K31 Methadone and Impaired Driving

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After attending this presentation, attendees will learn about the growth in the incidence of methadone in death investigation and impaired driving casework and some of the considerations in presenting methadone evidence in court.

This presentation will impact the forensic community and/or humanity by demonstrating how methadone is increasingly encountered in the forensic toxicology community and in the population of drivers arrested for DUI drugs. The relevant literature has few references to methadone-impaired driving and this data will be valuable to practitioners encountering the methadone-impaired driver.

The Washington State Toxicology Laboratory performs analysis in death investigation and criminal cases. It has previously reported an increased incidence of methadone[1] in casework, and the rise in both the number of methadone positive cases and the overall percentage of cases received has continued. In 1993, the laboratory reported 20 positive methadone cases which represented less than 0.5% of the casework. In 2005, this had risen to 640 methadone positive cases representing 6.7% of all cases received. Of these, 237 were drivers arrested for investigation of Driving Under the Influence (DUI). These increases are due in part to an increased use of methadone prescriptions for chronic pain management. Laboratory staff are often asked to evaluate the role of methadone in impaired drivers, which is often complicated by polypharmacy. This report will review the demographics, performance and behavior, and toxicology findings in a series of drivers arrested under investigation of DUI.

There are reports in the literature suggesting that methadone does not cause impairment among patients on a stabilized methadone dose[2]. Baselt states, "narcotic–tolerant subjects can be stabilized on methadone replacement therapy with few subjective or objective effects on performance"[3]. The current study was undertaken to evaluate the role of methadone in impaired drivers. Toxicology reports of methadone positive drivers arrested for DUI from 2000 through 2005 were reviewed. There were 629 subjects, 62% of whom were males, mean and median age of 41 and 42, respectively with a mean and median methadone concentration of 0.21 and 0.15 mg/L. Methadone was rarely the only significant finding in these cases; approximately 98% of drivers are positive for at least one other psychoactive substance besides methadone, which is comparable to a rate of 92% in post-mortem cases. This group included 32 cases where methadone was the only psychoactive drug present in the suspect and where the subject was evaluated by a Drug Recognition Expert (DRE). Of this group, 75% were males, mean and median age was 40 and 42 respectively, and the mean and median methadone concentrations were 0.26 and 0.27 mg/L. Forty-two per cent were involved in a collision and 45% were stopped for erratic lane travel. A third of the erratic drivers were weaving so severely, that cell phone callers notified police of the potential DUI. The collisions most often involved striking parked vehicles, in one case the driver, while attempting to park drove up onto a curb, "deep-trunked" a parked vehicle, backed up and drove over the curb again.

The observations made on these subjects were compared with the signs and symptoms associated with narcotic analgesics from the DRE examination. Pupil sizes were consistently constricted in room light, near darkness, and in direct lighting conditions; there was little to no reaction to light and muscle tone was described as flaccid. These observations were consistent with the DRE matrix. Blood pressure and pulse rate varied widely, while the DRE matrix predicts that they would both be below the normal range. On the psychophysical tests, the subjects averaged 5/8 on the walk and turn, 3/4 on the one leg stand and 2" of sway on the Romberg balance. Time estimate was not a consistent marker for methadone impairment but they generally performed poorly on the modified finger to nose test. Approximately half of the subjects had slurred speech and 75% were described as having droopy eyelids.

In one case, a 35-year-old male collided with another vehicle in the same lane of travel. When officers arrived at the scene, the subject was seated in his vehicle and appeared to be "nodding off." The subject voluntarily performed the standard field sobriety tests for the responding officer after which a DRE officer was called to the scene. The DRE officer noted that the subject had slurred speech, watery eyes, and droopy eyelids. He continued to "nod off" during his transport to the local precinct. He also repeatedly asked the same questions of the officer throughout the evaluation, without recognizing that he asked the same questions previously. On the Romberg balance he exhibited 2 to 3 inches of sway and he asked to repeat the test 3 times with his 30 second time estimates being 36, 45 10 and 76 seconds, respectively. He exhibited 6/8 clues on the Walk and Turn with his legs shaking throughout the test. His legs also shook on the One Leg Stand and he exhibited 3/4 clues. He only had one correct touch (of six attempts) on the Modified Finger to Nose. He did not exhibit Horizontal Gaze Nystagmus (HGN),

Vertical Gaze Nystagmus (VGN), or a lack of convergence. His pupil sizes were 2.5 mm in room light (within normal range); 3.0 mm in darkness (below normal range) and 2 mm in direct light (within normal range) and he showed very little reaction to light. His pulse rate was elevated (100, 108 and 106) and his blood pressure was elevated 172/90. His muscle tone was described as rigid. He admitted to 30 mg of Methadone for chronic pain approximately 3.5 hours before the collision. The subject was arrested for DUI-drugs and his blood toxicology report was positive for methadone, at 0.27 mg/L, EDDP - methadone metabolite, nicotine, and caffeine.

Seventy-eight per cent of these subjects admitted to methadone use, with 31% indicating they were participants in an Opiate Treatment Program (OTP) and 34% indicating they were taking methadone for chronic pain treatment.

The data support the position that methadone can impair driving both for subjects in opiate treatment programs and for patients receiving it for treatment of chronic pain, and provide some parameters for comparison without complication of co-ingestion from other impairing drugs.

References:

1 A.M. Gordon, S Loew, B.K. Logan. Methadone Concentrations and Concurrent Drug Findings in Three Populations: Methadone Treatment Patients, Impaired Drivers and Death Investigation Cases. AAFS February 2004, Dallas, TX.

2 H. Moskowitz and CD Robinson. Methadone Maintenance and Tracking Performance. In *Alcohol Drugs and Traffic Safety* (S. Kaye and G.W. Meier, eds.) National Highway Safety administration, U.S. Dept of Transportation, DOT HS 806-814, 1985 995-1004.

3 Baselt, R. C. Drug Effects on Psychomotor Performance. Methadone 241-43. 2001.

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