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Death following Fish Anesthetic Quinaldine Sulfate Ingestion

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INTRODUCTION: Quinaldine sulfate (2-methylquinolone sulfate salt) has been used as fish anesthetic since early 1900s. Its precise mechanism of action is still unknown. To date, case reports on its human toxicity is scarce. We described a case of intentional ingestion of fish anesthetic containing 10% quinaldine sulfate.

CASE REPORT: A 37-year old male presented to the Emergency Department with severe abdominal pain and vomiting 15 hours after ingestion of 150mL arowana stabilizer solution containing 10% quinaldine sulfate (total ingested 230mg/kg, LD50 in rats = 1,230mg/kg). He had normal initial vital signs and physical examination findings except for epigastric tenderness without signs of peritonitis. He was managed as caustic ingestion with little information on the substance. After an hour, the patient deteriorated with progressive decrease in O₂ saturation, blood pressure then asystole. Advanced cardiac life support and other supportive measures were instituted. Later, he developed coagulopathy, acute kidney injury and severe metabolic acidosis. Bicarbonate correction was done, however he was too unstable for hemodialysis. The patient succumbed to death 37 hours post-ingestion from multiple organ failure.

DISCUSSION: This case highlights severe toxicity from quinaldine sulfate ingestion. Aside from fish anesthetics, it is used as an intermediate for dye production, pharmaceuticals (anti-malarial and fungicides) and acid-base indicators. Exposure may cause strong irritation to skin and mucous membrane, but moderate corrosion upon ingestion. When given orally in rabbits, it is excreted unchanged; however, the parent compound was not detected in human urine, suggesting a different metabolic pathway. Furthermore, quinaldine may produce competitive inhibition of the enzyme monoamine oxidase in human placental and brain mitochondria, suggesting that it may present with delayed MAO-like acute toxicity with nonspecific symptoms or sympathomimetic toxidrome. With this, treatment is largely supportive and monitoring for serotonin syndrome is warranted.