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COST EFFECTIVENESS OF TRANSCATHETER VERSUS SURGICAL CLOSURE OF SECUNDUM ATRIAL SEPTAL DEFECT IN ADULTS: A POPULATION-BASED ANALYSIS

ACC Poster Contributions

Ernest N. Morial Convention Center, Hall F

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Background: The majority of secundum atrial septal defects (ASD) can be closed either surgically or by transcatheter (TC) approach. We have previously shown that both techniques can be safely performed in adults. However, there are limited data on the long-term cost effectiveness of both treatment strategies. In a system where access to healthcare is universal such as in Canada, we sought to analyze cost effectiveness of both strategies in patients >18 years of age.

Methods: We performed a cost-effectiveness analysis using a discrete event simulation model incorporating clinically relevant outcomes and using a 5-year time horizon as well as a sensitivity analysis using Monte Carlo simulation model parameters that were derived from the population-level administrative data in the Quebec Congenital Heart Disease Database. Costs were evaluated from the perspective of the Canadian healthcare system and comprised of direct healthcare costs. These costs were derived from our institutional costing database and were validated with data from other Canadian institutions. We ran a base case analysis and multiple sensitivity analyses to test the robustness of our results.

Results: At the end of our 5-year follow-up period, TC ASD closure was found to be a dominant strategy with both cost savings and improved survival when compared to surgery. Probabilistic sensitivity analyses using first order Monte Carlo found that TC closure dominated the surgical approach in almost 80% of simulated individuals. In our simulation model the cost of surgical closure was 16,315 +/- 6,704 CAD\$ versus 11,430 +/- 4,379 CAD\$ for the TC alternative. TC closure also proved to be more effective via our simulation with 4.686 +/- 0.364 life-years versus 4.614 +/- 0.647 life-years for surgical closure.

Conclusion: In a large population-based analysis, secundum ASD TC closure was a dominant strategy compared to surgical closure. Our findings support the choice of device closure for ASD closure, not only as a safe but also cost-effective alternative to surgery when clinically indicated.