H80 Fatalities Associated with Aldicarb

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After attending this presentation, attendees will better understand the rodenticide aldicarb, including its intended uses, toxic effects, and because of its availability in certain communities, its use as a suicide modality.

This presentation will impact the forensic science community by providing information on aldicarb, which may be easily obtained and used illegally in households for pest control within the United States. Aldicarb has been intentionally ingested and poses a risk for accidental overdose in adults and children due to improper packaging and its accessibility to small children. Aldicarb is often admixed with food and placed on floors and cupboards for rats and cockroaches to consume.

Aldicarb is a rodenticide, insecticide, and nematicide. It is a systemic carbamate that is a potent cholinesterase inhibitor.[1] Symptoms of aldicarb intoxication include miosis, nausea, vomiting, diarrhea, diaphoresis, headache, and blurred vision.[2] The mechanism of death is often respiratory depression and pulmonary edema.

The poison is produced in Latin American countries, such as the Dominican Republic and Mexico. Aldicarb is still widely used as a commercial pesticide in farming. The use of aldicarb as a pesticide in households is illegal in the United States, as directed by the Environmental Protection Agency. In communities with large Hispanic populations such as New York City, aldicarb is often brought from countries of origin by families and vendors because of its desired efficacy as a rodenticide.3

A review of the toxicology database from the Office of Chief Medical Examiner City of New York identified two fatalities where aldicarb was detected. In both cases, aldicarb directly contributed to the cause of death.

Case 1: A 60-year-old man was found dead in his bed at home. The decedent had been depressed, expressed suicidal ideation, and had been abusing alcohol. Initial investigation revealed a coffee mug containing granules on the bedside table. Further investigation of the scene by the investigator and a family member revealed an envelope labeled "Tres Pasito," along with several empty vodka bottles, which were found in a closet. A foam cone was described by family. At autopsy, several granules were noted on the face, chest, and in the gastric contents. Advanced atherosclerotic cardiovascular disease was also noted at autopsy.

Case 2: A 44-year-old woman was taken to the emergency department, having been found unresponsive at home. The decedent had a history of depression with suicidal ideation. The family reported to the treating physician that an open package of rat poison they referred to as "Tres Pasito" was found near the woman. Despite approximately one day of resuscitative measures, the patient did not survive. At autopsy, innumerable tan flakes and granules were found in the esophagus, stomach, and small intestine. Liver necrosis, acute tubular necrosis, pulmonary edema, and acute diffuse anoxic ischemic encephalopathy were diagnosed clinically and confirmed by autopsy.

In both autopsies, toxicological analysis of the postmortem blood, urine, and gastric contents by liquid chromatography revealed the presence of aldicarb. The cause of death was acute aldicarb intoxication and the manner of death in both cases was suicide. Both decedents had intentionally ingested the poison.

Aldicarb is usually not included in routine toxicology panels. It therefore may easily be overlooked by a forensic pathologist or a clinician. A thorough scene investigation and detailed history from the family, including questions regarding depression and past suicidal intent, may provide answers that raise the level of suspicion to warrant further and more specific toxicologic analyses.

Clinically, the presenting anticholinergic symptoms should always remind a treating physician to include aldicarb in the differential diagnosis, as there are many communities in the United States where aldicarb is easily purchased at the neighborhood market.

References:

1. Aldicarb poisoning: one case report. Proença et al. *Forensic Science International* 146S (2004), S79-S81.
2. Aldicarb. C Cox. *Journal of Pesticide Reform* (1992), 12(2): 31-35.
3. Poisonings Associated with Illegal Use of Aldicarb as a Rodenticide – New York City, 1194-1997. *Morbidity and Mortality Weekly Report*, CDC. 1997, 46 (41): 961-963.

Suicide, Aldicarb, Toxicology