



K30 Dissociative Driving: Ketamine DUI Fatality Case Study

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After attending this presentation, attendees will understand the pharmacological effects of ketamine and how it may adversely affect driving tasks.

This presentation will impact the forensic community and/or humanity by demonstrating the adverse effects of ketamine on driving skills, motor performance, and behavior in an otherwise healthy individual.

Ketamine came into existence as a safer alternative to PCP. Even before PCP was withdrawn from the market due to its problematic adverse reactions in patients, pharmaceutical houses were looking for a safer alternative that would have less toxic behavioral effects. It was first synthesized in 1962 and patented in 1966 under the trade name Ketalar® and received FDA approval in 1970 as a general anesthetic. It is used as a short-acting induction anesthetic that provides a profound, rapid, dissociative anesthesia and a short recovery time. Low doses produce effects similar to PCP but doses in the anesthetic range (1mg/kg) produce experiences where the individual feels separated from his body, floating above his body and a near-death experience. This state, which users call the “K-hole,” can either be spiritually uplifting or terrifying (heaven or hell). Ketamine is a synthetic, sedative, non-barbiturate that acts as a central nervous system depressant and produces a rapid-acting dissociative effect. It is used in the recreational drug market by illegally diverting from legitimate suppliers, allowing the liquid carrier to evaporate. The crystals are scraped into a fine powder and packaged. The first reports of ketamine abuse occurred in the early 1970s in the San Francisco and Los Angeles areas.

In this case report, a 27-year-old Caucasian male was the driver and sole occupant of a luxury sedan driving on a dry and clear Arizona freeway at two thirty AM on an early February morning. He attempted to exit this freeway for an unknown reason; however, in doing so, he hit a traffic sign and then continued about 1100 feet until colliding head-on with a large steel sign post. The force of the collision caused the vehicle to rotate 180 degrees and caused very extensive front end damage with major intrusion into the cab area of the automobile. It was reported that the decedent was not wearing a seat belt and was not exceeding the posted 65 miles per hour speed limit.

A full autopsy was performed approximately 48 hours after death was pronounced and cause of death was determined to be massive blunt force trauma due to head and neck (fractured and dislocated) injuries. These included transection of the cervical spine, laceration of the pericardial sac, transection of the thoracic aorta, bilateral rib fractures, and contusions of all lobes of the lungs and multiple splenic lacerations. The manner of death was accident. During autopsy the assistant medical examiner collected pleural blood, bile, vitreous and gastric contents for complete toxicological testing. Vitreous and blood were analyzed for volatiles by GC-FID while the pleural blood was assayed by ELISA for benzodiazepines, barbiturates, benzoylecgonine, opiates, and methamphetamine with negative results. The blood and bile specimens were subjected to a qualitative analysis for basic drugs, and ketamine and its metabolites were confirmed by GC/MS using electron impact ionization. Quantitation of the ketamine was performed on the pleural blood with the result being 1.5 mg/L of parent compound. Further quantitative testing of all tissues submitted will also be presented.

A presentation of this case study will contribute to establishing guidelines on potential impairment concentrations of ketamine as it relates to DUI cases. Although this case demonstrates only anecdotal evidence for DUI impairment, it clearly demonstrates the adverse effects of ketamine on driving skills.

Ketamine, DUI, Fatality