



K8 Purity of Street Ketamine Preparations Retrieved From Night Club Amnesty Bins in London

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The goals of this presentation are to describe the analysis of street ketamine in order to determine the purity of samples commonly available and to identify what impurities might be present.

This presentation will impact the forensic science community by showing how the majority of street ketamine samples analyzed were of high percentage purity suggesting that ketamine may be responsible for effects on the urogenital system. This also supports the observation that a number of patients undergoing clinical therapy with ketamine have reported similar symptoms.

Introduction: Ketamine has been widely used in medicine and veterinary practice for its anesthetic and analgesic properties linked with minimal respiratory depression. More recently the drug has gained popularity as a recreational substance amongst young people. Street prices of the drug vary between £10 and £20 per gram in the UK. The UK club magazine Mixmag survey of its readers in 2009 shows 51% used ketamine in last year, 32% in last month and 18% use it weekly. 30% experienced stomach pains after taking ketamine and 20% experienced urinary tract problems (more in women). A number of reports have appeared in the medical literature suggesting a possible link between ketamine misuse and kidney and bladder disorders. The pathological cause of the bladder related problems is at present unknown and it is uncertain whether they are attributable to ketamine or to impurities that may be present in street preparations. Little information is available concerning the purity of street ketamine hence analysis was undertaken on street preparations of the drug retrieved from amnesty bins in London night clubs. In this paper, the analysis of street ketamine is described to determine the purity of samples commonly available and to identify what impurities might be present.

Method: Street ketamine samples were analyzed using HPLC with diode-array in order to determine the percentage of ketamine present in the sample and identify any impurities. The system was equipped with a C₁₈ reversed phase column which was maintained at 50°C. The mobile phase was a mixture of 5 mM SDS in 20 mM KH₂PO₄:acetonitrile (65:35, v:v) at a flow rate of 1.0 mL/min. In addition to HPLC analysis, samples were also analyzed using electron microscopy, color tests, FTIR with golden gate, GC-MS and TLC in an attempt to determine the nature of any impurities present.

Results: The purity of samples containing Ketamine only ranged between 65%—100% (mean = 87.9%; SD = 11.66%). Benzocaine was the principal impurity detected and ranged between 2.75%—16.60% (mean = 7.27%; SD = 3.96%). Ketamine in samples containing Benzocaine ranged between 49.9% - 84% (mean = 67.21%; SD = 9.71%).

Conclusion: The majority of street ketamine samples were of high percentage purity suggesting that ketamine may be responsible for effects on the urogenital system. This also supports the observation that a number of patients undergoing clinical therapy with ketamine have reported similar symptoms.

Ketamine use is increasing rapidly worldwide and knowledge concerning the availability, purity, and trends in drug use can be of assistance to drug enforcement/legislation agencies as well as healthcare workers who may be involved in the provision of care to individuals following drug use. The results of this survey would support a hypothesis that bladder related diseases observed in ketamine users is

likely to be attributable to ketamine rather than impurities or cutting agents.

Ketamine, Purity, Bladder Disorders