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58. Use of methylene blue to treat hypotension in poisoned patients in the Toxicology Investigators Consortium (ToxIC) Core Registry: 2016–2023

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Background: Our objective is to characterize the use of methylene blue as an adjunctive therapy for hypotension in poisoned patients within the Toxicology Investigators Consortium (ToxIC) Core Registry.

Methods: This is a retrospective analysis of de-identified cases entered into the ToxIC Core Registry between 1 January 2016 and 31 December 2023. Patients 18 years of age and older with toxicologic-related hypotension who received methylene blue were included. Patients with methemoglobinemia were excluded. We performed data analysis with descriptive statistics.

Results: Forty-five cases were included. The average age was 51.8 years (22 – 75 years); 55.6% (n 1/4 25) were male and 44.4% (n 1/4 20) were female. More cases (n 1/4 10, 22.2%) occurred in 2021 than any other year. For reasons for exposure, 33 cases (73.3%) were self-harm attempts. Twenty cases (44.4%) were single-agent exposures and 25 cases (55.6%) had multiple exposures, ranging from two to seven xenobiotics. Calcium channel blockers accounted for most exposures (n 1/4 31, 68.9%) and amlodipine (n 1/4 26, 57.8%) was the most common medication cited, both in the single-agent group and overall. Vasopressors (n 1/4 37, 82.2%), intubation and mechanical ventilation (n 1/4 36, 80%), and intravenous fluid resuscitation (n1/432, 71.1%) were the additional therapies most frequently employed. Twenty-three patients (51.1%) died.

Conclusion: Calcium channel blockers were the most common exposure among hypotensive adults receiving methylene blue in the ToxIC Core Registry from 2016 to 2023. Most cases were intentional overdoses with the intent to cause self-harm. Most patients were intubated and the group had high mortality, suggesting they were generally critically ill. There was no identifiable trend in the number of cases over time. Limitations of this study include its retrospective nature and the potential for data entry errors and missed cases.