

## CASE REPORT 5 [ID#75]

### **An analysis of 3,4-methylenedioxymethamphetamine (MDMA) overdoses at Western Sydney music festivals in New South Wales, Australia**

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**OBJECTIVE:** This case series aimed to investigate life-threatening 3,4-methylenedioxymethamphetamine (MDMA) overdoses at Western Sydney music festivals. In addition, it aimed to determine whether warm ambient temperatures were associated with severe toxicity.

**METHODS:** Sixteen patients from five separate music festivals presented to Westmead Hospital between December 2018 and March 2019. Demographic information and clinical effects were recorded. Blood was collected on arrival and sent for quantitative analysis. Fatalities were excluded due to an ongoing coronial inquest.

**RESULTS:** The median age of the patients was 21y (16 to 29y). All patients admitted to ingesting MDMA, with a median dose of 3 tablets (13/16). The median MDMA concentration was 1.05mg/L (0.38 to 3.2mg/L). Fourteen patients required emergent endotracheal intubation. Ten patients were obtunded (GCS  $\leq$  8) and nine patients were hyperthermic ( $>$  38.3OC). Seizures were observed in three patients, cardiac arrhythmias occurred in two patients, and one patient developed ischaemic colitis. Biochemical derangements included rhabdomyolysis (6/15), acute kidney injury (5/18), troponinemia (4/8), and acute liver injury (1/16). The median ambient daytime temperature on location was 28.9OC (24.2 to 37.6OC).

**DISCUSSION:** All patients exhibited features of severe toxicity requiring critical care management. The quantitative results suggested a potentially lethal median concentration (toxic reference range 0.35 to 0.5mg/L). It has been previously proposed that high ambient temperature may exacerbate MDMA toxicity. We observed a similar pattern with a sharp increase in presentations coinciding with relatively high daytime summer temperatures.

**CONCLUSION:** In response to this cluster of MDMA overdoses, state health authorities including PIC enacted a number of public health initiatives to reduce morbidity and mortality - improved health staffing at music festivals, drug-induced hyperthermia guidelines, and media awareness campaigns.