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### **Themes and Trends in Serious Intentional Self-Poisoning**

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Background: Intentional self-poisoning is the most common method by which patients attempt to end their lives. Increases in availability of prescription medications are expected to alter overdose trends. The present study aimed to investigate the substances employed by and experiences of patients who come to treatment after self-poisoning.

Methods: A retrospective search of the Toxicology Investigators Consortium (Toxic) Registry was performed to characterize patients with intentional exposures that led to care by a medical toxicologist. A one-year prospective study of an inpatient toxicology service was also conducted, categorizing patients by toxicologic diagnoses. This study gathered data on medications available to each patient (pharmacy records), their comorbidities (medical records), and courses of 111 treatment.

Results: In the Toxic Registry, 3032 (51.5 %) of the 5885 cases represented intentional exposures. Of those self-poisonings, the single class of medications involved in the highest percentage was over-the-counter analgesics (26.7 %). Sedatives and muscle relaxants are grouped together in the registry; they were involved in 19.2 % of cases. Antidepressants (17.1 %), opioids (9.4 %), antipsychotics (9.3 %), and anti-convulsants (5.6 %) were commonly ingested. Toxicity from ethanol was reported in 13.5% of the registry's self-poisonings. Prospective study of 1026 patients ranging in age from 2 to 89 years (51.9 % female) revealed 655 cases (63.8 %) of intentional self-poisoning. Of those patients, 382 (58.3 %) were female, and rates of comorbid conditions including obesity, chronic pain, and substance abuse were high. 74.8 % of self-poisonings involved at least one psychiatric medication, and 28.1 % involved a narcotic with a somatic indication (opioid analgesic, muscle relaxant, etc.). Acute intoxication from ethanol and/or illicit substances was found in 16.6 % of cases. Only 49 cases (7.5 %) did not involve CNS-active substances—29 of those patients continued to have suicidal ideation after coming to medical care. After recovering neurocognitive function, most patients were not actively suicidal following self-poisoning with CNS-active compounds.

Conclusions: Patients choose agents for self-poisoning that are readily available. Over-the-counter drugs are still frequently ingested, but CNS-active medications are now more available and therefore used at high rates in overdose. Substances of abuse are also involved in many cases of self-harm. The study emphasizes that access to chemical dependency treatment, alternatives to medication and substance misuse, and careful prescribing and medication distribution practices are all serious unmet healthcare needs in North America.