



K3 Will the Real “Molly” Please Stand Up? N-Ethyl Pentylone-Related Deaths in Alabama

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The goals of this presentation are to: (1) review n-ethyl pentylone-proposed pharmacology; (2) describe the n-ethyl pentylone case facts; and, (3) recognize the increasing prevalence of n-ethyl pentylone and the potential trend of combining it with cocaine.

This presentation will impact the forensic science community by increasing knowledge and awareness of n-ethyl pentylone through communication of its increasing prevalence as observed in the Birmingham, AL, area and highlighting the potential new drug trend of combining n-ethyl pentylone and cocaine.

Hypothesis: N-ethyl pentylone, a Novel Psychoactive Substance (NPS), has been observed in high concentrations and mixed with cocaine, which may represent a new drug combination (i.e., speedball (cocaine and heroin), twisters (crack and methamphetamine), el diablo (cocaine, heroin, and marijuana)).

Statement of Content/Methods: Three death cases were investigated by the Jefferson County Coroner and Medical Examiner’s Office (JCCMEO) between February and May of 2017; each involving n-ethyl pentylone. N-ethyl pentylone (i.e., bk-EDBP, ephylone, Mercedes, Mitsubishi, Lacoste) is classified as a psychostimulant related to cathinone. Stimulants modulate neurotransmitters (i.e.; serotonin, dopamine, and norepinephrine) through increased release or reuptake inhibition. Being structurally related to cathinone, n-ethyl pentylone is proposed to modulate multiple neurotransmitters with overdoses resulting from serotonin syndrome. Effects related to n-ethyl pentylone use range from euphoria, increased alertness, and talkativeness to agitation, tachycardia, hyperthermia, rhabdomyolysis, hypoglycemia, renal failure, and cardiac arrest. Users describe routes of administration as insufflation, intravenous, and oral with the onset of effects occurring within 30 minutes and lasting three to five hours. Due to its current legal status, n-ethyl pentylone can be purchased via the internet in either powder or pill form and has been observed as a component of Neuregulin 1 (NRG-1) and as “Molly.”

The first n-ethyl pentylone case encountered by the JCCMEO was a 34-year-old White male who had been observed using “Molly.” According to the witness, the decedent became erratic and paranoid. The decedent was later located underneath a car in an auto garage with the scene in disarray — overturned items, including chairs and stepladders, and papers scattered around the room. The second occurrence was a 34-year-old Black male. This decedent was at a party when he entered into cardiac arrest and was transported to the emergency room. The decedent transpired a few hours later. The third n-ethyl pentylone case was a 25-year-old Black male found lying in the street suffering multiple gunshot wounds. According to neighbors, the decedent was in a feud with the suspect. In all three cases, postmortem specimens (blood, urine, vitreous, bile, liver, and brain) were collected and submitted to the toxicology laboratory. Analyses performed included: volatiles testing, immunoassay screening, and Gas Chromatography/Mass Spectrometry (GC/MS) confirmation/quantification.

Summary of Results: Postmortem toxicology results for the first n-ethyl pentylone encounter were trace levels (<0.01mg/L) of cocaine and cocaethylene and n-ethyl pentylone at 0.953mg/L. Cause Of Death (COD) and Manner Of Death (MOD) were reported as “Acute n-Ethyl Pentylone Toxicity” and “Accident,” respectively. The toxicology results for the second occurrence were cocaine at 0.033mg/L, fentanyl at 0.003mg/L, n-ethyl pentylone at 0.121mg/L, methamphetamine at 0.938mg/L, and amphetamine at 0.086mg/L. COD and MOD for case 2 were “Multiple Drug Toxicity from Methamphetamine, Cocaine, Fentanyl, and n-Ethyl Pentylone” and “Accident,” respectively. The third case was the result of multiple gunshot wounds (COD) and determined to be a homicide (MOD) but resulted in toxicological findings, including trace levels of hydrocodone, alprazolam at 0.030ng/mL, and n-ethyl pentylone of 0.045mg/L.

Conclusion: Presented here are the first three occurrences of deaths related to n-ethyl pentylone by the JCCMEO. With these deaths occurring in such a short time period, it is shown that the prevalence of n-ethyl pentylone is increasing in the Birmingham area. Furthermore, a potentially deadly combination of n-ethyl pentylone and cocaine has been observed in two of the cases, with both psychological (paranoid and agitated) and physiological (cardiac arrest) effects witnessed. In short, n-ethyl pentylone is a dangerous NPS that should be included in toxicological analyses.

N-Ethyl Pentylone, Novel Psychoactive Substances, Molly