Commentary: Goals of surgical therapy in tricuspid valve endocarditis

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Central Message

The cornerstone of surgery for tricuspid valve endocarditis remains early valve repair. IVDA recidivism and loss to follow-up limit ability to ascertain effectiveness of various surgical techniques.

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The incidence of infective endocarditis is on the rise, and this condition remains associated with high rates of morbidity and mortality, despite advances in diagnosis and treatment.¹ The worsening epidemic of intravenous drug abuse (IVDA) and the increasing rates of indwelling chronic venous lines and implantable cardiac devices have resulted in a recent surge of cases of tricuspid valve endocarditis. Right-sided infective endocarditis occurs far less frequently (5%-10% of total infective endocarditis cases) than does left-sided infective endocarditis, with most cases primarily affecting the tricuspid valve. Medical therapy with appropriately tailored antibiotics continues to be the dominant treatment of choice for tricuspid valve endocarditis, relegating surgical management to patients whose disease is refractory to medical treatment. More recent publications, however, demonstrate that increasing numbers of surgeries for tricuspid valve endocarditis are being performed.² Although this is due in part to the rise in incidence of endocarditis, the increasing number of surgeries for tricuspid valve endocarditis may also reflect a more aggressive approach to surgical intervention.

Witten and colleagues³ from the Cleveland Clinic have adopted such an aggressive approach to the surgical treatment of endocarditis, and in this edition of the *Journal*, they report on one of one of the largest single-center experiences of surgery for right-sided infective endocarditis. Their results demonstrate outstanding outcomes, with an in-hospital mortality of 5.9% in 134 patients with surgically managed right-sided infective endocarditis, approximately half of whom had only right-sided infective endocarditis (the other half had coexisting left-sided infective endocarditis). Witten and colleagues³ highlight the principles of surgical management of right-sided endocarditis. They emphasize the need for early intervention before the onset of extensive tissue destruction; the need for complete removal of all infected tissue; and the prioritization of repair relative to replacement. In line with previously published data,⁴ their results demonstrate improved early morbidity

and mortality after tricuspid valve repair, compared with replacement, in endocarditis. Although residual moderate tricuspid regurgitation after repair may occur with an aggressive repair strategy, Witten and colleagues³ are very clear in their assertion that a less than perfect repair may be more favorable than prosthetic valve replacement in patients at higher risk of recurrent bacteremia (such as patients with intravenous drug abuse who are prone to recidivism or those who will continue to have intravenous catheters or devices long term).

Furthermore, Witten and colleagues³ continue to lead the way with their standards of clinical data capture, reporting, and analysis by providing a thorough characterization of the predisposing conditions, surgical indications, underlying microbiology, and postoperative outcomes, as well as an attempt at long-term follow up, all of which help further our overall understanding of patient selection and optimal operative intervention for right-sided infective endocarditis. This seminal analysis should serve as an invaluable resource for surgeons dealing with tricuspid valve endocarditis, and it also sets a standard for future outcome studies on this subject. Despite the best efforts of Witten and colleagues,³ however, the long-term follow-up of these patients is far from complete or ideal, leaving many questions still unanswered. This paucity of complete and reliable long-term data after surgery for right-sided infective endocarditis

is, however, an expected consequence of the patient population (particularly patients with IVDA, who have a higher rate of medical noncompliance, loss to follow-up, and social comorbidity) and also of several forms of bias that influence patient selection, treatment choices, medical management, and follow-up in this unique patient group.⁵ For this reason, the surgical focus and the evidence base to guide our practice rest primarily on the short-term control of infection and early survival. It remains difficult to assess reliably the long-term effectiveness of different surgical approaches. Furthermore, nonsurgical interventions aimed at preventing relapse and recidivism are a critical part of successful surgical therapy but historically have been inconsistently applied.

Hospitals and cardiac surgeons across the country will no doubt continue to see increasing rates of right- and left-sided infective endocarditis as the epidemic of opiate abuse and IVDA continues to ravage the nation. Witten and colleagues³ remind us that the priorities of treatment are different for right-sided infective endocarditis, and as much as possible valve repair should be the default, even

if that may carry the expectation of an imperfect hemodynamic result. Their excellent results also raise the question of whether regionalization of care for tricuspid valve endocarditis to hospitals with dedicated multidisciplinary teams (including primary care physicians, social workers, and drug addiction specialists) could yield better care and outcomes for this patient group.

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