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Ascending and transverse arch repair under hypothermic circulatory arrest in octogenarians

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Objectives: This study was undertaken to analyse early and late outcomes after aortic surgery using hypothermic circulatory arrest (HCA) in octogenarians.

Methods: Between 1/1991 and 12/2006, 779 patients requiring aortic surgery under HCA were analysed. Patients were categorised as Group I, age ≥80 (4.8%, 37) and Group II, <80 (95.2%, 742). On univariate analysis, females ($p = 0.002$), low GFR ($p = 0.0001$), ruptured aneurysms ($p = 0.006$), associated coronary bypass surgery ($p = 0.002$) were more common in Group I. There was no difference in both groups in arch involvement ($p = 0.33$), emergent surgery ($p = 0.33$), acute dissections ($p = 0.62$), median RCP time of 29 min ($p = 0.16$), clamp time of 84 min ($p = 0.82$) and CPB time of 145 min ($p = 0.60$). Mortality, morbidity and stroke were analysed. Survival of the octogenarians was ascertained by direct patient contact or social security death index and age matched with normal United States census.

Results: Early mortality and stroke did not differ between groups; 30-day mortality: 13.5% (5/37) in Group I and 10% (78/742) in Group II ($p = 0.57$); Stroke 8% (3/37) in Group I and 2.7% (20/742) in Group II ($p = 0.09$). The renal failure rate of 13%, respiratory failure rate of 3.8%, bleeding of 2.5%, MI of 1.2% and sepsis of 9.5% in group I was quite similar to Group II. The multivariate predictor of stroke was prior stroke ($p = 0.003$). Multivariate predictors of early mortality were low glomerular filtration rate (GFR, $p = 0.0001$), increasing cardiopulmonary bypass time (CPB, $p = 0.0001$), and emergent repair ($p = 0.0009$). Presence of retrograde cerebral perfusion (RCP) was protective of stroke ($p = 0.0001$) and was associated with reduced early mortality ($p = 0.02$). Age was not a predictor of stroke or early mortality ($p = 0.09$ and $p = 0.39$ respectively). The median intensive care and hospital stay for Group I vs. Group II was 6.5 days vs. 4 days ($p = 0.0116$) and 16 days vs. 13 days ($p = 0.0325$). Survival in Group I > 80 years compared to the age matched > 80 years. U population at 1 year was 56% vs. 86% ($p = 0.02$), 2 years 48% vs. 76% ($p = 0.03$), 5 years 36% vs. 48% ($p > 0.10$) and 10 years 20% vs. 20%, $p > 0.10$. Although survival differences were present at 1 and 2 years when compared with age matched US population, significant differences in survival disappeared after 2 years ($p = 0.10$). The only multivariate predictor of improved long term survival in octogenarians was presence of RCP ($p = 0.03$).

Conclusion: Aortic surgery in octogenarians involving HCA can be performed with acceptable morbidity, mortality and long term survival. Complex aortic surgery remains warranted in octogenarians.

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Mitral valve repair with a 3-dimensional rigid annuloplasty ring: Initial experience using the St Jude saddle annuloplasty ring

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Introduction: Mitral valve repair, incorporating a mitral annular prosthesis, is the preferred surgical approach to mitral valve disease in the majority of cases. Currently there are numerous mitral annuloplasty devices on the market, all with their own reported benefits. Since the introduction of a 3-dimensional saddle shaped complete rigid ring in Australia, we have adopted this as our preferred mitral annular prosthesis for all mitral pathologies. We present our initial experience.

Method: We implanted the first saddle annuloplasty ring (St Jude Medical, MN, USA) in Australia in August 2006. Since that time we have implanted a total of 12 saddle annuloplasty rings and performed a retrospective review of our results combined with echocardiographic follow-up.

Results: Saddle annuloplasty ring inserted in 12 patients, 8 males and 4 females, average age 64.2 years. Mitral pathology included Myxomatous valve (7, 58.3%), Ischaemic Mitral Regurgitation (4, 33.3%), and Endocarditis (1, 8.3%). Amongst the myxomatous mitral valves there were 2 Barlow's valves (28.6%), 1 pure Anterior Leaflet Prolapse (14.3%), and 4 Posterior Leaflet Prolapses (57.1%). Surgical approach included minimally invasive via a right inframammary incision or median sternotomy. Concomitant procedures included CABG (5, 41.7%), Tricuspid Valve Repair (2, 16.7%), Closure of PFO (2, 16.7%), and oversew of LAA (2, 16.7%). Mitral valve repair was completed successfully in all patients (100%). There were no device related complications and no early deaths. Annuloplasty ring sizes inserted ranged from 26 to 32 mm. Immediate post-bypass TOE showed nil to trace MR in 11 (91.7%) and 1+ MR in 1 case. All prosthesis were well seated with no perivalvular leak. Follow up echocardiogram performed in the first 3 months showed nil or trace MR in 10 (83.3%) and mild MR in 2 (16.7%). Mid term echocardiographic results are presented.

Discussion: Excellent early mitral valve repair results have been achieved using a rigid 3-dimensional saddle annuloplasty ring. The complete ring and saddle shape have helped make this device applicable to a wide range of mitral valve pathologies and in our hands has helped simplify mitral valve repair. Long term follow-up is required to assess the durability of this device.

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