See Article page 1594.

Commentary: Early repair of complete atrioventricular septal defect is the forward move

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CENTRAL MESSAGE

For infants younger than 3 months with complete atrioventricular septal defect who require early surgery due to heart failure, primary repair represents the preferred strategy, even in neonates.

For many congenital heart defects, there has been a progressive trend away from staged management and toward primary repair in infancy. For complete atrioventricular septal defect (cAVSD) repair, a target age of 3 to 6 months has broadly emerged,[1] with some preferring even earlier.[2] The reservation against early repair has been concern for a poor result with the left atrioventricular valve (LAVV) due to the fragile nature of the leaflets. If the reconstruction is unsatisfactory, options for replacement are limited and carry heightened risk. Nevertheless, when overt heart failure exhausts medical management, early surgery may sometimes become necessary.

In this issue of the *Journal*, Burrato and colleagues[3] describe a large series of infants younger than 3 months of age with cAVSD who were managed with either complete repair or pulmonary artery banding (PAB) followed by delayed repair. While this study does not assess the optimal age of cAVSD repair, it offers another account of favorable outcomes achieved with early repair. The primary repair group demonstrated 3.3% early mortality and 92% survival and 78% freedom from LAVV reoperation at 10 years. The outcomes for 22 neonates were notable, with no early deaths and 100% survival and 75% freedom from LAVV reoperation at 10 years. Although this experience complements other single-institution series demonstrating positive outcomes for cAVSD repair at less than 3 months,[2,4,5] these reports are contrasted by a large, multicenter analysis showing increased morbidity and mortality for this population.[1]

The focus of the present study was to compare primary versus staged repair in young infants. While not a randomized controlled trial, the findings are persuasive: primary repair was associated with better survival than staged repair and similar freedom from LAVV reoperation. As the groups exhibited important differences including age, weight, and trisomy 21 prevalence, propensity score matching was performed and additionally corroborated the findings in favor of early repair. Accordingly, the authors have recommended primary repair as the preferred strategy.

The study has limitations. As a single-institution experience, the excellent outcomes with early repair may not be widely replicated. Also, despite propensity score matching, underlying selection bias may have exerted influence on the findings. Finally, the survival difference is attributable to a 19% interstage mortality for patients managed with PAB, a rate consistent with historical series but worse than recent experience. In another multicenter study, 23 of 24 patients with PAB survived to cAVSD repair and demonstrated survival and freedom from LAVV reoperation similar to primary repair, thus supporting staged repair as a successful strategy.[6] In his commentary, Alsoufi[7] questioned whether PAB represented a retreating, backward move, but agreed that staging remains a prudent option for select patients.

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Disclosures: The author reported no conflicts of interest.

The *Journal* policy requires editors and reviewers to disclose conflicts of interest and to decline handling or reviewing manuscripts for which they may have a conflict of interest. The editors and reviewers of this article have no conflicts of interest.

Received for publication Aug 18, 2020; revisions received Aug 18, 2020; accepted for publication Aug 19, 2020; available ahead of print Aug 24, 2020.

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J Thorac Cardiovasc Surg 2021;161:1602-3

0022-5223/$36.00

https://doi.org/10.1016/j.jtcvs.2020.08.053

Both of these studies can be interpreted to support the choice for early cAVSD repair in young infants failing medical management. At the least, early repair represents a sound strategy with outcomes similar to staging; at the most, it represents a superior, one-operation strategy associated with improved outcomes. When faced with this challenging decision, this experience advocates for primary repair as the advancing, forward move, and invites and encourages increased pursuit of this strategy, even in neonates.

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See Article page 1594.

Commentary: To band or not to band—is that really the question?

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CENTRAL MESSAGE

Comparing outcomes in staged versus early complete repair for complete atrioventricular septal defects is most impacted by the inter-stage course for patients receiving a pulmonary artery band.

Surgical repair of complete atrioventricular septal defect (AVSD) provides a unique technical challenge for congenital heart surgeons. Approaches and timing for repair form the basis of significant discussion among care providers. Described approaches regarding number of patches to employ and how best to divide and reconstruct the atrioventricular valves are numerous. In addition, the challenge of timing for complete repair when considering the need to address symptomatology versus the concerns for valve tissue fragility, especially within the neonatal period, can create decision-making dilemmas. Significant disparity exists within the literature in regards to outcomes for early primary complete repair.[1,2]

Buratto and colleagues[3] from Royal Children's Hospital in Melbourne, Australia, present an insightful manuscript describing their single institutional experience with early surgical intervention for complete AVSD in patients younger than 3 months of age. In a study cohort of 194 patients, 151 (77.8%) underwent primary complete repair, whereas 43 (22.2%) underwent initial placement of a

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Disclosures: The author reported no conflicts of interest.

The *Journal* policy requires editors and reviewers to disclose conflicts of interest and to decline handling or reviewing manuscripts for which they may have a conflict of interest. The editors and reviewers of this article have no conflicts of interest.

Received for publication Aug 26, 2020; revisions received Aug 26, 2020; accepted for publication Aug 27, 2020; available ahead of print Aug 31, 2020.

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J Thorac Cardiovasc Surg 2021;161:1603-4
0022-5223/$36.00

https://doi.org/10.1016/j.jtcvs.2020.08.087