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Traffic and drowning incidents with emphasis on the presence of alcohol and drugs

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Akademisk avhandling

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Abstract
Worldwide, fatal traffic injuries and drowning deaths are important problems. The aim of this thesis was to investigate the circumstances of fatal and non-fatal traffic injuries and drowning deaths in Sweden including analysis of the presence of alcohol and drugs, which are considered to be major risk factors for these events. Data where obtained from the database of National Board of Forensic Medicine.

In the first study, we investigated 420 passenger deaths from 372 crashes during 1993-1996. There were 594 drivers involved. In total, 21% of the drivers at fault were alcohol positive compared to 2% of drivers not at fault ($p<0.001$) (Paper I). During 2004-2007, crashes involving 56 fatally and 144 non-fatally injured drivers were investigated in a prospective study from Northern Sweden (Paper II). The drivers were alcohol positive in 38% and 21%, respectively. Psychoactive drugs were found in 7% and 13%, respectively. Benzodiazepines, opiates and antidepressants were the most frequent drugs found in drivers. Illicit drugs were found 9% and 4% respectively, with tetrahydrocannabinol being the most frequent of these drugs (Paper II).

We investigated 5,125 drowning deaths in Sweden during 1992-2009 (Paper III). The incidence decreased on average by about 2% each year ($p<0.001$). Unintentional drowning was most common (50%). Alcohol was found in 44% of unintentional, 24% of intentional, and 45% of undetermined drowning deaths. Psychoactive substances were detected in 40% and benzodiazepines were the most common substance. Illicit drugs were detected in 10%. Of all drowning deaths, a significantly higher proportion females committed suicide compared with males (55% vs. 21%, $p<0.001$). Suicidal drowning deaths ($n = 129$) in Northern Sweden were studied further in detail (Paper IV). Of these, 53% had been hospitalized due to a psychiatric diagnosis within five years prior to the suicide. Affective and psychotic disorders were the most common psychiatric diagnoses. Almost one third had performed a previous suicide attempt. One fourth had committed suicide after less than one week of discharge from hospital. Alcohol was found in 16% and psychoactive drugs in 62% of these cases, respectively.

In conclusion, alcohol and psychoactive drugs are commonly detected among injured drivers and drowning victims, and probably play a role in these events. Most of the individuals that tested positive for alcohol had high blood concentrations, indicating alcohol dependence or abuse. This association warrants further attention when planning future prevention.

Keywords
Traffic incidents, drivers, passenger, drowning, alcohol, pharmaceuptical, illicit drugs, suicidal drowning, mental disorder

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