TRENDS IN INCIDENCE OF THORACIC AORTIC ANEURYSM REPAIR AND AORTIC DISSECTION: 2005-2015

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BACKGROUND
• Acute aortic dissection (AAD) is associated with high morbidity, mortality and cost.1
• Screening and detection of thoracic aortic aneurysm (TAA) is increasing,2 but increased TAA repair has not resulted in decreased incidence of operations for type A aortic dissection (TAAD).3
• Whether increased TAA repair results in a population-level decrease in dissection-related mortality is unknown. Our centralized provincial model for cardiac care allows for trend analysis of thoracic aortic disease incidence over time.

Purpose: To examine trends in incidence of proximal TAA repair, aortic dissection events, TAAD repair, and dissection-related mortality.

METHODS
• Design: Retrospective cohort study
• Population: All patients with thoracic aortic disease in our province from 2005-2015
  • Elective TAA repair via institutional registry data
  • Acute TAAD repair via institutional registry data
  • AAD via administrative data using International Classification of Diseases Version 10 coding for thoracic aortic dissection (I71.0)
  • Cases were linked using medical services insurance number and duplicates were excluded
• Elective TAA repair rates calculated based on cases of ascending TAA repair, either in isolation or combination with other procedures
• Overall rate of aortic dissection calculated using combined rate of TAAD repair, admission for AAD, and any mortality with dissection as underlying cause of death
• Dissection-related mortality calculated based on vital statistics
• Statistical Analysis
  • Age-adjusted incidences of TAA repair, AAD, TAAD repair, and dissection-related mortality were calculated based on the 2012 Canadian standard population
  • Trends over time analysed using weighted linear regression

RESULTS
Incidence TAA repair
• 382 cases, mean age 58.4 ±13.5, 23% females.
• Operative mortality 2.4%, no significant trend over time (p=0.59)
• Average age-adjusted incidence
  • 3.5 (95% CI 3.2-3.9) per 100,000 overall
  • 5.6 (4.9-6.2) per 100,000 males, increasing over time (p=0.02)
  • 1.6 (1.3-1.9) per 100,000 females, no trend over time (p=0.10)

Incidence Aortic Dissection
• 345 cases, mean age 67.6 ±15.8, 39% female
• Incidence of AAD was 3.4 (3.1-3.8) per 100,000, stable over time (p=0.43)

Incidence TAAD Repair
• 85 (24%) of 345 AAD patients underwent TAAD repair
• Mean age 61.7 ±12.5, 22% female
• Operative mortality 15.3%, stable over time (p=0.37)
• Incidence 0.8 (0.6-1.0) per 100,000, increased over time (p=0.001)

Dissection-related mortality
• 182 (53%) of 345 AAD events
• Mean age 72.3 ±15.2 years, 45% female
• Incidence 1.8 (1.5-2.0) per 100,000, with a decreasing trend over time (p=0.02)
• Incidence 2.1 (1.7-2.5) per 100,000 males and 1.5 (1.1-1.8) per 100,000 females with no significant trend over time (p=0.40 and p=0.81, respectively)

REFERENCES