durability of this approach perhaps could be enhanced by appropriate patient selection and use of more suitable reconstruction materials. The jury is still out.

Reference

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Commentary: Aortic valve surgery in children: Repair now, Ross procedure later

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Aortic valve surgery in children presents many challenges owing to the need to accommodate ongoing somatic growth. The 2 widely used surgical techniques, aortic valve repair and the Ross procedure, each carries its own drawbacks. Aortic valve repair has a very low risk of mortality, yet the rate of reoperation is relatively high. The Ross procedure has excellent freedom from reoperation but an increased risk of mortality in neonates and infants, the need for conduit replacement, and the risk of autograft dilation and failure, especially in young children in whom the autograft cannot be effectively stabilized. So far, the roles of these 2 techniques have yet to be clearly defined.

In an important article in this issue of the Journal, Danial and colleagues compare the outcomes of the Ross procedure and complex aortic valve repair (ie, repair necessitating the use of a patch). They report that early mortality was similar in their 2 groups of patients, and that freedom from reoperation for both groups was approximately 50% at 10 years. They concluded that complex aortic valve repair may be used as a first-line strategy, allowing the Ross to be delayed into later childhood or adulthood.

Over the last few years, it has become increasingly apparent that an initial approach of surgical aortic valve repair in children provides excellent survival and acceptable freedom from reoperation. A strategy of avoiding balloon dilatation with uncontrolled tear of the aortic valve allows for a good quality initial repair and as such results in better freedom from reintervention. Although the Ross procedure is associated with increased mortality in infants and neonates, it has excellent outcomes in older children. We have recently demonstrated that the autograft has improved durability when the Ross procedure is performed as a reoperation, presumably due to a degree of natural stabilization from postoperative scarring. Furthermore, excellent results have been demonstrated with the Ross procedure in adolescents and young adults with stabilization of the autograft. As such, we have increasingly aimed to repair valves, with the hope of delaying the Ross procedure until the child is fully grown and the autograft can be stabilized.
There have been some concerns that complex valve repair, particularly using patch material, may increase the risk of aortic valve reoperation. Yet even complex repair with patches may delay the Ross procedure for a prolonged period to allow for longitudinal growth of a child, with the Ross performed at a later age. Danial and colleagues have provided important additional information, demonstrating that complex aortic valve repair with the use of patch material can provide similar freedom from reoperation to the Ross procedure. These findings should encourage us to continue to push the boundaries of which aortic valves can be repaired. In doing so, it should be possible to delay the Ross procedure for as long as possible and, hopefully, minimize the lifetime risk of prosthetic aortic valve replacement.

References