Commentary: Expanding the indications for reimplantation of aortic valve to patients with acute type A aortic dissection

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There are few cardiac surgical units in the world in which more than 100 patients with acute type A aortic dissection (ATAAAD) are operated on every year. The cardiac unit at Zhongshan Hospital, in Shanghai is one of them. Their surgeons do so many operations for ATAAD that they managed to collect 148 patients who underwent replacement of the aortic arch and deployment of a frozen elephant trunk with simultaneous aortic root replacement by means of either a Bentall or a David procedure. According to Li and colleagues, the choice of the Bentall (93 patients) or David (55 patients) procedure was based largely on the surgeon’s preference and the patient’s aortic valve pathology. The authors managed to match 36 patients from each group for more accurate comparison, but the results were similar in the entire cohort. Remarkably, the cardiopulmonary bypass and myocardial ischemic times were practically the same for the 2 groups, as was perioperative mortality (only 5.5% for David and 7.5% for Bentall) and morbidity. After a mean follow-up of 2.9 years, patient survival and freedom from valve-related events were also similar in the 2 groups. The authors concluded that “David reimplantation was an appealing option” in this setting. Many surgeons concur that David operation is a good option for treating the dilated or dissected aortic root in patients with ATAAD.

I have adopted a more moderate approach in patients with ATAAD. My personal aortic clamping time for the David procedure is twice as long as that for the Bentall procedure, even if I have to construct a “bio-Bentall” (ie, a bio-prosthetic aortic valve inside a Dacron conduit). Thus, I need a compelling reason, such as a young patient or a patient with entirely normal cusps, to perform aortic valve reimplantation in patients who need complex and extensive operative procedures, such as described by Li and colleagues or patients with combined aortic aneurysm, mitral insufficiency, chronic atrial fibrillation, and triple-vessel coronary artery disease. In my hands, the Bentall procedure is simpler and can be done much more expeditiously, and I don’t have to worry about having to have a second pump run because of imperfect reconstruction of the aortic root at the end of a long operation. As I have stated numerous times, I believe the principal goal in patients with ATAAD is to save the patient’s life.

Having said all that, my enthusiasm for aortic valve reimplantation remains high even after 30 years of following my patients. In carefully selected patients—and by this, I mean patients with aortic root aneurysm and normal or near normal cusps—aortic valve reimplantation is far superior to any other procedure developed to date. I have numerous patients with normally functioning aortic valves 20 years after surgery who never experienced an adverse aortic valve event. This is particularly true for young patients with aortic root aneurysm associated with genetic syndrome.

CENTRAL MESSAGE
Reimplantation of the aortic valve in patients with acute type aortic dissection should be performed only in patients with normal aortic cusps and by experienced aortic surgeons.
Commentary: Just because we can, should we do it?

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Acute aortic dissection type A remains a deadly disease and a challenge to the surgeon. The initial 24 hours carry the greatest mortality, mostly due to pericardial tamponade.1,2 The primary goal of treatment is survival of the patient by treating or preventing pericardial tamponade.1,2 Replacement of the proximal aorta is and remains the mainstay of treatment. It is commonly performed as soon as the diagnosis is made, not infrequently at odd hours with unexperienced teams. Postoperative mortality is related to the preoperative presentation of the patient, with tamponade and severity of malperfusion being important determinants.2,3

Stability of the repair is second in priority. Tubular ascending replacement achieves long-term root stability in most instances.3,5 Only certain scenarios require more aggressive root surgery, ie, root replacement.4 This is definitely beneficial in connective tissue disease and may be considered for other scenarios, such as pre-existent root dilatation.4,6 Otherwise, there is no evidence that a more aggressive use of root replacement results in an advantage to the patient.

In the past 2 decades, valve-preserving root replacement has become an increasingly practiced approach also in acute dissection.7 In this setting, its increased complexity has to be carefully weighed against the advantage of avoiding anticoagulation. Similar considerations apply to the management of the arch. There has been discussion in favor of more aggressive arch surgery to minimize the probability of distal dilatation and subsequent surgery. In the majority of instances, partial arch replacement will suffice.1,4

In the current paper,7 the authors have combined valve-preserving root replacement and aggressive arch surgery; they achieved a low operative mortality. Comparing aortic valve reimplantation and the Bentall operation, they found no difference between the 2 strategies. They conclude that aggressive root and arch replacement can be performed safely.7 This is in contrast to previous findings that the duration of cerebral perfusion and circulatory arrest are important determinants of mortality.3,8

Do the positive results of this paper imply that the results and approach can be generalized? Common sense indicates that surgical aggressiveness does not always provide a benefit to the patient. The risk profile of the patients in the paper may differ from that seen in standard practice. The 2 most important risk indicators, ie, time from pain onset to surgery and initial hemodynamic instability, do not seem to be addressed.

CENTRAL MESSAGE
In type A dissection, both valve-preserving root replacement and aggressive arch surgery may be performed in selected patients. The benefit of this approach still has to be defined.