Outcomes after endovascular or open repair for degenerative descending thoracic aortic aneurysm using linked hospital data

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BACKGROUND
The population-based effectiveness of thoracic endovascular aortic repair (TEVAR) versus open surgery for descending thoracic aortic aneurysm remains in doubt.

METHODS
Patients aged over 50 years, without a history of aortic dissection, undergoing repair of a thoracic aortic aneurysm between 2006 and 2011 were assessed using mortality-linked individual patient data from Hospital Episode Statistics (England). The principal outcomes were 30-day operative mortality, long-term survival (5 years) and aortic-related reinterventions. TEVAR and open repair were compared using crude and multivariable models that adjusted for age and sex.

RESULTS
Overall, 759 patients underwent thoracic aortic aneurysm repair, mainly for intact aneurysms (618, 81·4 per cent). Median ages of TEVAR and open cohorts were 73 and 71 years respectively (P < 0·001), with more men undergoing TEVAR (P = 0·004). For intact aneurysms, the operative mortality rate was similar for TEVAR and open repair (6·5 versus 7·6 per cent; odds ratio 0·79, 95 per cent confidence interval (c.i.) 0·41 to 1·49), but the 5-year survival rate was significantly worse after TEVAR (54·2 versus 65·6 per cent; adjusted hazard ratio 1·45, 95 per cent c.i. 1·08 to 1·94). After 5 years, aortic-related mortality was similar in the two groups, but cardiopulmonary mortality was higher after TEVAR. TEVAR was associated with more aortic-related reinterventions (23·1 versus 14·3 per cent; adjusted HR 1·70, 95 per cent c.i. 1·11 to 2·60). There were 141 procedures for ruptured thoracic aneurysm (97 TEVAR, 44 open), with TEVAR showing no significant advantage in terms of operative mortality.

CONCLUSION
In England, operative mortality for degenerative descending thoracic aneurysm was similar after either TEVAR or open repair. Patients who had TEVAR appeared to have a higher reintervention rate and worse long-term survival,
possibly owing to cardiopulmonary morbidity and other selection bias.

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