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An obesity paradox based on the autopsy findings that show an inverse correlation between the body mass index and atherosclerosis of the aorta

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Content: Morbid obesity generally has been associated with higher morbidity and mortality for a variety of diseases. However, there are a number of exceptions to this, referred to as the "obesity paradox."

Objective: The purpose of the present study was to analyze incidence and severity of aortic atherosclerosis in the relationship to the body mass index.

Design: Analysis of autopsies from 2003–2014 has performed on decedents who were ≥18 years and who were morbidly obese (BMI>40). The control groups included consecutive autopsies performed between January 2013 and June 2014. Atherosclerosis was assessed using a semiquantitative scale ranging from 0 (none) to 3 (severe).

Participants: Autopsy data from 304 decedents were analyzed. 69 of those were morbidly obese (BMI >40), 88 were either class I or II obese (BMI 30–40), 129 were either overweight (BMI 25.0–29.9) or normal weight (BMI ≤24.9), and 18 were underweight (BMI <20).

Results: Decedents with mild atherosclerosis were significantly younger than those with severe disease (55.3 vs. 67.2, P<0.01). Decedents were stratified into two BMI groups (<40 and ≥40). There was a highly significant inverse relationship between the severity of aortic atherosclerosis and BMI (P=0.0025). With BMI increase, the probability of developing severe disease decreased (51.2% vs. 30.3%). 20 of 66 decedents (30.3%) with a BMI ≥40 had severe atherosclerosis vs. 122 of 238 decedents (51.2%) with BMIs <40. Hypertension increased the probability of having severe atherosclerosis (45% vs. 33.3%). After adjusting for other covariates, multivariate analysis revealed that decedents >60 years still were more likely to have severe atherosclerosis than those ≤60 years (49% vs. 34%, adjusted RR=1.48; 95% CI 1.1–2; P.0.0001). Decedents with BMI ≥40 were less likely to have severe aortic atherosclerosis than those with BMIs <40 (32% vs. 52%, adjusted RR=0.62; 95% CI: 0.4–0.8, P=0.018).

Conclusions &Relevance: Our data extend the previously described "obesity paradox" to morbidly obese decedents who also appeared to have some protection for developing aortic atherosclerosis. However, the mean age of death of decedents with BMIs >40 was 55.9 vs 63.2 years for those with BMI in the 20–30 range, confirming that morbid obesity was not associated with increase longevity.

Biography

Sergey Brodsky is currently an Associate professor in the Department of Pathology in The Ohio State University. He obtained his PhD in Renal and Transplant Pathology from The Ohio State University in 2008-2009. He is a memeber of The American Board of Pathology. He had More than twenty years practice in medical sciences and research with a hands-on experience in many experimental techniques. He has Thirteen years experience teaching medical students at universities and colleges.He is an Editorial board member for various journals. He published many articles in various reputed journals. He received Young Investigators Award from GlaxoSmithKline in 2002 and from American Transplant Congress in 2009.

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