

Rice Tablet Poisoning in Iran

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Abstract : Aluminum phosphide (ALP) is an inorganic phosphide used to control insects and is a highly effective insecticide and rodenticide used frequently to protect stored grain. Acute poisoning with this compound is common in some countries including India and Iran, and is a serious health problem. In Iran it was known as "rice tablet", for its use to preserve rice. Two kinds of rice tablets one being herbal while other containing 3g aluminum phosphide (ALP) are available for use in Iranian households to protect stored food grains from pests and rodents. The toxicity of Aluminum phosphide is attributed to the liberation of phosphine gas in contact with water or weak acid and is the major cause of poisoning and deaths. Rice tablet (Aluminum Phosphid) poisoning may be associated with serious and sometimes incurable complications. In 61.3% of patients were shown uniform ingestion. Vomiting was the most common symptoms reported by 96.4% patients. Agitation was reported in 36.9% and felling of thirsty in 27.9 %. Although many complications such as Hypotension, Adult Respiratory Distress Syndrome (ARDS), Acute Renal Failure (ARF) AND Multi Organ Failure (MOF) were the common complications observed in these patients, but the most lethal complication was Cardiac Arrhythmias occurred in 36.9% of cases. Abdominal pain in 31.4% of the patients, nausea in 79.4% of the patients and 41.1% of the patients showed metabolic acidosis. Suicidal intention was the most common cause of poisoning leading to deaths in 18.6% of the patients. Aluminum phosphide can cause either elevation, decrease or no change in electrolytes, bicarbonate and blood glucose level. The possible mechanism for changes in blood glucose levels are complex and depend on the balance of factors which increase its concentration and those which reduce it. ALP poisoning has been postulated to stimulate cortisol which leads to increasing blood level of cortisol, also it may cause stimulation of glucagon, and Adrenaline secretion; in addition, it can inhibit insulin synthesis which may lead to hyperglycemia. Another suggested mechanism of hyperglycemia is rennin activity in some cases, an increase in magnesium level of plasma and that of tissues, and high phosphate level. Although hyperglycemia is most frequent in this poisoning and also is known as a marker of poor prognostic, hypoglycemia in aluminum phosphide poisoning is a rare finding which may be so dangerous. Patients showed sever hypotension and sever acidosis in addition to sever hypoglycemia. The presenting features of ALP intoxication are rapid onset of shock, severe metabolic acidosis, cardiac dysrhythmias and adult respiratory distress syndrome (ARDS).

Keywords : aluminum phosphide (ALP), rice tablet, poisoning, phosphine gas

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