Conclusions: 12-month hospital costs for TAVI and SAVR are similar. TAVI costs are largely driven by cost of the prosthesis; SAVR costs are driven by hospital length of stay and ICU hours. A comparative analysis of current-generation TAVI and SAVR is required to further inform health policy decision-making.

http://dx.doi.org/10.1016/j.hlc.2019.06.463

Cost-Effectiveness of Transcatheter Aortic Valve Implantation Compared to Surgical Aortic Valve Replacement in the Intermediate Surgical Risk Population
J. Zhou 1, D. Liew 1, S. Duffy 1, A. Walton 1, N. Htun 1, D. Stub 1
1 The Alfred Hospital, Melbourne, Australia
2 The School of Public Health and Preventive Medicine, Monash University, Melbourne, Australia

Background: The recent PARTNER S3i trial compared transcatheter aortic valve implantation (TAVI) using the third-generation SAPIEN 3 device to surgical aortic valve replacement (SAVR) in intermediate-risk patients with severe symptomatic aortic stenosis. Using data from PARTNER S3i, we performed a contemporary cost-effectiveness analysis of current-generation TAVI versus SAVR from the Australian healthcare system perspective.

Methods: A Markov model with monthly cycles and a ten-year horizon was constructed to estimate costs, life-years and quality adjusted life-years (QALYs) associated with TAVI and SAVR. Efficacy inputs were derived from the PARTNER S3i study. Costs were estimated from published sources. Deterministic and probabilistic sensitivity analyses were performed to assess model uncertainty.

Results: TAVI was found to have higher immediate procedural costs than SAVR, driven primarily by the cost of the transcatheter valve. This was offset by a shorter length of hospitalisation following TAVI, such that the combined cost of initial procedure and hospitalisation was lower in TAVI compared to SAVR. With 5% annual discounting, total costs over a ten-year horizon were $50,144 in TAVI and $60,085 in SAVR, and TAVI was found to produce 0.33 more life years and 0.31 more QALYs than SAVR. Thus, from a health economic perspective, TAVI was dominant compared to SAVR. Results were robust to sensitivity analyses, with TAVI being dominant in 70% of 10,000 Monte Carlo iterations and cost-effective in 92% of iterations at a willingness-to-pay threshold of $50,000/QALY gained.

Conclusions: TAVI is likely to be highly cost-effective compared to SAVR in management of severe symptomatic aortic stenosis.

http://dx.doi.org/10.1016/j.hlc.2019.06.464

Cryoablation Versus Radiofrequency Ablation for Maze Procedures
D. Florisson 1, S. Conte 2, J. De Bono 1, M. Rahnavardi 1
1 St Vincent’s Hospital Melbourne, Fitzroy, Australia
2 St Vincent’s Hospital Sydney, Darlinghurst, Australia

Background: The Cox-Maze IV procedure for the treatment of atrial fibrillation (AF) is faster, less technically complex, portends fewer complications, and results in lower morbidity compared to the traditional cut-and-sew Cox-Maze III procedure. Cox-Maze IV is highly effective, with recurrence rates of only 5–10%. The most studied energy sources are radiofrequency and cryoablation.

Methods: A best evidence topic was written according to a structured protocol addressing the question “for patients undergoing maze procedure, do cryoablation and radiofrequency ablation differ with respect to rate of recurrence of atrial fibrillation?” Altogether, 480 papers were found searching Medline, Embase, and Pubmed databases of which ten represented the best evidence to answer the question. Randomised trials or cohort studies among adults undergoing cardiac surgical procedures that included maze procedure were included.

Results: Rates of sinus rhythm or freedom from AF at long-term follow-up (usually 12 months) ranged from 70–95% and 73–89% in the radiofrequency and cryoablation groups respectively. Both methods were much more effective at maintaining sinus rhythm compared to placebo. The two groups were also evenly matched in terms of reported rates of complications. Mortality, when reported, ranged from 0–2% in both groups.

Conclusions: We conclude that radiofrequency and cryoablation are equiefficacious in terms of freedom from AF recurrence at long-term follow-up. Rates of complications such as bleeding and cardiac tamponade as well as mortality did not differ between groups. Choice of energy source for Cox-Maze IV procedure does not appear to markedly affect outcomes and should depend on centre and operator experience.

http://dx.doi.org/10.1016/j.hlc.2019.06.465