

GC/MS analysis of ketamine in urine of sexual assault victims

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AIMS: Ketamine is marketed as an anaesthetic for human and veterinary use. Structurally and pharmacologically similar to phencyclidine, ketamine produces dissociative anaesthesia with occasional hallucinogenic side effects. Consequently, ketamine has reportedly received attention as a drug of abuse, especially in the area of drug facilitated sexual assault. The aim of this study was to develop an analytical method for detecting the presence of ketamine and its metabolites in urine.

METHODS: Ketamine is believed to be metabolised to at least two major metabolites: nor-ketamine and dehydronorketamine (DNK). Ketamine and its metabolites are extracted from urine using a solid phase extraction (SPE) method on a mixed mode (C8/SCX) cartridge and analysed by GC/MS in narrow mass range SCAN mode. D4-Ketamine and D4-norketamine are used as internal standards.

RESULTS AND CONCLUSIONS: The combination of SPE and GC/MS provide a rapid and effective analytical tool for urinary detection of ketamine and its metabolites. The detection limit of this assay was found at <5ng/mL and the total run time at 30min starting from SPE extraction to the completion of GC/MS analysis. Two positive specimens have been found out of ~100 tested in the last 2 years. Ketamine analysis becomes part of our routine drug screening programs at Toxicology Unit, PaLMS, Northern Sydney Central Coast Area Health, NSW, Australia for victims of sexual assault.

KEYWORDS: *Ketamine, Drug facilitated sexual assault*

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