

EDITORIAL COMMENT

# Transcatheter Versus Surgical Closure of Atrial Septal Defects\*



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The study by Ooi et al. (1) in this issue of *JACC: Cardiovascular Interventions* attempts to compare the “value” (defined as outcomes relative to cost) of transcatheter versus surgical closure of atrial septal defects (ASD). They used the Pediatric Health Information System (PHIS) database, one of the largest national pediatric databases. They appropriately excluded patients younger than 1 year of age or patients with other confounding factors, attempting to focus on “typical” patients in need for elective ASD closure. They found that patients undergoing transcatheter ASD closure were significantly older, had a shorter length of stay (LOS), and were less likely to have an infection or a post-procedural complication. As expected given the shorter LOS, the cost for the transcatheter group was significantly less. There was no mortality in either group.

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Of course, PHIS is a retrospective administrative database abstracted from medical records, so the terms “complications” and “infection” can have a vastly different meaning than for a practicing physician. I would have preferred to have a clear definition and description of these two terms so that we understand what they mean in this context. The contribution of complications to LOS for both groups was only 0.7 days and to cost for the surgical group only \$1,500, suggesting that the surgical complications were not serious. Nevertheless, both groups were analyzed the same way, the numbers

were quite large (35 hospitals and 7,765 patients analyzed), and thus the differences among groups are real and probably reflect the situation in the real world.

Although I strongly support this effort, which helps us further define the indications for surgical versus transcatheter ASD closure, the authors may be asking the wrong question. I would argue that value in the clinical sense supersedes the notion of value taught in business schools. Should we really send all ASDs for device closure to save an average of \$6,231 per patient? Of course not, and that is also not what the authors are concluding or endorsing. With excellent short-term surgical safety further validated in this study (0% mortality for 3,159 open-heart ASD repairs), outstanding very long-term surgical ASD data published and available (2,3), and at least one large long-term comparative study showing a higher reintervention rate for transcatheter ASD closure (4), what we really need to know is the long-term clinical value for a given patient. The device erosion rate is still at an estimated 0.1% to 0.3%, with no known equivalent long-term risk for surgical patients (5,6).

Finally, it is well known that hospital costs and charges are completely arbitrary and variable from hospital to hospital. This is further evidenced by the complete randomness of median transcatheter and surgical cost of ASD closures seen in Figures 3 and 4 of the Ooi et al. (1) study. It is therefore difficult to individualize these results for a single patient in any given hospital. A few hospitals had even lower surgical costs compared with transcatheter! The transcatheter and surgical ASD closure distribution figure (Fig. 2) is also interesting in that it suggests that the indications for transcatheter versus surgical ASD closures have not matured yet. Some hospitals favor surgery while others (the majority) use the transcatheter approach predominantly. I

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suspect this ratio is dependent on more than clinical factors, such as availability of interventional cardiologists skilled at ASD closures, cultural factors, and others.

In conclusion, this is an important study that helps us further define the role of surgical versus transcatheter approaches for ASD closure. However, as the authors have noted themselves, one has to keep in mind that the value comparison studied here

is really a snapshot value of what happens during the index hospitalization, not a reflection of value gained over a lifetime.

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