We report three cases of organophosphate (OP) poisoning. One patient was a 19-year-old woman who drank OP compounds in an attempt at suicide. The other two patients became intoxicated on the way to the hospital during mouth-to-mouth breathing. The first patient died in the emergency department, and the other two were taken to the ICU. There, they were treated with atropine and pralidoxime. Three days later, all symptoms and signs had disappeared, and they were discharged from the hospital satisfactorily. 

(Chest 2002; 122:740–741)

Key words: mouth-to-mouth breathing; organophosphate; poisoning; secondary contamination

Abbreviations: ED = emergency department; OP = organophosphate

Organophosphates (OPs) and their compounds are widely used agricultural insecticides. They irreversibly inhibit acetylcholinesterase production. The accumulation of acetylcholine in the muscarinic and nicotinic synapses causes overstimulation of neurotransmission in both the central and the peripheral nervous systems. The mode of exposure to OP insecticides varies depending on whether it has been ingested by the dermal, GI, respiratory, or IV routes. OP poisoning occurs as a result of accidental exposure or deliberate ingestion. Diagnosis is based on the history of exposure or ingestion, the clinical picture of cholinergic overactivity, and measurement of the reduced levels of pseudocholinesterase in the blood serum. Early diagnosis and appropriate treatment often is life-saving. Additionally, supportive treatment of patients with OP poisoning consists of IV atropine and oximes. We report here on three patients who were intoxicated with OPs.

Case Reports

Case 1

A 19-year-old woman was taken to our hospital by her two friends. They informed the doctor in the emergency department (ED) that she had drunk OP insecticide (Basudin 25 EC [with a diazinon content of 25%]; Novartis Crop Protection Europa; Basel, Switzerland) approximately 1 h before. Since her heart beat and spontaneous breathing had ceased on the way to the ED, the patient’s friends had started mouth-to-mouth breathing immediately. Upon arrival in the ED, she was unconscious, pulse and breathing were absent, her body was cool and sweaty, and her mouth was full of secretions, which were noticed during the insertion of the endotracheal tube. She did not respond to cardiopulmonary resuscitation and died.

Case 2

On the same occasion, a 34-year-old man, one of the friends of the young woman reported in case 1, was found in a state of confusion. He was adynamic, and the findings of his physical examination were remarkable for a BP of 100/60 mm Hg, a pulse rate of 110 beats/min, and myotic pupils with a cool and sweaty face and extremities. Diffuse wheezing was heard in the lungs.

Case 3

The second friend of the suicide victim reported on in case 1 was a 29-year-old woman. She informed us that she and the patient described in case 2 had performed mouth-to-mouth breathing on the way to hospital and that hypersalivation and fasciculation had been observed. On examination, her BP was 90/60 mm Hg, her pulse was 120 beats/min, and her skin was cool. The levels of other physiologic systems were within normal limits. Saline solution infusion was started for the patients in cases 2 and 3, and oxygen was administered. A Foley urine catheter was inserted to follow the urine output effectively. All clothes were taken off the patients, and they were washed with soap thoroughly. Two milligrams of atropine was given IV in 5-min intervals. The second line was reserved for the administration of pralidoxime at a dose of 50 mg/kg. The treatment of both patients was carried out in the ICU. Three days later all symptoms and physical signs had disappeared, and they were discharged from the hospital.

Discussion

OP compounds are used worldwide in agriculture. However, more attention should be paid to household exposure.
insecticides, because people, especially children, can be endangered by the misuse of contaminated equipment as well. The easy availability of these materials in developing countries leads to accidental and suicidal poisoning.\textsuperscript{1} While the ingestion of an OP is the most common route in cases of suicide attempts, nevertheless, inhalation and dermal contact have also been observed in patients who do not remember having had contact with an insecticide compound.\textsuperscript{1}

Health-care workers may be affected via contaminated equipment, clothes, or even by the patients themselves. Emergency staff should pay extra attention to hazardous chemicals, volatile compounds, or particulate matter.\textsuperscript{6}

Geller and coworkers\textsuperscript{7} reported that three health-care workers were affected in an ED after they had cared for an intoxicated patient who was known to have been exposed to OP over a period of 1 h. In that case, the investigators applied gastric lavage, intubation, and decontamination of the skin, provided respiratory support, and transferred the patient later to the ICU. All three health-care workers were affected, but one was so seriously affected that she had to be kept in the hospital for 9 days. The first day she received breathing support with a ventilator, and for the other 8 days of her hospital stay she was treated with atropine. The National Institute for Occupational Safety and Health identified 46 health-care workers between 1987 and 1998 who had experienced acute pesticide-related illnesses after providing care to pesticide-contaminated patients.\textsuperscript{8}

Depending on the extent of the contamination, health-care workers caring for chemically contaminated patients should use full face masks to prevent dermal and inhalational exposure.\textsuperscript{7,8} ED and ICU sections of hospitals should review their precautions for health-care workers because of the cases described here.

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Hypersensitivity Pneumonitis Following Anthrax Vaccination*\textsuperscript{1}

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A case of hypersensitivity pneumonitis (HP) following anthrax vaccination is described. The patient is a 39-year-old, previously healthy man on active duty in the US Marine Corps, in whom a urticarial skin rash and progressive dyspnea on exertion developed following subcutaneous anthrax vaccination. A diagnosis of bronchiolitis obliterans with organizing pneumonia was made from transbronchial lung biopsy samples after evaluation excluded multiple infectious and collagen vascular etiologies. This appears to be the first recorded case of HP following an anthrax vaccination; however, a case report of pulmonary and cutaneous vasculitis following hepatitis B vaccination has been reported in the literature and is reviewed. (CHEST 2002; 122:741–745)

Key words: anthrax vaccine; complication; hypersensitivity pneumonitis

Abbreviations: BOOP = bronchiolitis obliterans with organizing pneumonia; DLCO = diffusion capacity of the lung for carbon monoxide; ED = emergency department; HP = hypersensitivity pneumonitis; TLC = total lung capacity

Large-scale vaccination strategies have been instrumental in preventing the spread of many epidemic diseases. Unfortunately, the introduction of protein-based vaccine compounds has been accompanied by several complications. Anthrax vaccine has been used for nearly 30 years by workers in veterinary medicine and the animal fiber industry as an effective means of preventing transmission of the disease from spore-containing animal products. The recent threat of anthrax as a biological weapon has prompted the US military to initiate an immunization program. This case represents the first reported pulmonary complication from this anthrax vaccination program.

CASE REPORT

On February 2, 1999, a 39-year-old previously healthy, non-smoking man on active duty in the US Marine Corps received the

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