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Case Report

A Case of Acute Pancreatitis with Occupational Exposure to Organophosphorus Compound

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ABSTRACT

Pesticides have contributed to dramatic increase in the quality and quantity in crop yields. Organophosphates are commonly used as insecticides in agriculture and are potent toxicants. Patients with organophosphorus poisoning may present with subclinical features of acute pancreatitis. Proper biochemical investigation and clinical correlation helps in diagnosis.

Key words: Organophosphorus poisoning, pesticide, acute pancreatitis

INTRODUCTION

Pesticides have contributed to dramatic increase in the quality and quantity in crop yields. They have helped to limit the spread of certain diseases, but can cause injury to human health as well as to the environment.[1] Organophosphates are commonly used as insecticides in agriculture in India and are potent toxicants.[2] A serious problem with some organophosphorus (OP) compounds has been their high acute toxicity to man and nontarget organisms.[3] Poisoning is seldom included as a priority for health research in India, though every year, hundreds of people are losing their lives prematurely from pesticide poisoning.[4] Vomiting soon after consumption of pesticide and with its smell easily detected even by a lay person poses no diagnostic difficulty. Thereby, quite often, the victim is brought to a health center within an hour of consumption of the pesticide—usually OP compounds and carbamates.

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This is the "Golden Hour" for clinical intervention, before irreversible "ageing" of toxic compounds in blood occurs. There are wide variety of symptoms and signs in OP poisoning patients. There are many case reports of acute pancreatitis associated with OP poisoning.[5-8] A cause and relationship has been demonstrated in animal studies.[9] One of varied diagnosis of OP poisoning is discussed here.

CASE REPORT

A 53-year-old male farmer was brought to the outpatient department with complaints of weakness, numbness over the legs, and loose stools twice during spraying chlorpyrifos insecticide in the fields. On examination, patient had cyanosis, increased respiratory and pulse rate, and frothing from the mouth. Pupils were constricted but reacting to light. The pulse rate was 130/min, respiratory rate was 26/min, and blood pressure was 130/80 mmHg. Heart sounds were normal with clear lungs. Later, he was put on ventilator with 100% oxygen supplementation and he was treated with atropine and pralidoxime. Atropine was given 5 mg bolus, followed by infusion at the rate of 2 mg/h and the dose was titrated as per his clinical response and signs of atropinization. Pralidoxime was given at a dose of 1 g infusion, three times per day for initial two days. Blood investigations showed hyperglycemia, hypokalemia, and

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ketoacidosis. Chest X-ray was normal and enzyme levels of aspartate transaminase (AST), alanine transaminase (ALT), and lactate dehydrogenase (LDH) were within normal limits. There was no history of alcoholism, smoking, and diabetes or hypertension.

Next day, patient complained of abdominal pain with vomiting, initially diagnosed as acute gastritis and treated. After few hours, patient complained of increased severity of abdominal pain. Serum amylase estimation was done with suspicion of acute pancreatitis and it showed marked increase up to 2 020 U/l. On treatment, the levels of amylase decreased progressively. On 7th day, oral glucose tolerance was done and patient confirmed as diabetic. Patient got discharged on 10th day with rare diagnosis of acute pancreatitis due to OP exposure with type 2 diabetes.

DISCUSSION

The people were exposed to at least one or other type of toxicity every day. Serum enzymes play an important role in the human system. They are the major and valuable diagnostic tools in modern clinical procedures.[10,11] In this case, patient was suspected of OP poisoning and got treated, while on treatment, patient had wide variety of symptoms and signs suggestive of other diagnosis. As the chest X-ray was normal, the respiratory difficulty experienced by the patient could be due to weakness of muscles, bronchospasm and increased bronchial secretions caused by the OP compound. Generally, the BP and pulse rate are increased in OP poisoning.[12] The patient was suspected of acute gastritis but later confirmed as acute pancreatitis. The markedly elevated serum amylase levels correlated with the clinical findings could help in arriving at the diagnosis. The mechanism of OP poisoning producing pancreatitis is not well studied. No enzyme studies or pancreatic biopsies have been done in the cases reported. However, experiments done on the dogs showed that pancreatitis could be produced by intravenous infusion of secretin and diazinon.[13]

The study by Namba showed a transient hyperglycemia, abnormal liver function tests and leukocytosis in patients with OP poisoning.[14] Patient also had hyperglycemia, initially thought due to OP poisoning but later confirmed by oral glucose tolerance test as type 2 diabetes mellitus.

CONCLUSION

Patients with OP poisoning may present with subclinical features of acute pancreatitis. Proper biochemical investigation and clinical correlation helps in diagnosis.

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