[ID-P#013] Intentional Toxic Ingestion of Sodium Fluoride: A Case Report

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Background: Sodium fluoride (NaF), a readily available crystalline compound, poses a unique challenge in the emergency department due to its multifaceted toxicity. To our knowledge, there have been only a few reported cases in Taiwan. We report a case of severe poisoning resulting from the ingestion of a massive dose of sodium fluoride.

Case presentation: This is the case report of a 15-year-old female who presented to the emergency department due to consuming nearly 500g of 97.3% sodium fluoride in a suicide attempt. The patient arrived in the ED with critically low blood pressure (57/45 mmHg) and rapid heart rate (125 bpm). She had a depressed consciousness score with GCS E4V3M5. Initial tests revealed severe hypocalcemia, hyperkalemia and severe metabolic acidosis. Twenty- six minutes after arrival, an ECG showed pulseless electrical activity, and cardiopulmonary resuscitation (CPR) was initiated. During CPR, ventricular fibrillation was noted on the ECG monitor, and large doses of calcium were administered. Despite these interventions, the patient did not achieve a return of spontaneous circulation, and resuscitative efforts were terminated 40 minutes later. The patient died due to lost pulses with ventricular fibrillation one hour after arrival.

Conclusions: To the best of the author's knowledge, this is the first reported fatal case of sodium fluoride poisoning in Taiwan in the past twenty years. This case underscores the rapid and severe toxic effects of sodium fluoride ingestion. In situations involving hypotension, altered mental status, and cardiac arrhythmia, the rapid administration of large doses of calcium is essential. Early hemodialysis for the management of refractory hyperkalemia and fluoride toxicity is crucial. We suggest that clinicians must have a prompt and aggressive treatment for sodium fluoride intoxication.