Poisonings Associated with Illegal Use of Aldicarb as a Rodenticide -- New York City, 1994-1997

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Although rodenticides historically have been among the most toxic substances available to the public and have been implicated as agents in both unintentional and suicidal exposures, the anticoagulant agents currently in use, such as coumadin and their long-acting derivatives (e.g., brodifacoum), are relatively safe. In 1995, most persons who reported exposure to anticoagulant rodenticides did not develop symptoms or require specific therapy. However, during 1994-1997, the New York City Poison Control Center (NYCPCC) was consulted about 25 patients, primarily persons who had emigrated from the Dominican Republic, who had manifestations consistent with the cholinergic toxidrome, which is not characteristic of poisoning by the anticoagulant rodenticides, after ingesting a rodenticide known as Tres Pasitos ("Three Little Steps"). In each case, the product had been purchased at a neighborhood store for use as a household rodenticide. The Environmental Investigation Unit of the New York State Department of Environmental Conservation (NYDEC) investigated the poisoning incidents. Laboratory analysis indicated that the product contained the carbamate pesticide aldicarb (2-methyl-2-(methylthio)-propionaldehyde O-(methylcarbamoyl) oxime), which is not registered for use as a rodenticide in the United States. This report presents a detailed description of two of these cases and a summary of the remaining cases. Case Reports

Case 1. On May 5, 1994, an 18-year-old man who had recently emigrated from the Dominican Republic attempted suicide by ingesting a handful of granular Tres Pasitos. On presentation to the emergency department (ED), he was lethargic, tachycardic, and tachypneic with diffuse muscle fasciculations
and profuse bronchorrhea. He was intubated and initially received 8 mg of atropine to control his secretions. Additional treatment included a continuous atropine infusion of 9 mg per hour for 5 days and a pralidoxime infusion (500 mg per hour) to a total of 26 g before ventilatory support could be discontinued. Although a plasma cholinesterase level was not detectable on admission, the patient’s red blood cell cholinesterase level was normal when measured after completion of pralidoxime therapy. Convalescent cholinesterase levels could not be obtained.

Case 2. On May 12, 1997, a 2-year-old girl was observed by her parents eating several grains of rice mixed with Tres Pasitos, which her parents had recently placed in their home to control a rodent infestation. Shortly afterward, she began vomiting and became comatose. On arrival at the ED, she had miosis, muscle fasciculations, and pulmonary edema and required intubation for respiratory insufficiency. After an initial dose of 2 mg atropine, her clinical status improved rapidly. She was subsequently treated with a total of 9 mg of atropine and pralidoxime and was discharged from the hospital on May 16.

Summary Description

NYPCC received reports of poisoning cases in 23 additional patients. Of these, 20 presented to EDs with signs and symptoms consistent with cholinergic toxidrome, although the specific findings for each patient varied. The remaining five patients presented with nonspecific signs and symptoms. Symptoms typically resolved rapidly with atropine therapy.

Of the 25 patients, 22 were adults who had ingested the rodenticide while attempting suicide. The remaining three were children aged less than 4 years who had unintentionally ingested the rodenticide after it was placed in their homes. Seventeen of the 25 patients were female, and 24 patients had emigrated from the Dominican Republic.

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Editorial Note

Editorial Note: This report presents the first known cases of poisonings resulting from the illegal use of aldicarb as a commercially prepared rodenticide in the United States. Aldicarb is a carbamate pesticide registered for use against insects, mites, and nematodes on field crops, certain vegetables and fruits, and ornamental plants in the United States; it is not registered for use as a rodenticide (1). The Environmental Protection Agency has classified aldicarb in its highest toxicity category (Category 1). Previous similar episodes have been reported in Rio de Janeiro, where illegal rodenticides are sold widely by street vendors (2), and in Israel, where poisonings have been reported primarily among Arab Bedouins (3). In both of
these instances and in the current report, poisoning resulted when the produc
was ingested inadvertantly or with suicidal intent.

Tres Pasitos can be purchased legally in the Dominican Republic, where it is
widely used as a rodenticide. In New York City, Tres Pasitos is sold in stores
from large containers and is packaged in small, unlabeled plastic bags. The
poisoning cases occurred primarily among emigrants from the Dominican
Republic -- probably because of the use of this product as a rodenticide in the
Dominican Republic and continued use in the United States.

Investigators from NYDEC have attempted to remove Tres Pasitos from
stores; however, the product often is replaced when investigators leave. In
addition, NYCPCC and NYDEC have initiated community outreach at schools
and other public institutions in neighborhoods where Tres Pasitos can be
obtained to educate persons about the hazards of this product.

Physicians and poison control centers should be aware of the illegal use of
Tres Pasitos as a source of poisoning. Although cholinergic toxicity is common
after exposure to anticholinesterase pesticides, cholinergic symptoms are
unexpected in patients who report ingesting a rodenticidal agent in the United
States. Therapy for exposed patients should be guided by clinical toxicity and
includes atropine, a muscarinic cholinergic antagonist. Pralidoxime, a
cholinesterase reactivator, is important for patients with organophosphorus
poisoning, but its usefulness in treating carbamate poisoning is inconclusive.

Health-care providers who identify cases of poisonings associated with
exposures to this illegal rodenticide product should contact their local health
departments to determine whether these cases are reportable. Health
departments whose jurisdictions include emigrant populations from the
Dominican Republic should be especially aware of this potential public health
problem.

References

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