
Objective: Whether the evolution of screening and treatment guidelines for thoracic aortic disease translates to decreased dissection-related mortality is unknown. The purpose of this study was to examine trends in incidence of thoracic aortic aneurysm repair and aortic dissection in our province.

Methods: A retrospective cohort study of patients from 2005-2015 with thoracic aortic disease was conducted. Rates of elective thoracic aortic aneurysm repair and acute type A dissection repair were obtained from our institution's clinical registry. Patients admitted to hospital with aortic dissection who did not undergo surgery and those who died of an aortic dissection were identified through administrative data using International Classification of Diseases Version 10 (ICD-10) coding for thoracic aortic dissection (I71.0). The age-adjusted incidence of elective thoracic aortic aneurysm repair, overall rate of aortic dissection, type A aortic dissection repair, and dissection-related mortality was calculated for each sex based on Canadian census estimates and adjusted to the 2012 Canadian standard population. Weighted linear regression was performed to analyze trends in incidence over time.

Results: The average annual age-adjusted incidence of ascending aortic aneurysm surgery was 3.9 per 100,000 person-years (95% confidence interval [CI]: 3.5-4.3), with an increasing trend over time (p=0.03). The average incidence in males was 6.2 per 100,000 (95% CI: 5.9-6.5), whereas the average incidence in females was only 1.7 per 100,000 (95% CI: 1.5-1.9). The age-adjusted incidence in males increased over time (p=0.01), while there was no statistically significant trend over time (p=0.10) in females (Figure 1A).

With respect to the overall rate of aortic dissection, the average annual age-adjusted incidence was 3.4 per 100,000 (95% CI: 3.2-3.6), and did not increase or decrease in either males (p=0.67) or females (p=0.18) over time (Figure 1B). The average annual age-adjusted incidence of surgery for type A aortic dissection was 0.8 per 100,000 (95% CI: 0.7-1.0) and increased in both males (p=0.03) and females (p=0.04) over time (Figure 1C). The overall incidence of dissection-related mortality was 1.8 per 100,000 (95% CI: 1.6-1.9), and did not increase or decrease in either males (p=0.40) or females (p=0.81) over time (Figure 1D).

Conclusions: The age-adjusted incidence of thoracic aortic aneurysm repair is increasing in males but not females, but this has not resulted in an overall decrease in aortic dissection. The incidence of type A aortic dissection repair is increasing in both males and females, however this has not translated to a decrease in dissection-related mortality. Increased screening, particularly in the female population, may help increase elective repairs, blunt the rising trend in type A dissections repairs, and decrease dissection-related mortality.

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