well for all patients in need of septal myectomy regardless of ZIP code.

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Commentary: Surgery of hypertrophic cardiomyopathy: Focus really does matter

Jason J. Han, MD, Mark R. Helmers, MD, and Pavan Atluri, MD

Transaortic septal myectomy is indicated for patients with obstructive hypertrophic cardiomyopathy (HCM) that is refractory to conservative treatment options. High-volume centers have reported excellent long-term outcomes, with operative mortality of less than 1%.^{1,2} However, as with most specialized procedures, significant variance in outcomes has been observed, with estimated mortality as high as 5% in national studies.³ In this issue of the *Journal*, Calderon-Rojas and colleagues⁴ explore the potential source of this variance at their tertiary institution: referral bias.

Bias is a systematic error that can falsely estimate an effect. Referral bias denotes a difference among patients who are referred to specialized centers from those in the general, local population. The authors share their

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Jason J. Han, MD (right), and Pavan Atluri, MD (left)

CENTRAL MESSAGE

While differences in comorbidities may exist between patients who travel short and long distances for septal myectomy, outcomes remain superb at centers of excellence.

extensive institutional experience conducting transaortic septal myectomy with an overall cohort greater than 2000 patients, who were divided into 3 groups based on their residence: local (Minnesota), regional (5 surrounding states), or national (remaining states). As expected, referral bias was found, as these groups had several statistically significant, albeit subtle, differences in characteristics. Local patients carried a greater prevalence of comorbidities such as diabetes, atrial fibrillation, and coronary artery disease. Similarly, the rates of concomitant mitral valve surgery and coronary artery bypass grafting performed for concomitant native cardiac diseases were about 50% greater among local and regional patients than among national patients. In contrast, nationally referred patients were generally healthier and more likely to have undergone a failed septal ablation.

Perhaps most important, despite these differences, both operative and long-term mortality were excellent and comparable across all 3 cohorts. Ten-year survival was 86%, promising excellent surgical outcomes among patients with refractory HCM. Although the authors fail to demonstrate variance in outcomes based on referral bias, their consistently excellent outcomes imply that perhaps having centers of excellence is the more, if not the most, important factor.^{5,6} This has important implications for the way we think about and approach the goal of reducing variance in patient outcomes, as we continue to discover evidence that volume and experience are paramount to delivering high-quality care, especially regarding nuanced disease processes requiring multidisciplinary management such as obstructive HCM. We also need to think about patients who may lack access to referrals to tertiary centers.

Overall, the authors deserve our congratulations for contributing their extensive and valuable experience in performing septal myectomy and concomitant valvular or

coronary operations. Very few interventions can restore patients back to a normal life expectancy, and that is something to be celebrated, biased or not.

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