Human poisoning with Hexaconazole :A Rare Case Report

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Abstract: Acute pesticide poisoning is an important public health problem worldwide and accounts for a significant number of deaths occurring each year. Most of these fatalities are due to poisoning with organophosphorus insecticides which are an integral part of agriculture. Invariably such compounds are released into the market without appropriate data on direct human toxicity Hexaconazole poisoning is uncommon in India and only few case reports have been described. We hereby report a case of hexaconazole poisoning presenting with altered sensorium and drowsiness, who showed good clinical response to supportive treatment with successful recovery.

Introduction

India is an agricultural country with a large rural population where pesticides are freely available and are used extensively and quite frequently for self-poisoning.[1]

Hexaconazole is systemic triazole fungicide.

Chemical name being Alpha -butyl-alpha- (2,4-dichloro-phenyl) -1H- 1,2,4-triazole-I-ethanol. The isomer accounts for most of the fungicidal activity.[2] It works by blocking the assembly of the cell membrane of fungi.

It was introduced in 1986 and is registered as foliar applied fungicide for cereals, vegetables, field crop & fruits.

WHO has classified hexaconazole as slightly hazardous based on acute toxicity and has concluded that it is "unlikely to present acute hazard in normal use" (WHO, 1990).[3]

Hexaconazole possesses low acute toxicity by all routes of exposure- oral, dermal and inhalational.

Case report

A 42 year old male patient came with alleged history of consumption of Hexaconazole compound with intention of deliberate self harm. Patient had one episode of vomiting, with no history of convulsions and loss of consciousness. He did not have any co morbidities.

On arrival, patient was found to be in altered sensorium. On physical examination, vitals were stable with oxygen saturation of 97 percent at room air. There was no pallor, cyanosis, or injury marks. On neurological examination, patient was drowsy with Glassgow coma scale of E2V2M5 = 9/15, with no focal neurological deficits.

Respiratory system examination revealed Bilateral conducted sounds with crepitations in right infraxillary and infrascapular region.

A provisional diagnosis of suspected Hexaconazole poisonoing was kept and gastric lavage was performed and the sample was sent for toxicological analysis.

Lab investigations showed mild leukocytosis with normal haemoglobin, RBC and platelets counts. Renal function and serum electrolytes were within normal limits. But liver function tests were slightly deranged with SGOT 49.4 U/ ltr, SGPT 79 U/ltr. Chest X ray showed right lower lobe haziness, attributed to aspiration pneumonia. ECG was normal. Toxicological analysis confirmed the gastric lavage sample as hexaconazole.

The patient was treated symptomatically along with good supportive and general nursing care in the absence of any specific antidote. After two days of symptomatic treatment patients level of consciousness improved. Patient was discharged after two more days of observation with an advice to follow- up.

Discussion

Triazole pesticides are the products of plant, fungal and animal bioconversion. They are toxic and are metabolised into variable products depending on the nature of the parent compound. Hexaconazole is readily absorbed and excreted in both urine and feces. Metabolites undergo extensive glucuronidation, biliary excretion,and enterohepatic recirculation. The majority of the metabolites are oxidation products of the n-butyl chain.[4]

Acute oral toxicity- LD 50 = 2189 mg/kg

Acute dermal toxicity- LD 50 >/ 2000 mg/kg

Acute inhalational toxicity- LD50 >/ 5.9 mg/l

Accidental ingestion of the material may be harmful. Long-term use may result in bone weakness, increased risk of blood clots, gastrointestinal disturbance, and sweats.[5] Prolonged eye contact may cause inflammation characterised by a temporary redness of conjunctiva.

Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper

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screenings should be conducted on individuals who may be exposed to further risk .[6]

Conclusion

Hexaconazole poisoning usually presents with CNS manifestations like lethargy, drowsiness and coma (in severe intoxication). Supportive treatment can lead to successful recovery

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