

root pathology, just as the field has trended toward reduction of late distal aortic events.

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See Article page 1421.



## Commentary: Progressive aortic valve regurgitation after replacement of the dissected ascending aorta: An unsolved dilemma

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Despite significant improvements in surgical outcomes during the past 2 decades, type A acute aortic dissection (AAD) remains a life-threatening disease linked to a substantial mortality and morbidity. In a recent overview article

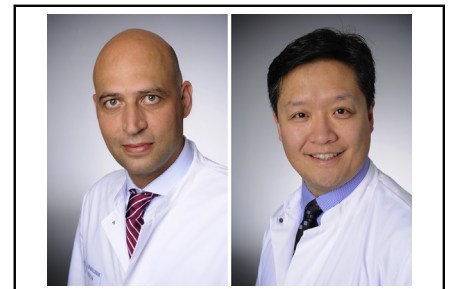
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### CENTRAL MESSAGE

This single-center retrospective analysis provides new insights of long-term durability of ascending aortic replacement in patients presenting with type A acute aortic dissection.

from the investigators of the International Registry of Acute Aortic Dissection (IRAD) that was initiated in 1996 and prospectively analyzes outcome data from more than 50 international sites with, so far, more than 7300 patients with acute type A and B aortic dissection, a significant temporal decline of surgical mortality rate from 25.0%

(1995-1999) to 18.4% (2010-2013) was observed for patients with AAD.<sup>1,2</sup> Analysis of the IRAD cohort revealed that supracoronary ascending aorta replacement (AAR) is still the preferred conservative surgical repair strategy in approximately 60% of all AAD patients, whereas extensive aortic root surgery is performed in approximately one-third of all AAD patients.<sup>1</sup>

The results from the IRAD registry underscore the fact that the optimal surgical management of the aortic root, especially in the presence of moderate aortic regurgitation, which is present in approximately 40% to 60% of all patients with AAD, remains controversial.<sup>1-3</sup> Although a temporal trend favoring a more aggressive surgical strategy toward a full root replacement or valve-sparing procedure can be identified during the past years in experienced centers, the IRAD data also suggest that many surgeons are still reluctant to further increase technical complexity at the time of emergent AAD surgery if not clearly indicated.<sup>1,4,5</sup> On the other hand, conventional AAR in AAD patients appears to be inferior and less durable compared with aggressive aortic root repair in terms of mid- and long-term outcomes. In a recent report by Ikeno and colleagues,<sup>6</sup> AAR was associated with a progressive root dilatation and aortic valve incompetence during the first 5 years from surgery and linked to redo surgery in 2.5% of AAD survivors and a 14.5% aortic-related mortality.<sup>6</sup>

Kim and colleagues<sup>7</sup> address this important question. The investigators retrospectively analyzed in their single-center study the long-term durability (100% complete follow-up at  $8.6 \pm 5.8$  years) of AAR in 225 AAD patients with special focus on aortic valve regurgitation (AR), need for redo root surgery and survival. These end points were compared with 46 patients with AAD receiving root surgery using the Bentall or David procedure.

The results of the study underscore several key aspects. First, operative mortality (8.9% vs 13.0%) and 10-year survival (82.1% vs 81.2%) was comparable between patient groups receiving AAR or root surgery, respectively, suggesting a similar long-term efficacy and safety for both techniques. Second, severity of AR increased over time in patients presenting with high AR grade (grade 3+ or higher) before surgery or patients with moderate residual AR (grade 2+) after AAR. At 10 years, approximately 15% of patients developed moderate and 5%

severe AR, respectively, with a 10-year cumulative incidence of root reoperation (death as competing risk) of 8.1%. Finally, freedom from significant AR was significantly higher in patients with a high pre- or postoperative AR grade and patients with a greater postoperative false to true lumen ratio ( $\geq 1.5$ ), possibly indicating time-dependent unfavorable aortic remodeling effects in these subgroups that would have been avoided after root surgery.

Although this retrospective data analysis by Kim and colleagues<sup>7</sup> is obviously not designed to allow a robust conclusion with regard to the optimal surgical strategy for AAD patients, the above mentioned key findings of this study should encourage aortic surgeons to a more liberal root approach after taking into account other important risk factors such as patients age, comorbidities, presence of connective tissue disorders, bicuspid aortic valve, dilation/disruption of the aortic root, and surgical expertise. On the other hand, the study results also give surgeons the comfortable knowledge that the conservative AAR approach is a safe option in most patients presenting with AAD and associated with excellent long-term survival.

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