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### **158. Loperamide misuse to avoid opioid withdrawal: high doses, high risk**

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**Introduction:** Loperamide is a readily accessible non-prescription medication that is emerging as an opioid substitute, used to alleviate the symptoms of acute opioid withdrawal. As the opioid epidemic evolves, loperamide exposures are increasing. The objective of this study was to determine the clinical characteristics of patients with loperamide toxicity.

**Methods:** The ToxCiC registry, a nationwide, prospectively collected cohort of patients evaluated by medical toxicologists was searched from November 2011 to December 2016 for patients in which loperamide was listed as a substance of exposure. Each identified record was reviewed by several investigators to determine the circumstances, dose, clinical presentations, treatment, and outcomes associated with loperamide use.

**Results:** Twenty-six cases were identified, and both the number and the relative proportion of cases increased progressively (Figure 1). The median age was 27 (range 2–89, IQR 17.5, 36) and 54% were male. Race was identified in 46% (n = 12) and was predominantly Caucasian (n = 10, 83%). Of cases with known intent (n = 18), 12 (67%) were misuse/abuse, three (17%) were self-harm/suicide, and three (17%) were pediatric exploratory ingestions. Specific circumstances for misuse/abuse included taking higher doses than labeled (n = 7), attempting to avoid withdrawal (n = 6), and abuse (gaining a pleasurable sensation (n = 4)). The dose was reported in nine cases and ranged from 4 (pediatric exploratory ingestion) to 400mg. In patients seeking to avoid withdrawal, doses were 160–400 mg/d; the most common reported dose was 200mg. ECG abnormalities included 10 cases of prolonged QTc (>500 ms), which consisted exclusively of misuse/abuse (n = 6) and self-harm (n = 1) exposures. Other ECG findings: six prolonged QRS (>120 ms), two 1st degree AV block. Ventricular dysrhythmias were reported in seven cases (27%), five of which were single agent exposures. All but one had prolonged QTc, with a range of 566–749 ms; all patients with dysrhythmias in which dose was reported ingested 200 mg or greater. Reported QTc values were 464–749 ms. When treatment was reported (17 patients), the most common were naloxone/nalmefene (n = 6, 23%), sodium bicarbonate (n = 4, 15%), intubation with ventilatory management (n = 4), and pacemaker (n = 4). There were no deaths.

**Conclusions:** The majority of patients in this cohort had loperamide toxicity due to misuse/abuse, in line with national trends. In patients taking loperamide to avoid withdrawal, doses in excess of 100mg were repeatedly observed. When taken in large doses, particularly those exceeding 200mg, loperamide may cause significant cardiovascular effects, including QT prolongation and ventricular dysrhythmias.