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Medical Conditions and Relative - Driving Safety: A Recent Report

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Presented here is a recent paper dealing with the relative risk of motor vehicle crash safety and a variety of known medical conditions.¹ The authors' abstract is presented below, along with my commentary and food for thought.

Abstract

Most previous studies of medical conditions associated with driver safety have focused on specific diseases. This analysis is based on a linkage of police reports and hospital discharge data, and correlates various medical diagnostic categories and specific conditions with police determinations of driver culpability for all drivers admitted to Maryland hospitals during a three-year period. Using odds ratios, various conditions have been identified that are associated with an increased risk of crash culpability. Further research is needed to confirm these findings, and to determine the role of the conditions vs. the possible influence of medications prescribed to treat them.

Condition	Odds ratio
syncope	4.06
nephritis, nephrotic syndrome, nephrosis	3.15
alcohol dependence syndrome	2.63
cerebrovascular disease	1.94
COPD	1.38
anemias	1.34
disease of the urinary system	1.27
diabetes mellitus	1.26
dorsopathies	0.70
rheumatism	0.54

Commentary

There are a number of limitations to this study, although they should not be taken to necessarily diminish the importance or validity of the findings. Given the limitations of the data, the authors were not able to distinguish the differences between the effects of the diseases and those of the medications prescribed for them. Clearly, many patients are taking several medications simultaneously, and the effects of polypharmacy are even more difficult to account for. Polypharmacy is also more common among older drivers, who simultaneously suffer more from diminished sensory capacity (e.g., hearing and vision) and cognitive impairment than younger drivers. Limited ranges of cervical spine motion also inhibit the older driver's field of view and potential for visual vigilance in traffic.

Other potential confounders include having anemia and syncope, listed as conditions, since they may be associated with many other medical conditions. As for the condition called *dorsopathy*, your guess is as good as mine as to what exactly the authors were describing. This is not a term with which I am familiar, nor is it found in my medical dictionaries. It might indicate either dorsal column disease or thoracic spine conditions. Who knows? And *rheumatism*? Does this quaint term include osteoarthritis? It's pretty nonspecific. However, it seems the last two categories actually have a protective effect. In any case, the findings of the study are interesting and are presented below.

An odds ratio of 4.06, in the case of syncope, indicates that the likelihood of crashing when you suffer from that condition is four times greater than for those that don't have the condition. Conversely, an odds ratio of

less than one indicates a protective effect. It may be that people with arthropathies drive slower and more cautiously and are thus less likely to be involved in a crash. But there is an added potential confounder that the authors did not mention. Persons with more advanced forms of disease tend to be older; many will be retired. Older people tend to drive fewer miles per year than younger persons. Because of this, their overall exposure to crash risk is decreased. They also tend not to drive during rush hour traffic, whereas younger persons in the workforce have no choice but to drive in this traffic where the greatest proportion of crashes occurs.

Reference

1. Dischinger PC, Ho SM, Kufera JA. Medical conditions and car crashes. 44th Annual Proceedings of the Association for the Advancement of Automotive Medicine, Chicago, IL, Oct 2-4, 2000, 335-346.

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