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Super Vasmol (Hair Dye) Poisioning- Tracheostomy Life Saving Procedure

KEYWORDS: Super vasmol,PPD,Emergency tracheostomy.

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ABSTRACT *Introduction-Super vasmol, a commonly used liquid hair dye is a cheap and freely avail-able in the market as Godrej keshkala, super vasmol 33 and easily consumable. So it is a major cause of suicidal & accidental poisoning in India. The major life threatening com-pound in this hair dye is para-phenylenediamine (PPD) and can cause rhabdomyolysis, laryngeal edema, severe metaboloic acidosis, acute renal failure and myocarditis .Materials and methods- It is a prospective study of 50 patients of super vasmol poisioning over the period of 1 year in Kurnool medical college kurnool.During the period between May-2015 to April 2016. This study reveals the importance of early surgical intervention in the form of tracheostomy in patient of super vasmol poisioning with severe stridor.Results- All patients who have undergone tracheostomy were rescued from the death due to respir-atory obstruction. Some of these patients 7 out of 50 were sent to nephrology department for dialysis.2 out of 7 dialysis patients were died. Conclusion-Emergency trachestomy is a life saving procedure in super vasmol poisoining with severe stridor . Delay in hospitaliza-tion is directly proportional to the number of deaths of patients.*

INTRODUCTION

Super vasmol 33 is an emulsion base hair dye commonly used in India. Super vasmol (hair dye) in rural areas is emerging as a major cause of suicidal poisioning in India. The active ingredients includes paraphenylenediamine (PPD),propylene glycol, liquid paraffine,cetostearyl alcohol,sodium lauryl sulfate and resorcinol. Some of these ingredients are known toxins with multi organ effects, while the toxicity profiles of others are not known. The combined effect of the individual compounds may be responsible for its significant morbidity and mortality. Accidental and intentional causes of hair dye poisoning have been reported from various parts of India**.** Self-poisoning tendency was predominant in young females of lower and middle socioeconomic class. It is usually ingested to threaten the family members if their demands were not met. The hair dye is extremely cheap and freely available, making it an attractive suicidal option. In India popular hair dyes contain PPD with other hair ingredients. PPD is present in most hair dye brands like „super vasmol 33", „Godrej", Keshkala, colour mate etc. which are available in powder or liquid forms. The concentration of PPD varies from, 2 to 10% in branded dyes. The features of poisoning were observed with consumption of even lower volumes such as 25 mL. There was a threefold increase in the values of the markers of rhabdomyolysis and hepatitis upon consumption of larger volume suggesting its dose-dependent toxicity. With large volumes, there was an increase in morbidity such as patients needing ventilator support, duration of hospital stay and mortality. The classical features of acute poisoning were seen within 3-6 hrs. Common clinical manifestations of PPD are cervicofacial edema, chocolate brown colored urine, oliguria, muscular edema, and shock. Hypocalcaemia may occur in the setting of severe rhabdomyolysis or due to sodium EDTA. Patients can develop seizures, which may be due to toxins in dye or as a result of hypocalcaemia. Poisoning due to PPD has a high mortality. Therefore, early recognition can be life saving. As there is no specific antidote, the management of poisoning is supportive therapy. Respiratory distress is the major early challenge, which may require ventilator support. Renal support in the form of dialysis is required in acute renal failure.

MATERIALS AND METHODS

The present study conducted on 50 cases of supervasmol poisioing who required emergency trachestomy in 1 year period i.e May 2015 to April 2016, Kurnool Medical College Kurnool.Family problems and failure in examinations, depression disorders were the reasons for ingestion mainly suicidal in these 50 cases. Edema of face , neck and dysphagia are the predominant symptoms. These super vasmol poisioning cases came to the casuality of Government general hospital Kurnool and presented with stridor with low spo2.We shifted the cases to emergency operation theatre and did Emergency Tracheostomy and upper airway obstruction relieved and saturation was maintained. and We shifted the cases to acute medical care unit for observation & tracheostomy tube care. Every patient completed a detailed questionnaire providing information about amount of poison consumed. Routine blood investigations were carried out in all the patients within hours following admission. Examination of other systems (lungs, liver and kidney) was carried out. Patients breathing / respiratory pattern, colour of the urine, other signs of renal failure (oliguria, pedal oedema) were recorded. Patients were enquired about related symptoms of hair dye poisoning like muscle pain, diarrhea, episodes of vomiting, pain abdomen and burning micturition. Levels of serum creatinine, blood urea, serum potassium, liver functional tests, chest radiographs were carried out in all patients.

