

## Combined abuse of liquid ecstasy and amphetamines in DUID cases

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**AIM:** The aim of this study was to investigate the occurrence of GHB consumption among consumers of amphetamine and ecstasy in “driving under the influence of drugs” (DUID) cases. Gamma-hydroxybutyrate (GHB) is a natural occurring metabolite of the neurotransmitter gamma-aminobutyric acid (GABA). In the 1990s it emerged as a club drug (“liquid ecstasy”) due to its CNS depressive effects resulting from interaction with specific brain receptors for GHB and a possible interaction with the GABA<sub>B</sub> receptor.

**METHODS:** 247 serum samples which had been collected by police during roadside testing and were positive for amphetamine, methamphetamine, 3,4-methylenedioxyamphetamine (MDA), 3,4-methylenedioxymethamphetamine (MDMA) and/or 3,4-methylenedioxyamphetamine (MDE), respectively, were analyzed for GHB.

Serum samples were spiked with deuterated GHB and acetonitrile was added to achieve protein precipitation. Samples were analyzed with an LC-MS/MS system (API 365, Applied Biosystems) operated in multiple reaction monitoring mode (MRM) using a TurbolonSpray source and a Synergi Polar RP column (Phenomenex) applying gradient elution with a runtime of 15 minutes. The method showed good linearity in the working range (10 to 200 µg/mL). To differentiate between endogenous and exogenously administered GHB a cut-off concentration of 10 µg/mL was applied.

**RESULTS:** Five samples (2,4 %) of 247 were found positive for exogenous GHB, and in addition these were positive for amphetamine. No ecstasy or other amphetamine derivatives were detected in these five GHB positive samples.

**CONCLUSIONS:** Although a limited number of 247 serum samples was investigated, it could be shown, that GHB is sometimes used by amphetamine consumers in addition or after the abuse of amphetamine. Without further suspicion GHB would not be detected by routine roadside testing and toxicological analysis. Due to its rapid elimination the frequency of combined consumption with amphetamine or amphetamine derivatives might still be under-represented.

**KEYWORDS:** *GHB, Liquid ecstasy, Amphetamine, Driving under the influence*

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