



CODEN [USA]: IAJPBB

ISSN: 2349-7750

**INDO AMERICAN JOURNAL OF  
PHARMACEUTICAL SCIENCES**<http://doi.org/10.5281/zenodo.2907806>Available online at: <http://www.iajps.com>

Research Article

**COMPLICATIONS OF PARAPHENYLENE POISONING**<sup>1</sup>Anumn Ayab, <sup>2</sup>Ali Asghar, <sup>3</sup>Azba Kiran

Kishwar Fazal teaching hospital, Sheikhpura

Article Received: March 2019

Accepted: April 2019

Published: May 2019

**Abstract:****Objective;** Frequency of complication of Paraphenylene poisoning.**Methods;** This cross sectional study was carried out at Kishwar Fazal teaching hospital Sheikhpura during January to July 2017. The cases with PPD poisoning assessed on history irrespective of gender and age were included. they were assessed during hospital for various complications.**Results;** In the present study there were total 100 cases of PPD poisoning out of which 71% were females and 29% males. The mean age of the cases was  $29.67 \pm 8.21$  years. The mean duration of presentation was  $7.98 \pm 1.09$  hours (table I). Complications were seen in almost all the cases but few had overlap of these symptoms. The most common presentation was seen as dysphagia which was observed in 65% of the cases and this was followed by hyperkalemia 45%, maxillofacial edema 35% and acute renal failure 35%.**Conclusion;** PPD poisoning is not uncommon and they lead to complication in almost all cases and most common one is dysphagia.**Key words;** PPD, Dysphagia, ARF.**Corresponding author:****Anumn Ayab**

Kishwar Fazal teaching hospital, Sheikhpura

[anumhussain1122@gmail.com](mailto:anumhussain1122@gmail.com)

QR code



Please cite this article in press Anumn ayab et al., *Complications Of Paraphenylene Poisoning.*, Indo Am. J. P. Sci, 2019; 06(05).

**INTRODUCTION:**

The trends in suicide is increasing day be day due to change in the mental status and also the vulnerability of the younger generation to modern day stress. According to a survey around a million number of deaths are seen due to suicidal attempts and majority of these cases are in the developing countries specially south Asia and Africar. [1-2]

There are number of agents that are being used for this and among them Paraphenylene Diamine also knows as PPPD is recently gaining popularity which is used for hair dye considering its cheap prices and easy availability. [3]

PPD is a substance that quickly dissolves in hydrogen peroxide and then in the body, it is metabolized by cytochrome P450 system leading to its oxidation and ending up in a very toxic product that can escalate different types of reaction and even anaphylaxis.[4-5] Patients can present with range of symptoms and signs depending upon the route of intoxication, amount of its used and duration before reporting to the hospitals. [6-8] The sings and symptoms include anaphylaxis reaction with swelling over the face and the oral cavity, dysphagia, and also injury to the pharynx, tongue and upper gastrointestinal tract (GIT). It can also causes acute hepatitis, renal failure, different types of arrhythmias and electrolyte imbalance. [9-10]

**Objective:**

Frequency of complication of Paraphenylene poisoning.

**MATERIAL AND METHODS:**

This cross sectional study was carried out at Kishwar Fazal teaching hospital Sheikhpura during January to July 2017 The cases with PPD poisoning assessed on history irrespective of gender and age were included. they were assessed during hospital for various complications.

**Statistical analysis:**

The data was assessed by using SPSS version 23. Frequencies and percentages were calculated for various complications and mean and standard deviation for quantitative data.

**RESULTS:**

In the present study there were total 100 cases of PPD poisoning out of which 71% were females and 29% males. The mean age of the cases was  $29.67 \pm 8.21$  years. The mean duration of presentation was  $7.98 \pm 1.09$  hours (table I). Complications were seen in almost all the cases but few had overlap of these symptoms. The most common presentation was seen as dysphagia which was observed in 65% of the cases and this was followed by hyperkalemia 45%, maxillofacial edema 35% and acute renal failure 35% as in table II.

