

## Phenobarbital to manage severe gamma-hydroxybutyrate withdrawal: a case series

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**Introduction / Issues:** Severe gamma-hydroxybutyrate (GHB) withdrawal can be characterized by resistance to benzodiazepines, whereby typical withdrawal signs and symptoms persist and/or progress despite very high benzodiazepine doses. In these situations, other pharmacological treatments are required. Drugs that have been used include baclofen, barbiturates, antipsychotics, dexmedetomidine and propofol. The optimal dosing regimens for these drugs are poorly defined and the evidence is limited.

**Method / Approach:** Review of patients admitted to either of two hospitals in Sydney, Australia, for management of GHB withdrawal, not responding to benzodiazepines, treated with phenobarbital.

**Key Findings:** Thirteen cases were reviewed (n=7 [54%] female, median age 31 years [range: 26-47], median duration of GHB use three years [range: 0.75 – 10 years], median daily GHB use 50ml [range: 30-120ml]). Four (31%) were admitted to intensive care and the rest were managed in a medical ward. Twelve (92%) experienced delirium. Oral diazepam was used in all cases, median cumulative dose of diazepam prior to commencing phenobarbital was 120mg, the maximum dose was 255mg. Oral baclofen was used in twelve cases. Median time from last GHB use to first dose of phenobarbital was 24 hours. For eight cases (67%), phenobarbital was administered orally and for five cases (42%) intravenously. No complications associated with phenobarbital use were documented. All cases appeared to respond to phenobarbital based on a documented improvement in delirium (in the absence of a validated GHB withdrawal measure).

**Discussions and Conclusions:** This case series suggests that using phenobarbital for the management of severe GHB withdrawal, not responding to benzodiazepines, can be safe in a medical inpatient ward or intensive care setting. Delirium appeared to resolve following phenobarbital treatment, however, it is not known if earlier administration may avert the onset of delirium. The majority of data on the management of GHB withdrawal comes from case reports or series, such as this one, highlighting the need for prospective trials to establish an evidence base for therapeutic approaches.

**Disclosure of Interest Statement:** This study received no funding. JB is funded by an NHMRC Investigator Grant (1196560) and Medicines Intelligence CRE Fellowship (1196900). KS, DR, have no relevant conflicts of interest to declare.