Surgical results for hypertrophic obstructive cardiomyopathy: More than an institutional niche

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Central Message

Results of SM from high-volume centers represent the gold standard for patients with HOCM, but applicability has implications not only for volume standards but also for the future of training.

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In this edition of the *Journal*, Nguyen and colleagues¹ report on their institutional comparative experience of surgical myectomy (SM) and alcohol septal ablation for hypertrophic obstructive cardiomyopathy (HOCM). Their propensity score-matched comparison found that SM offered similar survival, superior gradient relief, and a lower reintervention rate. Surgical results in the propensity score-matched cohort were excellent, with 0% in-hospital mortality, 3.9% permanent pacemaker insertion, minimal resting gradients at all time points after surgery, and only 1 reintervention. These data continue to support the American College of Cardiology/European Society of Cardiology recommendation for SM as the gold standard treatment for patients with HOCM meeting indications for an intervention.²

In the study, Nguyen and colleagues¹ reported that over 18 years, 2407 isolated SMs were performed at the Mayo Clinic. This translates to an average of at least 133 SMs annually (considering the fact that concomitant SMs were excluded). The magnitude of these numbers should be considered in applying the study results. The guidelines for SM recommend that the operation be performed in centers with an annual volume of at least 20. In the mitral realm, Bolling and colleagues³ first reported that the median number of mitral valve operations per surgeon per year was 5, and high volume independently predicted repair. Chikwe and colleagues⁴ subsequently showed a median annual mitral repair volume of 10 per surgeon in New York State, finding that repair rates were associated with annual volume and that durability and survival were additional benefits with a threshold of 25 cases per year.⁴

What is the disparity between the Mayo Clinic and the national practice for SM? This is an important question as we face the need for surgeon allocation. In a study of the US Nationwide Inpatient Database (a 20% stratified sample of all nonfederal US hospitals), the median number of SM cases per institution per year was 1.0. Sixty percent of institutions performed 10 or less SMs per year, and only 4

institutions performed a full 36% of all SMs.⁵ The lowest tertile of SM volume was an independent predictor of in-hospital all-cause mortality (adjusted odds ratio, 3.11) and bleeding (odds ratio, 3.77). In contrast, adverse events were not significantly higher in the lowest tertile of alcohol septal ablation.

Extrapolation of the figures from the US Nationwide Inpatient Database suggests that nationally, there are several thousand SMs per year. However, the finding that many institutions are low volume for SM means that it is difficult to also extrapolate Nguyen and colleagues' findings¹ to all patients who are eligible for HCM treatment. The dilemma raised is that although data support performing SM at high-volume centers, the small number of such centers limits the dissemination of experience with this highly specialized operation. That outcomes for alcohol septal ablation do not vary by center volume may risk furthering the "accelerated enthusiasm for ablation," which was raised as a concern by the American College of Cardiology/European Society of Cardiology writing committee.¹ The committee noted the recent high volume of septal ablation relative to SM, that SM frequency was decreasing, and that the relative short-term periprocedural ease of ablation was a potential temptation to relax the criteria for intervention. Center volume aside, septal ablation is not in every circumstance an equivalent alternative to SM. We know

that septal ablation is of uncertain effectiveness when septal thickness is greater than 30 mm.⁶ Creation of a substrate for lethal re-entrant arrhythmias as a consequence of alcohol ablation also has been cited, although this is a theoretical concern that needs further data.¹

On the other hand, it is our duty to establish benchmark data including gradient reduction and permanent pacemaker rate, and the duty of any center willing to perform them to live up to that standard. In an environment where patient-reported outcomes are increasingly important, variables including quality of life and return to work also should be examined. To protect against the slippery slope of alcohol septal ablation as first-line therapy, adequate SM surgeons must be trained and available as part of a comprehensive HOCM program. How can this be achieved? The concept of “supersubspecialization” has recently been introduced by the Society of Thoracic Surgeons.⁷ Those who are experts in SM have proposed mentorship, including possible formal fellowships.⁸ These moves will not only preserve but also disseminate the surgical expertise and wisdom to future surgeons such that the best option remains viable for patients.

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