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No Fly Zone: An Unregistered Insecticide Containing Dichlorvos Resulting in Cholinergic Toxicity

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Introduction

2,2-dichlorovinyl dimethyl phosphate (DDVP, Dichlorvos) is an organophosphate insecticide causing cholinergic toxicity through acetylcholinesterase inhibition. Its use is restricted in the United States (US) and reports of toxicity are rare.



Case Report

A 70-year-old male presented to the Emergency Department with vomiting and unresponsiveness. Initial vital signs were: BP 91/57 mmHg, HR 32 bpm, temperature 95.8°F, RR 20, SpO2 95%. The patient was obtunded with excessive airway secretions and required emergent intubation. His physical examination demonstrated increased lower extremity muscle tone and muscle fasciculations. Atropine (1mg) was administered with immediate resolution of excess secretions and bradycardia. It was reported the patient accidentally ingested dichlorvos which was stored next to his mouthwash. He received pralidoxime chloride 2g, midazolam 5mg, and norepinephrine infusion. An additional 2mg of atropine was needed for recurrent bradycardia. Abnormal labs included: bicarbonate 20 mmol/L [23-31], anion gap 14 [3-11], lactate 4.6 mmol/L [0.5-2.1], and pH 7.30 [7.35-7.45]. He was admitted to the ICU and extubated on hospital day two. RBC cholinesterase level was 23.8 U/g Hb [31.2-61.3]. The patient did not develop intermediate syndrome or organophosphate-induced delayed neurotoxicity and had a full recovery.

Discussion

Dichlorvos is a common organophosphate in developing nations, but its use is restricted in the US. There have been federal advisory alerts warning of unregistered dichlorvos products, specifically Sniper DDVP® and NoPest,® being illegally transported/sold in the US. Our patient obtained dichlorvos from the Dominican Republic to use as a household insecticide. Accidental ingestions may have significant morbidity and mortality. Similar to most organophosphate poisonings, treatment includes decontamination, atropine, pralidoxime, and benzodiazepines.

Conclusion

Dichlorvos poisoning is rare in the US but remains potentially lethal, requiring early recognition of the cholinergic toxidrome and immediate treatment. Safe storage of harmful chemicals, away from pharmaceutical agents, is imperative.