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Commentary: Decisions, decisions, always decisions—even with limited choices

Ari A. Mennander, MD, PhD

There are few practical reports on tricuspid valve endocarditis comparing outcomes after different surgical techniques in intravenous (IV) drug abusing patients.^{1,2} Tricuspid valvectomy may be considered a limited surgical option, offered intentionally to only some patients, and often as a bail-out option for IV drug abusers.² Some of these patients may benefit from surgical intervention, but socioeconomic factors strongly influence outcome, including commitment to postoperative surveillance, treatment, and abstinence from further drug abuse.

The study by Slaughter and colleagues³ in this issue of the *Journal* evaluated more 1600 IV drug abusing patients with isolated tricuspid valve endocarditis according to tricuspid valve repair, replacement, or valvectomy. The aim of this retrospective study was to evaluate early outcomes in relation to the surgical technique. After multivariable logistic regression and risk adjustment, valvectomy, preoperative cardiogenic shock, and emergent situation were associated with a higher risk of early mortality compared with repair, whereas there was no difference in early mortality between repair and replacement.

A limited number of 119 patients underwent valvectomy. These patients appeared to have active infection at time of surgery, and *Staphylococcus aureus* was common, although the exact clinical scenarios and decision making for performing valvectomy were not described. Surgeons are reluctant to use prosthetic materials in IV drug abusing patients with active endocarditis in the presence of abscesses and pleural empyema, low albumin, and high white cell count. High mortality in this patient group is expected even with surgery and statistical risk adjustment. Is outcome after valvectomy associated with the procedure, or is the technique offered to only the most vulnerable patients?

Since the STS database contains limited long-term follow-up data, information on possible recurrent valve



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CENTRAL MESSAGE

Surgical decision making for tricuspid endocarditis benefits from information on the socioeconomic status of the drug abusing patient.

infection and degeneration is missing. Detailed or postoperative echocardiographic data is not available. Data on antibiotics, polymicrobial pathogens, and anticoagulation are incomplete. The type of tricuspid valve prostheses, either biological or mechanical, is not reported. The details of the repair techniques, extent of vegetation, onset of symptoms, timing of surgery, and information on arrhythmias or heart block are not provided. Can a large cohort of patients compensate for the lack of these essential details?

The dismal outcome associated with valvectomy is not the only important message in this study. Surgeon or institution practice patterns may determine the frequency of performing valvectomy. Are the patients with valvectomy deliberately undertreated? Is the social status of the patient affecting the choice of treatment and outcome after surgery? There may be a pattern including the government as payer. On the other hand, the low socioeconomic status of many patients may not always explain excessive drug use, alcoholism, and related valve infection.

The outcomes of these patients with valvectomy is not only related to surgery, and valvectomy may serve occasionally as a bridge to rehabilitation.³ The article by Slaughter and colleagues confirms that research on early surgical outcomes after endocarditis requires reporting using a limited amount of detailed data on IV drug abusing patients. Decision making and conclusions with limited data reflect pragmatism in surgery.

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Check for updates

Commentary: Endocarditis of the forgotten valve: Forget about valvectomy?

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Dimitri Kalavrouziotis, MD, FRCSC

The causes of tricuspid valve (TV) endocarditis are multiple, although intravenous drug use (IVDU) remains a leading factor. Parallel with the exponential rise in heroin-related deaths in North America,¹ the incidence of TV endocarditis is increasing,² and it is developing into an important societal problem. Few studies^{3,4} have investigated large numbers of IVDU patients undergoing TV surgery for endocarditis, and the outcomes of this surgery in the current era. The most recent peer-reviewed guidelines contribute little in terms of selecting the optimal surgical approach for IVDU patients with TV endocarditis.⁵

In this issue of the *Journal*, Slaughter and colleagues⁶ evaluate the incidence and early outcomes associated with first-time isolated TV surgery for endocarditis among IVDU patients in a large contemporaneous cohort using the Society of Thoracic Surgeons (STS) database. This retrospective study comprised 1613 IVDU patients with a median age of 30 years who underwent 1 of 3 different types of TV surgery: valvectomy (n = 119), repair (n = 532), or replacement (n = 962). The investigators found that the incidence of TV endocarditis operations due to IVDU increased significantly during the study period. As

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Dimitri Kalavrouziotis, MD, FRCSC (left), and Siamak Mohammadi, MD, FRCSC (right)

CENTRAL MESSAGE

Valve repair should be favored in drug-related tricuspid valve endocarditis. Valvectomy is associated with early death, but there may still be an indication for this approach in certain patient subsets.

expected, patients with TV valvectomy had many markers of higher operative risk at baseline, including a higher prevalence of active endocarditis, *Staphylococcus aureus* as the primary pathogen, and a higher MELD (Model for End-Stage Liver Disease) score. Valvectomy was associated with a significantly higher unadjusted early mortality (16%) compared with TV repair (2%) or replacement (3%). Multivariable analysis adjusted for meaningful covariates, including the acuity of infection, emergency surgery, and, importantly, TV surgery hospital volume, identified TV valvectomy as an independent risk factor for in-hospital or 30-day mortality. Interestingly, the type of valve surgery had no effect on major adverse events, a composite of 7 different outcomes. This may reflect the fact that the higher mortality among valvectomy recipients provides a competing risk, such that these patients do not have the same opportunity to develop complications as patients after repair or replacement.

The authors concluded that TV valvectomy should be avoided in IVDU patients with TV endocarditis in favor