RESULTS

The total number of supervasmol cases that came to the casuality in one year period were 96. Out of them 50 patients required emergency tracheostomy and remaining 46 cases were asymptomatic.Only who undergone emergency tracheostomy i.e 50 cases were included in this study. In 50 cases 43 cases were females and 7 cases were males with a female preponderance of 86%. According to our study females between 21-35 years are the major victims of super vasmol poisioning 43/50(86%) cases in contrast to males being less no of cases of poisioning 7/50(14%). According to age group, majority patients of supervasmol poisioning belongs to 2nd and 3rd decades. Seven out of these 50 cases showed the symptoms of acute renal

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failure symptoms like oliguria, pedal edema and raised serum creatinine and blood urea. We referred these cases to nephrology department and they adviced dialysis.5 out of these 7 were recoverd with dialysis and 2 were died.

Age and sex distribution of Super vasmol poisioning

Age	Male	Female	Total
0-10	0	2	2
11-20	2	7	9
21-30	4	20	24
31-40	1	13	14
41-50	0	1	1
	7	43	50

Total number of cases	Emergency tracheostomy	No of patients required dialysis	No Patients recovered after dialysis	No Patients died even after dialysis
50	50	7/50	5/7	2/7

DISCUSSION

The brand Super Vasmol 33 is an emulsion containing 4 g of PPD in 100mL costing only Rs. 35/-. Hair dyes could be perceived as "not bad enough to kill" by the vulnerable victims who may be taking it just with an intention of threatening the family. Unlike the other commonly used organophosphates, hair dye can be bought without raising suspicion of suicidal intentions, particularly in small villages with closed communities. PPD is shown to cause rhabdomyolysis in rats by promoting leakage of calcium ions from the smooth endoplasmic reticulum resulting in prolonged muscle contraction and irreversible change in muscle structure.The diagnosis of PPD intoxication is largely dependent on clinical manifestations. The clinical features are rather unique and in the absence of laboratory facilities in many developing countries the angio-edema of the face and neck together with the hard protruding tongue and the chocolate-brown color of the urine are used for clinical diagnosis. Organ damage may be assessed by appropriate tests for rhabdomyolysis, and kidney and liver involvement. The urine can be tested for PPD using thin layer chromatography which is essential for medico-legal purposes . However, this test is not routinely available and there is a need for a rapid test to demonstrate PPD in blood or urine. The effects of resorcinol in acute poisoning after oral ingestion are limited. Resorcinol ingestion is associated with convulsions, salivation, dyspnea, emaciation and hyperemia of the GI tract. The lowest lethal dose (LDL) of resorcinol in humans has been reported as 29 mg/kg body weight. Systemic manifestations of resorcinol poisoning may include nausea, dyspnea, methemoglobinemia, tachypnea, pallor and profuse sweating, with hypotension and tachycardia. Resorcinol is also Neurotoxic and its acute exposure effects range from seizures, followed by CNS depression to lethargy, coma and death. Common clinical manifestations of systemic toxicity due to PPD are cervicofacial edema, chocolate brown or COLA colored urine, upper airway tract edema, oliguria, muscular edema and shock. The biological results were dominated by rhabdomyolysis, metabolic acidosis, acute renal failure and hyperkalemia.Treatment is mainly supportive depending on clinical features at presentation. Tracheostomy is a life saving measure for an obstructed airway, and some patients may need endotracheal intubation. Antihistamines and steroids are commonly used because of the possibility of a hypersensitivity reaction to PPD but there is no evidence to support this mode of treatment. Alkaline diuresis using isotonic saline, sodium bicarbonate and diuretics is used in the management of myoglobinuria with variable results. There is no specific antidote available, and trials of PPD removal using hemoperfusion and hemodialyis had variable results. However, dialysis is an effective supportive measure in case of oliguric or anuric AKI. Management of the patients depends on the amount of poison consumed and time lag between poison consumption and onset of treatment. Dialysis should be performed in patients with severe acute renal failure not responding to conservative treatment. Injection calcium gluconate is useful in patients with severe muscle cramps and hypocalcaemia. Injection of paracetamol and tramadol is warranted for patients with severe myalgias. Psychiatric counseling given to all recovered patients. PPD poisoning is a common health problem in the Middle East, especially Sudan and Morocco. It is also common in India but rare in the west. An eleven year 1992 to 2002 retrospective study from Morocco described 374 cases of PPD poisoning, majority of patients (54%) were 15-24years age group and children contributed 11.5%. In Sudan, over a 10 year period (1995 to 2005) 3159 patients were reported PPD poisoning, among 18% of children below the age of 14 years. So most reported cases were from adolescents & adults, but a significant number of cases occur among children. A retrospective study of 25 cases over period of 7 years (2001 to 2008) in Egypt. In the present 1 year prospective study 50 cases analyzed. Maximum incidence observed in 2nd &3rd decades which is correlating with PK Jain et al and other studies .There were female preponderance of 77% as per Ayoub Filali ***et al***, 80.7% as per M.Hamdouk and 74.86% PK Jain et al. It was 86% in the present study. Suicidal in 78.1% as per Ayoub Filali ***et al*** and were 87% as per M.Hamdouk2. It was 99% in our study which was tallying with PK Jain et al. Mayabrahma Prabhakar et al conducted a study on super vasmol poisioning in 73 patients over 2 year period all were undergone Emergency tracheostomy due to laryngeal edema.13 0ut of 73 sent to Nephrology department for dialysis. In our present study 50 patients were undergone emergency tracheostomy.14% (7 out of 50) patients were required hemodialysis.5 out 7 patients were recovered with dialysis and 2 out of 7 patients not recovered with dialysis& died. High Mortality noticed with this poisoning. 42% of Mortality occurs within 24 hours of diagnosis. Mortality rate was 21.1% as per Ayoub Filali and it was 4% only in this study which depends on the quantity of consumption. Mortality rate was lowered by 10% possibly because of availability of dialysis facilities.

