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Severe Gamma Butyrolactone (GBL) poisoning in a patient taking Highly Active Anti-Retroviral Therapy (HAART): is there a significant interaction?

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Objective: To explore the potential for a drug-drug interaction between gamma-butyrolactone (GBL) and Highly Active Anti-Retroviral Therapy (HAART).

Case Report: A 29 year-old man presented to the Emergency Department (ED) with GBL-induced drowsiness (GCS 9/15) with stable haemodynamics and 100% oxygen saturation on arrival to the ED by ambulance. According to his friend, the patient had consumed GBL at an undefined time that morning. He was noted to be on HAART based on information in electronic medical records. While being monitored he became increasingly somnolent with apnoeic episodes. Within 30 minutes of arrival his condition rapidly deteriorated to profound coma (GCS 3/15) with acute type-two respiratory failure on arterial blood gas. He was intubated and put on mechanical ventilator support. A CT scan of the brain, blood counts and chemistry were essentially normal. Patient self-extubated within 8 hours of intubation and over the next day was transferred to the psychiatric hospital for further management. A toxicology screen of blood taken at presentation subsequently confirmed GHB (metabolite of GBL) intoxication. The clinical impression by the treating doctor was that poisoning was more severe than anticipated, and given that drug-drug interactions are widely reported with HAART, it was hypothesised that it might also interact with GBL. We conducted a literature review to identify previous reports of a similar reaction, and hypothesised the mechanism of such an interaction based on the pharmacokinetics and pharmacodynamics of the drugs involved.

Conclusion: Patients with GBL poisoning should be admitted to a monitored setting due to the risk of a precipitous drop in consciousness level and respiratory depression requiring airway management. Although an interaction between GBL and HAART was not confirmed in this case, in general, ED physicians should be alert to the potential for drug-drug interactions with HAART and its influence on hospital presentations in this already vulnerable patient population.