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LARGER BODY SIZE IN EARLY ADULTHOOD INCREASES THE RISK FOR SURGERY, RUPTURE AND DISSECTION OF THE THORACIC AORTA.

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Background

Larger body size is associated with larger aortic diameter and larger aortic diameter is a risk factor for aortic dissection. How body size affects the risk of thoracic aortic disease is unknown. The aim of this study was to assess if body size in early adulthood impacts the risk of surgery, dissection and rupture of the thoracic aorta.

Methods

Swedish 18-years old men, who attended mandatory military conscription between 1969 and 1995 were included in the study. Body size at conscription was assessed in terms of height, weight, body surface area (BSA) and body mass index (BMI). A composite outcome of surgery of the ascending aorta, death from thoracic aortic aneurysms, rupture of the thoracic aorta and dissection of the aorta was constructed, using data from the Swedish inpatient register and the cause of death register. A cox regression analysis, adjusted for Marfan´s syndrome, bicuspid aortic valve, coronary artery by-pass surgery, diabetes mellitus at conscription, systolic and diastolic blood pressure at conscription, educational level, income and civil status, was performed.

Results

During a mean follow-up of 35 years (SD 8.3), the composite endpoint occurred in 3300 out of 1.4 million individuals. The adjusted hazard ratio for the highest versus lowest quartile was 1.87 (95% CI 1.70-2.07) for BSA, 1.55 (95% CI 1.41-1.71) for BMI, 1.58 (95% CI 1.43-1.73) for height, and 1.90 (95% CI 1.73-2.10) for weight. The results were robust in sensitivity analyses excluding surgery from the composite endpoint.

Conclusion

Larger body size in early adulthood is a risk factor for surgery, dissection, and rupture of the thoracic aorta. The results are consistent regardless if exploring body size as weight, height, BSA or BMI. Body size should be considered in clinical risk assessment.