Psychoactive substances in seriously injured drivers in Denmark - DTU Orbit (06/10/2019)

Psychoactive substances in seriously injured drivers in Denmark

This study assesses the presence of a number of psychoactive substances, including alcohol, based on blood samples from 840 seriously injured drivers admitted to five selected hospitals located in five different regions of Denmark. The study was a part of the EU 6th framework program DRUID (Driving Under the Influence of Drugs, Alcohol and Medicines). Blood samples were screened for 30 illegal and legal psychoactive substances and metabolites as well as ethanol. Danish legal limits were used to evaluate the frequency of drivers violating the Danish legislation while limit of quantification (LOQ) was used for monitoring positive drivers. Tramadol is not included in the Danish legislation therefore the general cut off, as decided in the DRUID project was used. Overall, ethanol (18%) was the most frequently identified compound (alone or in combination with other drugs) exceeding the legal limit, which is 0.53 g/l in Denmark. The percentage of seriously injured drivers testing positive for medicinal drugs at levels above the Danish legal limit was 6.8%. Benzodiazepines and Z-drugs (6.4%) comprised the majority of this group. One or more illegal drugs (primarily amphetamines and cannabis) were found to be above the Danish legal limit in 4.9% of injured drivers. Young men (median age 31 years) were over-represented among injured drivers who violated Danish law for alcohol and drugs. Diazepam (4.4%), tramadol (3.2%), and clonazepam (3.0%) were the medicinal drugs most frequently detected at levels above LOQ, whereas amphetamines (5.4%) (amphetamine [5.2%] and methamphetamine [1.5%]), tetrahydrocannabinol (3.7%), and cocaine (3.3%), including the metabolite benzoylecgonine, were the most frequently detected illegal drugs. A driver could be positive for more than one substance; therefore, percentages are not mutually exclusive. Poly-drug use was observed in 112 (13%) seriously injured drivers. Tramadol was detected above DRUID cutoffs in 2.1% of seriously injured drivers. This is 3.5 times that observed in a Danish survey of randomly selected drivers. Moreover, illegal and medicinal drug levels above the Danish legal limit were present more than 10 times as frequently as in injured drivers, whereas ethanol was present more than 30 times as frequently than in randomly selected drivers. The results indicate that there is an increased risk in traffic when driving under the influence of psychoactive drugs, especially alcohol in young male drivers.

General information
Publication status: Published
Organisations: Department of Transport, Traffic modelling and planning, University of Copenhagen
Pages: 44-50
Publication date: Jan 2013
Peer-reviewed: Yes

Publication information
Journal: Forensic Science International
Volume: 224
Issue number: 1-3
ISSN (Print): 0379-0738
Ratings:
BFI (2013): BFI-level 2
Scopus rating (2013): CiteScore 2.41 SJR 1.312 SNIP 1.555
Web of Science (2013): Impact factor 2.115
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
Original language: English
Keywords: Drugged and drunk driving, Injured drivers, Alcohol, Illicit drugs, Medical drugs
DOIs:
10.1016/j.forsciint.2012.10.025
Source: dtu
Source ID: u::4090
Research output: Contribution to journal › Journal article – Annual report year: 2012 › Research › peer-review