e-ISSN: 0975-5160, p-ISSN: 2820-2651

Available online on www.ijtpr.com

International Journal of Toxicological and Pharmacological Research 2022; 12(6); 14-16

Case Report

Pendimethalin Poisoning: A Case Report

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Received: 10-04-2022 / Revised:20-05-2022 / Accepted: 27-05-2022
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Conflict of interest: Nil

Abstract

In India majority of the population (around 65%) live in rural area. Pendimethalin is a commonly used herbicide with slight toxicity. Suicidal or accidental poisoning from this herbicide is rare. We are reporting a case of a 15 year old female who presented in emergency with history of vomiting, altered sensorium and generalized weakness after alleged history of ingestion of concentrated pendimethalin. She developed aspiration pneumonitis so was admitted in intensive care unit. There she recovered after receiving supportive treatment.

Keywords: Herbicide, Management, Pendimethalin

Introduction

Pendimethalin (C13H19N3O4) is a dinitroanaline herbicide, used for control of broad leaf weeds and grasses which prevent growth of agricultural crops. [1] Poisoning occurs due to ingestion of herbicide and is commonly suicidal in nature. Usual symptoms of toxicity are nausea, vomiting, sore throat, drowsiness and headache. Here in, we are reporting a case of a patient who developed aspiration pneumonitis after ingestion of pendimethalin.

Case report

A 15 year old girl was brought to emergency with acute episodes of vomiting, altered sensorium and generalized weakness after ingestion of herbicide. The diagnosis of pendimethalin poisoning was made from the used containers of the poison brought by realtives. She took approximately 50 ml of herbicide pendimethalin to end her life. After around 30 mins, she presented with recurrent episodes of watery vomiting, headache, burning sensation and throat irritation and abdominal pain. She became drowsy followed by shortness of breath and unconsciousness for which patient was intubated and shifted to intensive care unit.

On arrival in intensive care unit, she was agitated, confused, and delirious. Vital parameters were within normal limits such as

temperature 98 F, pulse rate 60/minute, blood pressure 110/80 mmHg and respiratory rate: 18/minute with bilateral chest crackles on auscultation. Patient had GCS of 8/15 (E2V2M 4) with decreased movements of all four limbs and normal reacting pupils. She was put on ventilator on synchronous intermittent positive pressure ventilation mode. She was kept sedated using inj. fentanyl and inj. midazolam infusion. Non contrast computed tomography (NCCT) head was normal, echocardiography showed normal left ventricular function with ejection fraction of 60%. High resolution computed tomography (HRCT) chest showed multifocal air spaces consolidated, ground glass, and peribronchial nodular opacities in bilateral lung fields suggestive of acute aspiration pneumonitis. Other laboratory investigations including complete blood count, liver and renal function, erythrocyte sedimentation rate were within the normal limits. She was managed conservatively with fluid therapy, nebulization, inj. omeprazole along with broad spectrum antibiotics. She showed good response to treatment.

On the fourth day, sedation was stopped and patient was extubated succusfully. She was conscious, oriented and was following commands. Next day, she was shifted to ward with stable hemodynamics. She was discharged after two days.

Discussion

Agrochemical poisoning commonly occurs due to exposure to compounds like organochlorides, organophosphates and aluminium phosphides [2] as these are available freely at cheap rate. However these lethal compounds are being replaced with compounds which are more potent but having less intrinsic toxicity to humans. Poisoning with herbicides like pendimethalin and paraquet is not common. Pendimethalin toxicity mainly occurs through oral ingestion. Moon et al conducted a retrospective study to observe clinical manifestations, management and final outcome of 17 patients intentionally poisoned with pendimethalin herbicide. Four patients admitted in intensive care with in 24 hours of admission as they developed hypotension, metabolic acidosis and respiratory failure. Patients who presented with chest X-ray abnormalities and altered mental status developed complications. Mortality was not observed. Respiratory failure was the most common complication observed. This study concluded that pendimethalin poisoning may cause metabolic acidosis, pancreatitis, respiratory failure and hypotension. [3]

Pendimethalin is selective herbicide which has been classified as a possible carcinogen by U.S. EPA. [4] Lethaldose 50 (LD50) of pendimethalin was found to be range from 1050 mg/kg- 5000 mg/kg when ingested or exposed through skin in rats. [5] When ingested large amount is excreted in faeces without absorption in gastrointestinal tract while small amount is metabolized in liver and kidneys. [6]

Our patient had ingested 15ml of pendimethicin and developed altered consciousness and aspiration pneumonitis. She was intubated in view of poor consciousness and received broad spectrum antibiotics for pneumonitis. Rest of the treatment was supportive. Timely management lead to improvement and patient was discharged with stable hemodynamics. Pendimethalin is only slightly toxic even when ingested in large amounts. But physician should be aware of mixed herbicide poisoning which can be fatal. As the cases of poisoning by ingestion of herbicides are increasing, awareness programs are being operated by the government. [7]

This case depicts that poisoning with typically non-toxic compounds should not be ignored by physicians as these compounds can damage multiple organs and cause complications like respiratory failure. Vigilant behavior and timely management of

pendimethalin poisoning can avoid complications and can save lives.

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