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COMPLICATIONS OF PARAPHYENYLINE DIAMINE POISONING

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Abstract;
Objective: *To determine the frequency of complications in cases with paraphyenylene diamine poisoning.*
Methods: *This was a cross sectional study carried out from January 2016 to December 2016 at Sheikh Zayed hospital, Rahim Yar khan. This paraphyenylene diamine poisoning was assessed by the history of its intake from the patients or family. The cases of any gender and age with adult range of 18 years or more were included. The cases with end stage renal or liver failure were excluded. These cases were then assessed to look for various complications in the form of acute renal failure, arrhythmias, dysphagia, edema, acute hepatitis and hyperkalemia.*
Results*: In this study there were 100 cases of paraphyenylene poisoning. Out of these 72 (72%) were females and the mean age of the cases was 29.33±6.57 years and mean duration of poisoning before presentation to hospital was 7.11±1.02 hours. The overall complications were seen in 78 (78%) of the cases and majority of the cases had overlapping of more than one complications. The most common complication was dysphagia which was seen in 47 (47%) of the cases followed by cardiac arrhythmia which was seen in 23 (23%) of cases. acute renal failure and hyperkalemia were seen in 12 and 11% of cases and 2 (2%) of cases died due this poisoning.*
Conclusion: *Paraphyenylene poisoning is common in developing counties and almost all the cases developed some complication and most frequent one was dysphagia.*
Key words: *Paraphyenylene diamine, ARF, Dysphagia, Hepatitis*

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INTRODUCTION:

Poisoning is one of the high burden and fatal conditions which are encountered in daily emergency setting and its number is on the rise day by day in the developing countries. According to a survey, more than a million deaths are seen due to poisoning worldwide [1]. The number has almost doubled in the last fifty years [2].

Paraphyenylene Diamine (PPD) is a hair dying substance which is cheap and is easily available everywhere and is gaining recent popularity. However, its toxicity can not be denied [3]. Its also known as kala pathar in Asian countries. PPD dissolves in hydrogen peroxide and then in the body, it is metabolized by cytochrome P450 system leading to its oxidation and enduing up in a very toxic product that can escalate different types of reaction and even anaphylaxis [4,5].

Toxicity can be caused by oral intake as well as through trans dermal absorption which is very rate. It can lead to various complication and include maxillofacial edema, dysphagia, anaphylaxis, acute hepatitis, acute renal failure, hyperkalemia, cardiac arrhythmias and even mortality [6-10].

MATERIAL AND METHODS:

This study was carried out from January 2016 to December 2016 at Sheikh Zayed hospital, Rahim Yar khan**.** This study was done in cases with paraphyenylene diamine poisoning which was assessed by the history of its intake from the patients or family. The cases of any gender and age with adult range of 18 years or more were included. The cases with end stage renal or liver failure were excluded. These cases were then assessed to look for various complications in the form of acute renal failure, arrhythmias, dysphagia, edema, acute hepatitis and hyperkalemia.

STATISTICAL ANALYSIS

The data was entered and analyzed by SPSS version 22.0. The categorical data was presented in the form of frequencies and percentages while quantitative data was presented as mean and standard deviation.

RESULTS:

In this study there were 100 cases of paraphyenylene poisoning. Out of these 72 (72%) were females and the mean age of the cases was 29.33±6.57 years and mean duration of poisoning before presentation to hospital was 7.11±1.02 hours as in table I. The overall complications were seen in 78 (78%) of the cases and majority of the cases had overlapping of more than one complications. The most common complication was dysphagia which was seen in 47 (47%) of the cases followed by cardiac arrhythmia which was seen in 23 (23%) of cases. acute renal failure and hyperkalemia were seen in 12 and 11% of cases and 2 (2%) of cases died due this poisoning as displayed in table II.

Table No. I: Demographics

	Mean	Range
Age	29.33±6.57	18-48
BMI	25.45±3.17	22-37
Duration of poisoning (hour)	7.11±1.02	1-24

Table No. II: Complications

Complications	N	%
Dysphagia	47	47%
Cardiac arrhythmias	23	23%
Maxilo-facial edema	17	17%
Acute renal failure	12	12%
Hyperkalemia	11	11%
Acute Hepatitis	6	6%
Mortality	2	2%

DISCUSSION:

Paraphyenylene Diamine (PPD) is used to dye hair and can be toxic when absorbed trans dermally. In the recent times, its use as suiciding agent is also increasing and anaphylaxis is the most common cause and the other complications leading to fatal outcomes include arrhythmias renal and hepatic failure. In the present study the poising was more seen in females and those with younger age groups. This was also seen by various studies with similar results.[7, 11] This can be explained by the factors that females are usually more emotionally labile and younger age is also vulnerable to take aggressive steps in the form of suicidal attempts.

The overall complications were seen in 78 (78%) of the cases and majority of the cases had overlapping of more than one complications. The most common complication was dysphagia which was seen in 47 (47%) of the cases. This was similar to the studies in the past. According ot a study carried out by Khuhro et al, the complications were seen in all their sixteen cases and dysphagia was also seen in all the cases. All the cases in their study were due to oral ingestion.[13] Hyperkalemia was much higher in their study where it was seen in 53.33% of cases as compared to 11% of the cases in the present study. The studies done by the Kellel H et al and Prabhakaran AC et al also revealed that dysphagia was the most common complication. Cardiac arrhythmia in their studies were seen in 12 to 34% of the cases and the most common arrhythmia was premature ventricular contraction followed by atrial fibrillation.[14-15] Acute renal failure was seen in 12% of the cases. Tiwari D et al, in their study found this in 38% of the cases.[16]

CONCLUSION:

Paraphyenylene poisoning is common in developing counties and almost all the cases developed some complication and most frequent one was 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. Suliman SM, Fadlalla M, Naser MM, Beliela MH, Fesseha S, Babiker M, et al. Poisoning with hair dye containing Paraphenylene Diamine: ten years experience. Saudi J Kidney Dis Transpl. 1995;6:286-89.
12. Nirmala M, Ganesh R. Hair dye - an emerging suicidal agent: our experience. Online J Otolaryngol 2012;2:16380
13. Khuhro BA, Khaskheli MS, Sheikh AA. Paraphenylene diamine poisoning: our experience at PMC Hospital Nawabshah. Anaesth Pain Intens Care. 2012;16(3):243-46.
14. 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.
15. Prabhakaran AC. Paraphenylene diamine poisoning. Indian J Pharmacol 2012;44:423-24.
16. 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.