



Case Report

Pretilachlor poisoning in India- a case report

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Abstract

Pretilachlor is one of the commonly used Chloroacetanilide herbicides all across the globe including in India. Acute intoxication with Pretilachlor has been rarely reported in the literature. Its clinical manifestations in humans can mimic more commonly encountered organophosphorus poisoning. In addition, there is a need to look for neurotoxicity and hepatotoxicity. Treatment of this poisoning is symptomatic and physicians should be aware of systemic complications.

Keywords- Pretilachlor; Herbicide; Poisoning

Introduction

Pesticide poisoning is among the most common means of suicide globally. It can be prevented with the regulation of the most hazardous agents. [1] Pretilachlor {2-chloro-2',6'-diethyl-N-(2propoxyethyl) acetanilide}[2] is one of the chloroacetanilide herbicides which are commonly used to control grasses, broad leaved weeds and floating aquatic species in transplanted and direct-seeded rice. Herbicide residues lead to a potential risk for aquatic plants and are extremely toxic to the

aquatic ecosystem.[3]The mode of action of Chloroacetanilide herbicides is not understood, but it is known that this class of herbicide inhibits the biosynthesis of lipids, alcohols, fatty acids, proteins, isoprenoids and flavonoids.[4-5] Acute oral intoxication of pretilachlor in humans can present with clinical manifestations resembling organophosphate toxicity.[6]We report a case of a 40-year-old female who presented to our medical emergency department with Pretilachlor(50%EC) ingestion.Although the current incidence of this poisoning is rare but is likely to increase with more widespread use and easy availability. The clinicians especially those working in the rural and semi-urban agriculture belt need to be aware of clinical manifestations and management of acute poisoning with this class of compounds.

Case report

A 40- year- old female was brought by her husband to the Medical Emergency Department of our hospital with thealleged history of suicidal ingestion of poison 5 hours back. Upon enquiring about the nature of the substance ingested by the patient, the relatives showed us the picture of the container label named Pretilachlor (50% EC). The patient had 3-4 episodes of vomiting and 1 episode of abnormal body movements lasting for 15-20 seconds before coming to the hospital. There was no past history of any psychiatric illness or suicidal attempts previously. No history of chronic illnesses like DM2, Tuberculosis, chronic liver disease,chronickidneydisease or any recreational drug use. On physical examination her pulse rate was 108bpm regular, respiratory rate was 20 per min abdominothoracic type, blood pressure was 106/54mmhg,the temperature was 99.2 F, oxygen saturation of 94% on room air and pupils weresemi-constricted but reacting to light. Upon systemic examination, CVS was normal,the chesthad bilateral normal air entry with no adventitious sounds, abdomen soft, with active bowel sounds. Therewas no evidence of focal neurological deficit. The case was reported to the National poisoning Centrehelpline at AIIMS New Delhi.

The patient was managed with gastric lavage with 5-6 litres of normal saline followed by maintenance IV fluids, antiemetics, and proton pump inhibitors. Her ECG depicted normal sinus rhythm. X-ray of the chest was unremarkable. Results of her routine investigations are given in table -1. Urinary catheterization was done and strict input-output charting was maintained. The patient was intensively monitored in the medical ICU and she recovered within 48 hours. A psychiatric evaluation was done before discharge.

Discussion

Though Chloracetanilide herbicides (Pretilachlor, Alachlor, Butachlor and Metachlor) are widely used across the globe, there are very limited data in humans about acute poisoning after oral ingestion of these agents. The clinical manifestations after acute ingestion of these compounds have ranged from asymptomatic or mild symptoms in the majority of patients to fatal outcomes in a few patients in published studies. Common manifestations include

nausea, vomiting, diarrhoea, abdominal pain, hypotension/hypertension, bradycardia/tachycardia, hypoxemia, respiratory failure, rhabdomyolysis, fever, seizures, drowsiness, stupor, and coma [9]. Our patient who reached the hospital after 5 hours of ingestion of the pretilachlor had 3-4 episodes of vomiting and one episode of seizure-like abnormal body movements lasting 15-20 seconds, tachycardia, a body temperature of 99.2° F and Spo2 of 94% on room air. All the routine lab investigations (Table-1) were normal except for mild unconjugated hyperbilirubinemia possibly due to undiagnosed Gilbert's syndrome. In in-vivo and in-vitro studies, chronic exposure to chloracetanilide might be involved with neurotoxicity, genotoxicity and carcinogenicity [7-8]. About 20-25 % of orally exposed patients in these studies have shown an effect on the central nervous system which suggested the severity of poisoning. So, the clinician treating patients with CNS involvement should vigilantly monitor and treat such patients. Compared to asymptomatic, the symptomatic patients have been reported to have lower serum bicarbonate

Table 1: Routine laboratory parameters during the hospital stay.

Investigation		On the day of the poisoning	Next day	Ref. Value
CBC	Hb	11	10.5	12-15 gm/dl
	TLC	6300	4100	4k-10k cells/cu
	Platelets	1.30	1.30	1.5-4.0 lac/cum
	DLC	N82L16E1M1	N62L33E3M2	
KFT	Urea	38	40	15-40 mg/dl
	Creatinine	1.0	1.0	0.6-1.1 mg/dl
	Na ⁺	140	139	136-145 meq/L
	K ⁺	3.5	3.0	3.5-4.5 meq/L
	Ca ²⁺	9.0	8.8	8.5-10.5 mg/dl
ESR		48		0-20 mm/hr
LFTTt.	Bilirubin	2.9		0.0-1.2 mg/dl
	Direct Bilirubin	0.9		0.0-0.4 mg/dl
	Indirect Bilirubin	2.0		0.0-0.6 mg/dl
	SGOT28	<31 IU/L		
	SGPT18	<34 IU/L		
	ALP71	42-98 IU/L		

levels and were of an older age group. A couple of cases of rhabdomyolysis possibly because of the direct myotoxic effect of pretilachlor have been reported in one study.[9] Our patient being younger in age had only mild poisoning and recovered uneventfully in two days. To the best of our knowledge, this is the first case report of Pretilachlor poisoning from India.

But being rarely reported poisoning, more close clinical observations and studies of the pathophysiological effects of Chloracetanilide herbicides are needed for further insights into the action of these compounds. These herbicides are transformed by soil micro organisms and primarily degraded into two derivative products as ethanesulfonic acid (ESA) and oxanilic acid (OA). It has been postulated to occur as a result of displacement of chlorine atom of the parent compound by glutathione, followed by the formation of ESA and OA which degrade by different enzymatic pathways.[10] Despite the above glutathione theory, we don't have an antidote for this poisoning. So, the mainstay treatment of this poison remains conservative till date.

Conclusion

Though oral chloracetanilide herbicide poisoning is rarely reported in the literature and has been of low toxicity, the elderly and patients with CNS involvement need close monitoring. Symptomatic and supportive management till further studies help in better understanding of the pathophysiology and finding some specific antidote. Publication of case reports and case series may help in increasing awareness of this rare poisoning.

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