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Predictors of Mortality after Endovascular Repair of the Thoracic Descending Aorta — The Preliminary New Zealand Experience

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As the mortality rates associated with open surgery for thoracic aortic aneurysms and type B aortic dissection are within the range of 5-20% and 6-67%, endovascular technology has been developed as a minimally invasive alternative treatment. Such techniques avoid the need for thoracotomy, aortic cross-clamping, and left-sided heart bypass, and are associated with shorter operative times and hospital stays.[1,2] The incidence of spinal cord ischaemia and paraplegia has been consistently low after endovascular repair of thoracic aneurysms. The latter includes patients in whom long aortic segments and the "danger zone" (T9-L1), that usually gives the origin to the anterior spinal artery, have been covered by the endograft.[1,2]

In this issue of the *Journal*, Day and Buckenham[3] aimed at identifying a scoring system that could predict 30-day mortality in patients undergoing thoracic aortic stenting. They performed a retrospective analysis of the New Zealand thoracic aortic stent database and used the Society of Thoracic Surgeons (STS) risk score[4] and the Glasgow Aneurysm Score (GAS)[5] as risk scoring systems. Among 122 patients that who underwent thoracic aortic stenting in a six-year period (2001-2007), 30-day mortality was 7.4%. These results compare favourably with the 9.3% mortality reported for the combined experience from the EUROSTAR and the United Kingdom Thoracic Endograft registries.[1] Mortality was significantly higher in type B dissection (18%) than in elective aneurysm (2%) and in trauma (0%). Although mortality increased with increasing GAS, this did not reach statistical significance. Furthermore, no independent risk factors were identified from the STS risk score data.

The STS risk score,[4] developed for patients undergoing coronary artery bypass grafting, requires collection of data, such as left ventricular ejection fraction, that are not necessarily available in patients undergoing thoracic aortic stenting, as the authors correctly pointed out.[3] Another limitation of this study is the small number of deaths, impairing any meaningful analysis with regard to risk stratification. However, the authors, and physicians from centres across the globe, should be encouraged to pursue the objective of developing risk stratification models predicting mortality after procedures such as thoracic aortic stenting.

Indeed, as there is a significant variation in patients' risk profile, it is not appropriate to assess the quality of care by measuring crude procedural mortality alone. Comparisons of operative mortality rates among centres are meaningless without risk adjustments derived from casemix. In the United States, in the interest of consumer education, the publication of mortality data in newspapers and other media sources under the guise of allowing the consumers to make a better choice has resulted in denial of surgery to high-risk patients. If the medical community is unprepared, a similar situation could happen in Europe in the near future.

Preoperative risk stratification models are useful tools to compare quality in different centres. Data collection and risk stratification are of paramount importance for proper quality assessment and outcome improvement in vascular surgery. They should be an integral part of the surgical practice, being as essential to the physician as the knowledge of anatomy and techniques. However, physicians should bear in mind that, when using predictive models at the bedside to provide the patient with an estimate of surgical risk, the calculations are based on population statistics. It should also be underlined that risk stratification models score the risks of care, but not the quality of care.

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