Methadone and Impairment in Apprehended Drivers

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OBJECTIVE: Methadone is a potent opioid receptor agonist used in the treatment of opioid dependence. Approximately 4,000 patients enrolled in rehabilitation programs for heroin addiction, in Norway, received methadone by the end of 2006. In addition, illegal misuse of methadone, although of unknown magnitude, is a well-known problem. According to Norwegian guidelines, patients who are in rehabilitation programs are permitted to drive a motor vehicle provided, firstly, that they have been stabilised on a fixed dose of methadone for a period of at least 6 months, secondly, that the treating doctor finds them fit, and thirdly, that no other drugs are used. The purpose of this study was to investigate apprehended drivers who had; 1) methadone as the only drug in their blood at the time of apprehension, 2) methadone in the presence of other psychoactive drugs in their blood at the time of apprehension. Lastly, it was also desirable to study the relationship between blood methadone concentration and impairment as measured by clinical test for impairment (CTI).

METHODS: The division of Forensic Toxicology and Drug Abuse (DFTDA) at the Norwegian Institute of Public Heath analyses blood samples from all drivers suspected of driving under the influence of drugs. Cases with positive results for methadone in blood were collected over the period 2000 to 2006.

RESULTS: 666 cases of drugged driving with methadone were identified from a total of approximately 55,000 for the period 2000 to 2006. The majority of drivers were men (> 80%), aged between 30 and 40 years. No significant difference in methadone concentration was found for sex. Methadone was the only psychoactive drug detected in blood in only 11 cases. A statistically significant (p < 0.01) difference in blood methadone concentration was found between cases where only methadone was detected (median 0.46 mg/L (range 0.19 - 0.65)), and cases where methadone was detected in combination with other psychoactive drugs (median 0.28 mg/L (range 0.06 - 0.24)). CTI was carried out in 613 of the cases. Interestingly, a concentration-impairment relationship was not seen for these cases. Approximately 90% of cases had at least one benzodiazepine present in blood (most commonly flunitrazepam), while the most frequently observed other substances were amphetamine (in 189 cases), ∆9-tetrahydrocannabinol (THC, in 191 cases) and morphine (in 163 cases), in descending order.

CONCLUSIONS: Cases of driving impairment involving methadone alone were very rare (only 11 over a 6 year period), while methadone in combination with other drugs was more common; in descending order of frequency, benzodiazepines (flunitrazepam, diazepam, clonazepam etc.), amphetamine, THC and morphine. No relationship between methadone concentration and impairment as judged by CTI was seen for either methadone-only cases, although these were very few, or cases involving methadone and other psychoactive drugs.

Keywords: Methadone, Driving, Impairment