Association of attention-deficit/hyperactivity disorder with all-cause and cardiovascular mortality in US adults

Guifeng Xu[1,2]

Research Mentor and other collaborators

Buyun Liu[1], Wenhan Yang[1,3], Linda G. Snetselaar[1], Lane Strathearn[2,4], James Torner[1]

[1]Department of Epidemiology, College of Public Health, University of Iowa, Iowa City, IA 52242, USA
[2]Center for Disabilities and Development, University of Iowa Stead Family Children's Hospital, Iowa City, IA 52242, USA
[3]Department of Maternal and Child Health, School of Public Health, Sun Yat-Sen University, Guangzhou 510080, China
[4]Division of Developmental and Behavioral Pediatrics, Stead Family Department of Pediatrics, University of Iowa Carver College of Medicine, Iowa City, IA 52242, USA

Objective:

Attention-deficit/hyperactivity disorder (ADHD), a childhood-onset neurodevelopmental disorder, usually persists into adulthood. Accumulating, although still limited, evidence suggests that individuals with ADHD have an increased risk of cardiovascular disease. This study aimed to examine the association of ADHD with all-cause and cardiovascular mortality in US adults.

Methods:

We included adults aged 20-79 years who participated in the National Health Interview Survey, a leading health survey of a nationally representative sample in the United States. In the 2007 and 2012 cycles, participants reported physician-diagnosed ADHD during an in-person household interview. Death and underlying causes of death were ascertained by linkage to death records through December 31, 2015. Cox proportional hazard model with survey sampling weights was used to estimate the hazard ratio (HR) and 95% confidence interval (CI) of mortality.

Results:

This analysis included 43,005 adults (weighted mean age 41.9 years; 45.1% males). Among them, 1395 participants reported a diagnosis of ADHD. During the follow up, 1208 deaths occurred including 160 deaths from cardiovascular disease. After adjustment for age, sex, race/ethnicity, education level, family income level, cigarette smoking, alcohol drinking, and physical activity, the HR of mortality comparing adults with ADHD versus those without ADHD was 1.35 (95% CI, 0.81-2.25) for all-cause mortality and 3.03 (95% CI, 1.05-8.80) for cardiovascular mortality. The associations were not appreciably changed after further adjustment for baseline body mass index, diabetes, hypertension, and high blood cholesterol; the adjusted HR was 1.34 (95% CI, 0.80-2.24) for all-cause mortality and 3.10 (95% CI, 1.07-8.99) for cardiovascular mortality.

Conclusions:

In a nationally representative sample of US adults, there was an association between history of ADHD and an increased risk of cardiovascular mortality. Further investigation is needed to replicate the findings and determine the underlying mechanisms.