A real-world experience: Really?

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Central Message

Compared with many high-volume centers (greater than 20 thoracoabdominal aortic aneurysm repairs per year), most hospitals are very low volume, with significantly higher mortality and morbidity.

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The report by Mkalaluh and colleagues¹ in this issue of the *Journal* presents data on thoracoabdominal aortic aneurysm repair as a “contemporary collective” of patients undergoing open surgical repair in a non-high volume center, with mortality and morbidity “comparable to high-volume centers.” As a believer in the volume-outcome relationship, I found this surprising, especially for such a complex procedure with such high associated morbidity. Surgical outcomes for 38 patients during a 10-year interval were reported. By comparison, Coselli and coworkers² in Texas presented a study cohort of 3346 patients who underwent open TAAA repair during a 29-year period. Admittedly, Coselli and coworkers² set a high bar, but there are multiple centers with annual volumes larger than 15 to 20 patients.

In their article, Mkalaluh and colleagues¹ report an overall surgical mortality of 10.5% for the entire cohort. That cohort included, however, 18 patients with connective tissue disorders and 20 without such disorders. For purposes of comparison, let us assume that patients with connective tissue disorders were younger than 50 years. Their mortality was 0%. These are not atypical results, because these patients are younger, with far fewer comorbidities. For patients who did not have connective tissue disorders, and were likely older than 50 years, mortality was 20% (4/20). For the Texas patients,² mortality for patients younger than 50 years was 3.25%, versus 8.2% for those older than 50 years. Although the Heidelberg data¹ are certainly confounded by small numbers (the Achilles’ heel of statistical comparisons), I suspect that this represents a real difference. Similarly, length of hospital stay differed greatly, at 21.5 days (16-35 days) in the study of Mkalaluh and colleagues¹ versus 12 days (9-17 days) in the study of Coselli and coworkers,² although intensive care unit stays did not, at 3.5 days (2.3-21.5 days) versus 4 days (3-7 days), respectively.

Perhaps more importantly, does this in fact represent a real-world experience? In a recent article³ describing TAAA repairs in the state of California performed between 1995 and 2010, 122 hospitals performed only

1188 such procedures, or about 10 procedures per hospital during the 15-year period. Only 5 hospitals received a classification of high volume, defined as having performed 9 or more TAAA repairs in any single year. Overall mortality was 23.9%, which I think does, in fact, represent a real-world experience, with too many small hospitals performing large, complex operations for which they are ill-equipped. Compare a mortality of 8.2% for Cambria and associates⁴ in 445 TAAA repairs during a 19-year span and Coselli and colleagues’ report⁵ with a mortality of 4.8% in 1220 TAAA repairs during 12 years versus a nationwide average of 20.3%.⁶ These results seem to support the volume-outcome relationship. This is even more concerning considering new 4 branch endografts are soon to hit the market, which will surely reduce further the volume of open surgical repairs. Would we not be better served by creating regional centers with dedicated hospital resources, processes, and perioperative support for these infrequent and highly complex procedures?

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