risk who are thus not candidates for traditional open-heart surgery.1 2 Subsequently, patients accepted for TAVI are a unique and previously understudied cohort, with multiple other significant co-morbidities which form the basis for failure to be accepted as surgical candidates in the first place. It is of particular interest, therefore, to determine whether despite the presence of such co-morbidities, if quality of life (QOL) can still be improved when the additive effect of severe aortic stenosis is rectified. In this issue of Heart, Gotzmann et al provide some encouraging data concerning this subject (see page 1102).3

Forty-four patients undergoing TAVI using the Medtronic CoreValve bioprosthesis (Medtronic, Minneapolis, MN, USA) were followed up for 30 days, with significant improvements noted in QOL, New York Heart Association (NYHA) functional class, distance in the 6-minute walk test and B-type natriuretic peptide (BNP) levels. QOL was assessed using the Minnesota living with heart failure questionnaire (MLHFQ). There was an overall improvement in the QOL score from 44±19.1 to 28±17.5 (p<0.001), although the levels did not return to normal. This may be a result of the short duration of follow-up, with previous studies generally evaluating QOL at longer intervals post procedure and suggesting ongoing improvements with time.4 5 The authors do not provide a breakdown to determine whether certain components (eg, physical or psychological) primarily contributed to the overall improvement. This would be of particular interest as recent data have suggested that while mental QOL may improve to near normal, physical QOL was unlikely to be normal 1 year after surgical aortic valve replacement.6 Patient age was found to be an independent baseline predictor of 1 year mental QOL.6 Other studies, however, have suggested improvements in both physical and mental measures of QOL. A recent study by Usia et al reported improved QOL following TAVI in 30 patients as assessed using the SF-12v2 health survey.4 Mean pre-procedural SF-12v2 scores were severely impaired in comparison to the general Italian population >75 years old. A dramatic improvement was noted at 5 months, with both the physical and mental scores now being similar to the general age adjusted values. Similarly in the REVIVAL II feasibility study, large and clinically significant improvements were noted in both physical and mental QOL, as well as the Kansas City cardiomyopathy questionnaire 6 months post procedure.5 QOL again appeared to return towards age-based population norms.

The improvements in NYHA functional class were also significant in the current study, with 90% of patients in NYHA class III/IV at baseline compared to 16% at 30 days (p<0.001). This is consistent with previous studies of TAVI and has previously been correlated with improvements in the 6-minute walk test.1 7 8 The short duration of follow-up does not tell us whether these improvements are sustained, but previous studies have confirmed a benefit to 12 months.1 As long as the valve is durable, one would expect this benefit to be maintained in the longer term as well.

Natriuretic peptides have been shown to have a role in the evaluation in aortic stenosis. Plasma BNP levels can predict management issues of aortic stenosis in the elderly more frequently. While the ability to offer relief from terminal and otherwise untreatable aortic stenosis is a great step forward, clinicians need to exercise caution in selecting patients who would not succumb to their co-morbidities in the near future. Evaluating and making these decisions in such cohorts may present unique challenges. At present, long-term outcome data following TAVI are lacking, with minimal information on the impact of baseline co-morbidities on survival following valve replacement. There is also minimal guidance from historical surgical series, as such populations have been previously excluded. Hence in the future, clinicians are likely to be faced with difficult decisions trying to offer cutting edge, expensive, but life-saving technology to patients who they hope will live long enough to benefit from it.

The authors should be congratulated on highlighting the importance of QOL assessment in this elderly population. Previous studies have described improvements in wellbeing after cardiac surgery, and have demonstrated that elderly patients may have as much to gain as their younger counterparts despite more compromised preoperative status.15 When surgery is compared to TAVI in the future, greater attention needs to be paid to QOL aspects so as not to underestimate the results. Morbidity and mortality outcomes, while crucial, may fail to appreciate the full effects on emotional, physical, functional and mental wellbeing, particularly in an elderly population.
Sudden cardiac death— not always atherosclerotic

Gaetano Thiene, Cristina Basso

Sudden cardiac death in the young is mostly a problem of cardiomyopathies, with either mechanical or electrical dysfunction (hypertrophic or arrhythmogenic, ion channel diseases), whereas in the adult—elderly population it is usually associated with coronary atherosclerosis and inherent ischaemic heart disease (coronary thrombosis, obstructive myocardial disease, myocardial scars with decreased ejection fraction). In this issue of Heart, Hill and Sheppard, with Dr Sheppard member and coauthor, only a postmortem diagnosis of coronary artery occlusion may be associated with ‘certainty’ to sudden cardiac arrest.

The main issue that deserves comment is how can we be sure that these non-atherosclerotic coronary artery diseases were ‘responsible’ for sudden death, as resulting from the title of the paper. In the guidelines for autopsy diagnosis of sudden death, recently published by the Association for European Cardiovascular Pathology, with Dr Sheppard member and coauthor, only a postmortem diagnosis of coronary artery occlusion may be associated with ‘certainty’ to sudden cardiac arrest.

Accordingly, among the reported non-atherosclerotic acquired coronary artery diseases, only coronary dissection or vasculites complicated by occlusive thrombosis should be considered to be definitely ‘responsible’ for sudden death.

The same lipoma of the right coronary ostium reported by the authors (see their figure 2) does not appear to be occlusive, as it has been reported in cases of papillary fibroelastoma of aortic cusps impinging and occluding a coronary ostium.

The uncertainty of non-atherosclerotic coronary artery disease as the real cause of sudden death is even more evident in the setting of congenital coronary artery anomalies. There can be no doubt when there is an anomalous origin of the coronary artery from the pulmonary trunk or when the tributary myocardium exhibits anterior descending coronary artery, anterior descending coronary artery, or when there is an anomalous origin of the coronary artery from the pulmonary trunk or when there is an anomalous origin of the coronary artery from the pulmonary trunk or when there is an anomalous origin of the coronary artery from the pulmonary trunk. In nearly 50% of non-atherosclerotic congenital coronary artery diseases, the morbid entity was congenital (anomalous origin and course of the coronary arteries), whereas the remaining were acquired. The age span was from infancy to old age. The authors should be congratulated for this commendable study, which draws attention to the neglected cause of sudden death. The results point to the need for in vivo investigation to recognize and treat patients at risk. A similar paper was published years earlier.

The issue of Heart, Hill and Sheppard, with Dr Sheppard member and coauthor, only a postmortem diagnosis of coronary artery occlusion may be associated with ‘certainty’ to sudden cardiac arrest. The simple observation of myocardial bridging (intramyocardial course or anterior descending coronary artery from the pulmonary trunk or intramyocardial course of the left anterior descending coronary artery) can be considered as a variant of...