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Background: Serotonin toxicity is a common cause of drug induced altered mental status in hospitals nationwide. Unfortunately, the initial description of serotonin toxicity was nonspecific and may have led to misdiagnoses in early reports. It remains unclear which patient characteristics are associated with serotonin toxicity and which medications are responsible. In the past several years, a more specific definition has emerged and a national database of prospectively collected data on patients who are diagnosed by a bedside medical toxicologist has become available. We sought to determine the characteristics of patients who develop serotonin toxicity as well as the agents that are associated with its development.

Methods: We accessed the ToxIC registry database and searched for “serotonin syndrome” in the “Syndromes, symptoms and signs” section for the 2 y period between 1/1/2010–1/1/2012. ToxIC is a registry of cases that are seen and diagnosed by medical toxicologists throughout the country. Data is entered prospectively by over 30 geographically-diverse toxicology services.

Results: Our database search identified 209 cases of serotonin syndrome diagnosed by medical toxicologists. Patients were predominantly adults (1% 6 yo; 1% 7–12 yo; 20% 13–18 yo; 76% 19–65 yo; 3% ≥ 65 yo) and were mostly female (60%). 56% were seen in an ED, 44% were seen in a hospital ICU or ward (total of 176 reported location). 68% of cases were reported after an intentional overdose, 7% after unintentional overdoses, 15% were adverse effects, and 24% were drug abuse. Of those cases reporting symptoms/effects (200/209), 60% reported hyperreflexia/myoclonus/clonus, 45% delirium, 41% agitation, 40% tachycardia, 39% hypertension, 18% mydriasis, 14% hyperthermia, 19% developed rhabdomyolysis, 16% required intubation and 3% had ventricular dysrhythmias. Most cases were treated with benzodiazepines (52%) and 11% were treated with cyproheptadine. There were 51 cases where a single drug was noted. The drugs noted in single-drug cases of serotonin toxicity are listed in Table 1.

Conclusions: We describe the clinical characteristics of, and the drugs associated with, serotonin toxicity as described by medical toxicologists nationwide over a 2 y period.

Keywords: Serotonin syndrome, Epidemiology, Medical toxicology