Play your hand wisely

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Central Message

Timing of operation is frequently out of our control.

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Mery and colleagues¹ have nicely described their single-center analysis of surgically repaired partial and transitional (P/T) atrioventricular septal defects (AVSDs). Their article in this issue of the *Journal* adds another piece to the puzzle regarding expectations and ideal timing of P/T AVSD repair. Not surprising, Mery's group demonstrates outstanding survival through 22 years with 265 patients. The subtleties of their analysis, however, are in the details of reintervention. The 10-year reintervention rate for left atrioventricular valve (LAVV) pathology is nearly 20%, and left ventricular outflow tract (LVOT) obstruction is 7%.

Despite the seemingly straightforward surgical repair of P/T AVSD, the incidence of late LAVV regurgitation or LVOT obstruction is significant compared with that of complete AVSD.² This finding is related to the attached nature of the bridging leaflets to the crest of the ventricular septum, which further exaggerates the elongated narrowing of the LVOT. As Mery and colleagues¹ point out, the ideal time for surgical repair varies greatly in the literature: Minnich and coworkers³ concluded that children should undergo repair younger than 4 years of age because of the increased incidence of LAVV regurgitation in children older than 4 years. Devlin and colleagues⁴ demonstrated no increased incidence of reintervention in younger children and recommended repair before 2 years of age. The multicenter study of Burrato and associates⁵ recommended that surgery be deferred until later in childhood, whereas the analysis of Aubert and colleagues⁶ suggested that an even later age at operation may be beneficial.

The difficult reality is that a reasonable percentage of patients with P/T AVSD present in infancy with moderate to severe LAVV incompetence and at least some signs of congestive heart failure. In this cohort, 73% or 27.5% of patients, respectively, fall into these categories. It is this specific population for which many conflicting opinions regarding timing of repair occur. The analysis of Mery and colleagues¹ demonstrates that patients who underwent repair during infancy were more likely to require some form of reintervention (nearly 24% at 10 years, compared

with 13%, 5%, and 0% reintervention rates for toddlers, children, and adults, respectively). The reader should be cautious in interpreting these data, however, and not wait for a symptomatic infant to become older with the sense that waiting will lead to lower reintervention rates. As Mery and colleagues¹ state, this finding is likely a marker of more severe disease than the actual timing or performance of the repair. I strongly agree with their practice, however, that surgery should be offered to infants with moderate to severe atrioventricular valve regurgitation or signs of heart failure.

For symptom-free patients, however, Mery and colleagues¹ suggest that a repair "later in life" may be reasonable. Interestingly, most surgeons have little input as to when the relatively symptom-free 2-year-old with a partial canal is referred for surgery. I personally believe that delaying the operation to 4 or 5 years of age leads to further annular dilation, making the repair potentially more difficult.

As Mery and colleagues¹ state, inherent in this study is selection bias. Patients underwent surgery when the cardiologist and surgeon believed that the child would experience the best outcome, and therefore, all age groups cannot be considered equal. Patients for whom surgery is delayed until 3 years of age, or 18 years of age, are a different population than those undergoing surgery at 3 months of age and are not randomly selected. Physiologic and anatomic differences influence decisions, making it difficult to compare the outcome of the 3 age groups on equal ground.

I commend Mery and colleagues¹ on their outstanding results. They conclude that although the risk of mortality was minimal, reoperations for LAVV and LVOT were significant, with repair during infancy being an important risk factor for reoperation. This finding is sound and supported by their data. The unfortunate reality is that unless a child is in the hospital in heart failure, we will still experience vast differences in opinion regarding the ideal time to perform repair in children with P/T AVSDs. It goes without saying that having a great hand of cards increases the chance of winning but really does not guarantee a victory. Similarly, having a less than desirable hand does not necessarily translate to losing. As a surgeon, strong clinical judgment and appropriate patient counseling regarding expectations are the best way to play the hand that you are dealt.

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