**Table no. I. Demographics**

	Mean	Range
Age	$29.67 \pm 8.21$	13-55 years
Weight	$49.24 \pm 12.44$	25-102 kg
Duration of poisoning (hours)	$7.98 \pm 1.09$	1-24

**Table No II Types of Complications n= 100**

Complications	N	%
Acute renal failure	34	34%
Cardiac arrhythmia	26	26%
Acute hepatitis	15	15%
Dysphagia	65	65%
Hyperkalemia	46	46%
Maxilofacial edema	35	35%

**DISCUSSION:**

Paraphenylene Diamine also known as Kala pathar is a hair dyeing agent. It is widely used to color the hair due to its cheap price and easy availability across the developing third world. The properties that lead to its easy use share the same chance and risks leading to its intoxication and hence ending up in range of complications including fatal outcomes.

In the present study, complications were seen in almost all the cases but few had overlap of these symptoms. The most common presentation was seen as dysphagia which was observed in 65% of the cases and this was followed by hyperkalemia 45%, maxillofacial edema 35% and acute renal failure 35%. These results were close to the findings of the studies done in the past. According to a survey carried out by Khuhro et al similar was seen and they also observed complication in almost 100% of their 16 cases. [11] The studies done by the Kellel H et al and Prabhakaran AC et al also revealed that similar percentage had it. [12-13] Hyperkalemia can be due to rhabdomyolysis that is resulted due to toxic injury of this substance to the muscular system. There was almost equal distribution of acute renal failure and arrhythmia with slightly higher number of renal failure. The direct toxicity of the substance to kidneys and the added factor of rhabdomyolysis can be the cause of it. The studies done by Tiwari D et al also found renal failure in higher number and found as higher as 38% of their cases. [16]

**CONCLUSION:**

PPD poisoning is not uncommon and they lead to complication in almost all cases and most common one is dysphagia.

**REFERENCES:**

1. WHO. Suicide huge but preventable public health problem says WHO. World health organization. Geneva, Switzerland: World Health Organization; 1990.
2. Eddleston M. Patterns and problems of deliberate self-poisoning in the developing world. *Quart J Med.* 2000;93:715-31.
3. Khuhro BA, Khaskheli MS, Sheikh AA. Paraphenylene diamine poisoning: our experience at PMC Hospital Nawabshah. *Anaesth Pain Intens Care.* 2012;16(3):243-46.
4. Soni SS, Nagarik AP, Dinaker M, Adikey GK, Raman A. Systemic toxicity of paraphenylenediamine. *Ind J Med Sci.* 2009;63:164-66.
5. Lalila AH. Histopathological alterations in renal tubules of female rats topically treated with Paraphenylene diamine. *World Appl Sci J.* 2012;16(3):376-88.
6. Sakuntala P, Khan PM, Sudarsi B, Manohar S, Siddeswari R, Swaroop K. Clinical profile and complications of hair dye poisoning. *Int J Sci Res Pub.* 2015;5(6):1-4.
7. Jain PK, Agarwal N, Kumar P, Sengar NS, Agarwal N, Akhtar A. Hair dye poisoning in Bundel khand region (prospective analysis of hair dye poisoning cases presented in Department of Medicine, MLB Medical College, Jhansi). *J Assoc Phys Ind.* 2011;59:415-19.
8. Khan N, Khan H, Khan N, Ahmad I, Shah F, Rahman AU, et al. Clinical presentation and outcome of patients with paraphenylene diamine kala-pathar poisoning. *Gomal J Med Sci.* 2015;14:3-6.
9. Nemeth J, Maghraby N, Kazim S. Emergency airway management: the difficult airway. *Emerg Med Clin North Am.* 2012;30:401-20.
10. Jain PK, Sharma AK, Agarwal N, Jain PK, Sengar NS, Nutan A, et al. A prospective clinical study of myocarditis in cases of acute ingestion of paraphenylene diamine (Hair dye) poisoning in Northern India. *J Assoc Phys Ind.* 2013;61:633-37.
11. Khuhro BA, Khaskheli MS, Sheikh AA. Paraphenylene diamine poisoning: our experience at PMC Hospital Nawabshah. *Anaesth Pain Intens Care.* 2012;16(3):243-46.
12. Kallel H, Chelly H, Dammark H, Bahloul M, Ksibi H, Hamida CB, et al. Clinical manifestations of systemic paraphenylene diamine intoxication. *J Nephrol.* 2005;18:308.
13. Prabhakaran AC. Paraphenylene diamine poisoning. *Indian J Pharmacol* 2012;44:423-24.
14. Tiwari D, Jatav OP, Dudani M. Prospective study of clinical profile in hair dye poisoning (PPD) with special reference to electrocardiographic manifestations. *Int J Med Sci Public Health.* 2016;5(7):1313-16.