PAPERS

Driver behaviour of ethanol-impaired non-vehicular trauma victims

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SUMMARY

During a recent 12-month period, a group of patients injured from causes other than road accidents were studied. Twenty-four patients with no evidence of alcohol impairment served as controls for another group of 24 patients with a blood alcohol concentration of >100 mg%. Examination of public records revealed that the alcohol-impaired group had committed more serious traffic violations, including reckless driving, crashes causing bodily injury, and property damage. Eleven of the 24 alcohol-impaired subjects had a total of 18 previous citations for driving under the influence of alcohol while there were none in the control group ($P < 0.001$). Alcohol-related non-vehicular trauma is highly predictive of alcohol-impaired driving behaviour.

INTRODUCTION

The cause-and-effect relationship between ethanol abuse and motor vehicle crashes is clear and incontrovertible (Perrine, 1976). Alcohol increases the likelihood of motor vehicle crashes and the severity of injuries incurred (Warren *et al.*, 1981). Many alcohol-related crashes are related to delayed and impaired reactions (Perrine, 1976). Others may be related to a general increase in aggressiveness noted after ingestion of alcohol (Mayfield, 1976). The disinhibition theory holds that humans possess natural aggressive tendencies held in check by social restraints. Alcohol releases these restraints, leading to the emergence of aggressive behaviour that may lead to altercations, foolhardy stunts and general risk-taking. This alcohol-related aggressive behaviour is largely represented behind the wheel as speeding, street racing and other circumstances collectively characterized as reckless driving.

Alcohol is also causally related to most other forms of trauma; including home accidents, falls, choking deaths, drownings, burns and assaults (Maull, 1982). The role of alcohol in suicide has long been recognized (Beck *et al.*, 1976).

This study was an attempt to determine if people who incurred alcohol-related non-vehicular injuries had a significantly higher number of serious traffic violations and, in particular, alcohol-related violations.

METHODS

During the 12-month period ending in July 1984, 30 patients were admitted to the University of Tennessee Hospital with blood alcohol concentrations exceeding 100 mg% and with injuries sustained from non-vehicular causes (Warren *et al.*, 1981). Data were incomplete on six patients, yielding 24 subjects in the study group (Table 1). There were 21 men and three women, ranging in age from 21 to 63 years. BAC ranged from 100 mg% to 320 mg%, with a mean BAC of 180 mg%. During the same period, 24 matched controls with injuries from non-vehicular causes were identified. Each control subject had either a negative BAC or negative alcohol history at the time of injury. Data on each subject were sent to the Governors Highway Safety Program with no identifying information as to whether the patient was in the alcohol-impaired or control groups.

RESULTS

Driver records were reviewed and data tabulated (Fig. 1). There was a greater number of crashes resulting in bodily injury and property damage among the alcohol-impaired group. Driving while unlicensed and reckless driving were also more common among the alcohol-impaired group. Crashes in which the driver was not at fault and other minor violations were more common among the control group. Overall, there were 48 violations among 24 alcohol-impaired trauma victims and 27 violations in the 24 control patients. While none of the controls had previous citations for driving under the influence of alcohol (DUI), 11 members of the alcohol-impaired group had previous DUI arrests. Among this group, there were 18 DUI citations (Fig. 2). This difference was statistically significant ($P < 0.001$). In ten instances, the BAC exceeded 200 mg %.

Table Aetiology of injuries in study group and controls

	Study group	Controls
Number of patients	24	24
Age range	21-63	19-57
Injuries:		
Falls	4	7
Burns	1	1
Drownings	3	6
Assaults	16	10

Fig. 1 Number and type of traffic violations in alcohol-impaired non-vehicular trauma victims (study group) and control group.

Fig. 2 Number of citations for driving under the influence of alcohol in group of impaired non-vehicular trauma victims compared to controls. Citations were distributed among eleven subjects.

DISCUSSION

Alcohol is the single most important contributory factor to injury and has been implicated in virtually all forms of trauma. This study was designed to determine whether alcohol-impaired patients injured in events entirely unrelated to road trauma could be expected to exhibit alcohol-related antisocial behaviour on the highway. The answer to this question is clearly affirmative and supports the contention that alcohol-related antisocial behaviour extends to many social situations.

In 1984, Maull *et al.* prospectively studied a group of 56 alcohol-impaired drivers injured seriously enough to warrant hospitalization. They showed that, despite a high level of suspicion of alcohol involvement by the investigating officer at the scene, none of these alcohol-impaired drivers (mean BAC: 230 mg %) were convicted of DUI. They concluded that injury protects the alcohol-impaired driver from appropriate law enforcement and allows the patient to return to the motorways without sanction or interdiction.

The current study identifies yet another alcohol-impaired group likely to present an ongoing threat to society. This study has shown that alcohol-impaired trauma victims, regardless of the aetiology of their injuries, are more likely to drive while drunk, drive recklessly, and cause crashes resulting in bodily injury and property damage.

Any future efforts to reduce the number of drunk drivers need not be confined to alcohol-impaired individuals sustaining injuries in motor vehicle crashes but can be extended to alcohol-impaired trauma victims from all other causes as well.

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