Association Between Medication Use for Attention-Deficit/Hyperactivity Disorder and Risk of Motor Vehicle Crashes

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Abstract
Importance
Motor vehicle crashes (MVCs) are a major public health problem. Research has demonstrated that individuals with attention-deficit/hyperactivity disorder (ADHD) are more likely to experience MVCs, but the effect of ADHD medication treatment on the risk of MVCs remains unclear.

Objective
To explore associations between ADHD medication use and risk of MVCs in a large cohort of patients with ADHD.

Design, Setting, and Participants
For this study, a US national cohort of patients with ADHD (n = 2,319,450) was identified from commercial health insurance claims between January 1, 2005, and December 31, 2014, and followed up for emergency department visits for MVCs. The study used within-individual analyses to compare the risk of MVCs during months in which patients received ADHD medication with the risk of MVCs during months in which they did not receive ADHD medication.

Exposures
Dispensed prescription of ADHD medications.

Main Outcomes and Measures
Emergency department visits for MVCs.

Results
Among 2,319,450 patients identified with ADHD, the mean (SD) age was 32.5 (12.8) years, and 51.7% were female. In the within-individual analyses, male patients with ADHD had a 38% (odds ratio, 0.62; 95% CI, 0.56-0.67) lower risk of MVCs in months when receiving ADHD medication compared with months when not receiving medication, and female patients had a 42% (odds ratio, 0.58; 95% CI, 0.53-0.62) lower risk of MVCs in months when receiving ADHD medication. Similar reductions were found across all age groups, across multiple sensitivity analyses, and when considering the long-term association between ADHD medication use and MVCs. Estimates of the population-attributable fraction suggested that up to 22.1% of the MVCs in patients with ADHD could have been avoided if they had received medication during the entire follow-up.

Conclusions and Relevance
Among patients with ADHD, rates of MVCs were lower during periods when they received ADHD medication. Considering the high prevalence of ADHD and its association with MVCs, these findings warrant attention to this prevalent and preventable cause of mortality and morbidity.