Oral Abstracts

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BROMOXYNIL OR MCPA – THE TOXIC INGREDIENT

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Objectives: To describe the clinical syndrome of bromoxynil +/- MCPA poisoning.

Introduction: MCPA, a chlorophenoxy herbicide has been shown to be relatively safe with minor adverse effect and the mortality rate (4.4%) is reported to be low.[1] In contrast, there has been little literature available regarding bromoxynil poisoning, a nitrile herbicide which is often sold in combination with MCPA.

Methods: We presented a case series of MCPA and/or bromoxynil poisonings that were reported to the New South Wales or Western Australia Poisons Information Centres and three toxicology units from Jan 2010 to May 2016. There were 35 cases identified. In addition, three fatal cases were identified through the National Coronial Information System.

Results: There were a total of 38 cases who either ingested bromoxynil, MCPA with bromoxynil or MCPA with other herbicides. Sixteen cases were unintentional with a median age of 2y (Range: 1.5-5y) and no significant adverse effects were reported. Twenty-two cases were intentional but three were excluded due to insufficient information. Nine patients drank MCPA with bromoxynil, seven drank MCPA with dicamba, one drank MCPA with moxidectin, one had bromoxynil, glyphosate and bromàdiolone and one had bromoxynil alone. Median age was 46y (range: 26-77y); 63% male. There were eight fatalities, 6/11 patients (55%) who ingested bromoxynil +/- MCPA died compared to 2/8 patients (25%) taking MCPA without bromoxynil. Deaths occurred at about 17-30 hours post ingestion in 7 patients and were characterized by tachycardia, tachypnea, hypoxia, rising CO2, worsening metabolic acidosis, hyperthermia and eventual asystolic cardiac arrest. One patient died at seven days from hypotension and renal failure secondary to rhabdomyolysis following MCPA and moxidectin ingestion.

With six of the fatalities, it is likely that bromoxynil alone or MCPA with bromoxynil contributed to the cause of death. Laboratory analysis confirmed the presence of either bromoxynil and/or MCPA in seven fatalities.

Co**nclusion:** Bromoxynil with or without MCPA appears to be extremely toxic with what appears to be decompensation of oxidative phosphorylation resulting in increased CO2 production, metabolic acidosis, hyperthermia and death. MCPA appears to cause death by a different mechanism from rhabdomyolysis, and renal failure.

Reference

1. Roberts DM, Seneviratne R, Mohammed F et al. Intentional self-poisoning with the chlorophenoxy herbicide 4-chloro-2-methylphenoxyacetic acid (MCPA). Ann Emerg Med 2005; 46: 275-284.