Effects of hospital volume and aortic segments on in-hospital mortality for patients with thoracic aortic disease (TAD) in England

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Objectives

Optimal service configuration for management of patients with TAD has not been defined. Across centers and regions a wide variation of outcomes were reported, and recent evidences recommend that TAD patients may benefit from high-volume surgical centers with focused multidisciplinary expertise in thoracic aortic surgery. Using national data, the present study aims to identify if is the hospital-volume or the distal aortic segment influencing the outcomes of patients treated because of TAD.

Methods

Prospectively collected data were extracted from NICOR database for all adult thoracic aortic procedures performed in England between 2007 and 2013. We examined the in-hospital mortality and assessed the relationship between volume (terciles of total performed cases) and treated aortic segments (root/ascending aorta vs aortic arch vs descending thoracic aorta vs thoraco-abdominal aorta [TAAA]) to operative outcomes.

Results

A total of 8058 patients affected by TAD were identified: aneurysms (54.9%) and dissections (22.6%) the most common pathologies. Root/ascending procedures were accomplished in 85% of the cases, aortic arch in 9.5%, descending aorta in 4%, and TAAA in 1.5%. Over the study period, low-volume centers performed 893 cases, medium-volume (MV) 2283, and high-volume (HV) 4882. At multivariate level, in-hospital mortality was significantly influenced by the distal aortic segment only, but not by hospital volume activity (HV and MV centers: OR 0.85, 95%CI 0.65-1.11; and OR 0.89, 0.66-1.18).

Conclusion

Hospital volume does not influence in-hospital mortality. Concentrating surgery for the most distal aortic segments in specific centers is a strategy to reduce operative mortality.