Letter to Editor

Eurasian Journal of Toxicology

Aluminum Phosphide Poisoning

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Dear Editor,

Aluminum phosphide, is a fumigant with high insecticide power in all life stages of insects, which is harmful in stored products. It is in the form of tablets or granules and is highly lethal and has no antidote. It inhibits the enyzme of cytochrome oxidase. Complications may develop as a result of inhaling phosphine gas or oral intake. Respiratory, circulatory, gastrointestinal tract and nervous system, kidney and liver may be affected. Shock, Acute Respiratory Distress Syndrome (ARDS), aspiration pnomony, anemia, metabolic acidosis, electrolytic disorder, coma, hipoxy, hemorrhage, pericardide are poor prognosis criterion. Leukopenia indicates severe toxicity. The lethal dose is 0.15-0.5 g and death is in evitable even when buying 3-5 tablets. Arrhythmia is responsible for death in the first 24 hours. The mortality rate varies between 37-100%. Treatment consists entirely of supportive treatment (liquid, dopamine, oxygen, mechanical ventilation, gastric washing, activated charcoal, bicarbonate, hemodialysis)[1-3].

We aimed to present the case that developed systemic complications in follow-up, but we discharged with healing as a result of appropriate follow-up and treatment. A 16 year old female patient was rushed to the emergency room two hours ago for drinking more than she knew the amount of the drug containing aluminum phosphide for suicidal purposes. When the patient arrived, his general condition was moderate, conscious, pale sweaty appearance and tachypnea, breathıng: 26/min, TA:60/40mmHg, Pulse:135/min, fever:37 degree systemic examination showed no abnormalities. Initial blood values, electrocardiography (ECG) and chest x-ray were normal. The patient was followed up in the emergency department. 1000 ml serum physiological started. In order to reduce the formation of phosphine gas (with alkalism), oral bicarbonate was started. TA:100/70mmHg in the 2nd hour of follow-up and chest pain developed. The first Troponin I value was: 0.02 (0-0.06 ng/ml). In echocardiography (ECHO) ejection fraction was determined 57%. In the blood gas, PH was 7.32 and there was metabolic acidosis. Her acidosis level improved in the 6th hour of the followup. The control Troponin value was 0.21. Asetil salisilik acid started at 100 mg. At the 12th hour white blood cell (4-11 k/ml) decreased from 12000 to 4000. However no abnormality was detected in other

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hemogram values. At the 20th hour, her chest pain gone and her troponin values increased up to 1.45. No ECG change detected. Her acidose improved and lokopenia not seen. The patient's control, liver and kidney function tests and ECHO were normal. No abnormality was detected in the followups, polyclinic controls and laboratory values on the third day of the hospitalization. The patient was discharged from the hospital with suggestions.

Aluminum phosphide is an extremely mortal toxic substance. During the follow up sun wanted complications can develop. Merely satisfactory results can be achieved with valid, timely and appropriate supportive treatments.

References

1. Gurjar M, Baronia AK, Azim A, Sharma K. Managing aluminum phosphide poisonings. Journal of emergencies, trauma and shock. 2011;4(3):378.
2. Bogle R, Theron P, Brooks P, Dargan P, Redhead J. Aluminium phosphide poisoning. Emergency Medicine Journal. 2006;23(1):3-7.
3. Mehrpour O, Jafarzadeh M, Abdollahi M. A systematic review of aluminium phosphide poisoning. Arhiv za higijenu rada i toksikologiju. 2012;63(1):61.