CONCLUSION

The supervasmol poisioning is common suicidal attempt in India. All patients who had undergone tracheostomy were rescued from succumbing to death due to acute respiratory obstruction. Hence Emergency tracheostomy is a life saving procedure in super vasmol poisioning with airway obstruction.

REFERENCES

[1]. R. Verma, N. Tewari, S. Jaiswal, V. Rastogi,D.K. Singh and A. Tiwari. Fatal poisoning caused by oral ingestion of a hair dye. The Internet Journal of Emergency and Intensive Care Medicine 2008;11(1):1092-4051.

[2]. Mohamed I. Hamdouk, Mohamed B.Abdelraheem, Ahbab A. Taha, Mohamed Benghanem and Marc E. De Broe. Paraphenylene diamine hair dye poisoning.Clinical Nephrotoxins 2008;3:871-879.

[3]. Mohamed Abdelraheem, Mohamed Hamdouk, Eduard E Zijlstra. Paraphenylene Diamine (Hair Dye) Poisoning in Children. Arab Journal of Nephrology and Transplantation 2010;3(1): 39-43

[4]. Krishnaswamy Sampathkumar, Sooraj Yesudas.Hair dye poisoning and the developing world.Emerg Trauma Shock 2009 May- Aug;2(2):129-131.

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[5]. Soni SachinS, Nagarik AmitP, Dinaker Manjunath, Adikey GopalKishan, Raman Anuradha. Systemic toxicity of paraphenylenediamine. Indian Journal of Medical Sciences April 2009;63(4):164-166.

[6]. Sawsan A Shalaby, Mohy K Elmasry, Amany E Abd-Elrahman, Manal A Abd-Elkarim. Clinical profile of acute paraphenylenediamine intoxication in Egypt. Toxicology and Industrial Health 2010;26(2):81-87

[7]. Ayoub Filali,Liham Semlali et al., A retrospective study of acute systemic poisoning of paraphenylene diamine in Morocco Afr. J.Trad. CAM 2006;3(1):142-149.

[8]. PK Jain, N Agarwal, P Kumar, NS Sengar, Nutan Agarwal, Asif Akhtar. Hair Dye Poisoning in Bundelkhand Region. JAPI JULY 2011;59:415-18.

[9] Indian J Otolaryngol Head Neck Surg. 2014 Jan; 66(Suppl 1): 281–285. Published online 2012 Feb 19

[10] S. Deepak Amalnath, Pradeep Kumar, Vikram Murmu, D. K. S. Subramanyam and T K Dutta.Hair dye poisoning in India. JIPMER (JAN-MARCH) 2007;27(1):34-5.