'G' in the ED: analytically confirmed gamma-hydroxybutyrate intoxications in sentinel emergency departments across four Australian states, 2022

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Introduction: Australia is seeing rising harms associated with gamma-hydroxybutyrate (GHB). We examined demographic, self-reported drug exposure, analytical and outcome data in emergency department (ED) presentations with analytically confirmed GHB exposure.

Methods: Demographic, clinical and toxicology data collected across 13 EDs and four states (January-December 2022) were extracted from the Emerging Drugs Network of Australia (EDNA) Clinical Registry. Case biofluid samples (blood) underwent comprehensive toxicology analysis. Differences between groups were tested using logistic regression.

Results: GHB was detected in 248 (28%) of 883 cases, of which 109 (44%) self-reported GHB exposure. GHB was not detected in 26 self-reported exposures. Methamphetamine was co-detected in 222/248 (90%) GHB-positive cases, with only 26/222 (12%) self-reporting methamphetamine exposure. A significantly higher proportion of GHB-positive cases were female (49% vs 32%, $p<0.0001$) and were admitted to ICU (23% vs 15%, $p<0.01$) compared to GHB-negative cases. No difference in median age was detected (33 years, IQR 19-67, $p=0.74$). There were no fatal GHB-positive cases.

Discussions and Conclusions: The high rate of methamphetamine and GHB co-detections, overrepresentation of female users, and high case acuity are important findings. Expansion of routine toxicology testing in EDs will enable continued monitoring of emerging drug trends.

Implications for Practice or Policy: Analytically verified data from ED presentations provides an objective, and until recently, largely absent source of information on acute drug toxicity and emerging public health threats in Australia. Embedding toxicosurveillance systems such as EDNA into Australia's strategic approach to reduce drug-related harms is critical.

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