Letter to the Editor

A Newly Proposed Management Protocol for Acute Aluminum Phosphide Poisoning

Dear Editor,

Aluminum phosphide (ALP) which is locally called rice tablet is a known fumigant used in grain storage facilities with a greenish–gray tablet that has a rotten fish or garlic odor.[1] Rice tablets contain ALP, urea, and ammonium carbamate, which through contact with water, steam, and gastric acid produce phosphine gas (PH_3). Phosphine gas is highly toxic, flammable, and is a protoplasmic poison.[1]

Ingestion of 500 mg of ALP can be fatal in an adult and its LD50 is 10 mg/kg. (Each ALP tablet liberates up to 1 g of PH_3.) The mortality rate following metal phosphide ingestion is 31%–77%. Most of the deaths are due to cardiovascular collapse, refractory shock, severe acidemia, fulminant hepatic failure, and adult respiratory distress syndrome.[1-3]

All ALP exposures should be treated as potentially life-threatening. Management should be rapidly initiated based on a history and clinical examination and should not be delayed for the confirmatory diagnosis. Due to the lack of an antidote, the treatment has already included symptomatic and supportive treatments.[1-5]

Many medical interventions have been proposed for the treatment of patients with acute ALP poisoning, but data supporting their efficacy are lacking. Many publications report concurrent administration of a number of therapies in the hope of a benefit.[1-5]

The efficacies of these therapeutic methods remain uncertain and the outcome of ALP poisoning is still disappointing, with a high mortality. Unfortunately, due to the high toxicity, low cost, and availability, ALP causes a lot of intentional and accidental poisoning and, as a result, many deaths in Iran.[3,5]

Due to the lack of a single therapeutic guideline with a clinically acceptable efficacy for the treatment of ALP poisonings, the Department of Clinical Toxicology of Noor University Hospital (Affiliated with the School of Medicine at Isfahan University of Medical Sciences, Isfahan, Iran) has recently proposed and developed a new therapeutic approach, which is now under clinical evaluation in a registered and ethically approved clinical study that its components have been investigated in some separate previously published studies. In our study, the efficacy and safety of this newly proposed management/treatment protocol are compared with the standard supportive care which is recommended by the relevant medical textbook.[1]

The components of the newly proposed management/treatment protocol are gastric evacuation, castor oil, calcium gluconate, magnesium sulfate, albumin, hyperinsulinemia–euglycemia therapy, amiodarone, sodium bicarbonate, N-acetyl salicylic acid, Vitamin C (acsorbic acid), Vitamin E, methylene blue, coenzyme Q-10, silymarin, curcuma, and pralidoxime.

According to our plan, this study will approach its aims gradually (due to small number available poisoned cases) and the final results of it will be published within the next 2 years.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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Access this article online

Quick Response Code:

Website: www.jrpp.net

DOI: 10.4103/jrpp.JRPP_18_12

How to cite this article: Dorooshi G, Zoofaghari S, Mood NE, Gheshlaghi F. A newly proposed management protocol for acute aluminum phosphide poisoning. J Res Pharm Pract 2018;7:168-9.