

Short Communication

Incidence of Suicides by Poisoning with a Popular Indian Brand of Hair Dye

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ABSTRACT

Hair dyes are being used extensively by the general populace in India, and several brands are available in the market. There are increasing reports of suicidal ingestion of hair dye from various parts of the country because of easy availability and high lethality.

This autopsy study was conducted with reference to deaths resulting from suicidal exposure to one of the most popular brands of permanent hair dye (Super Vasmol 33) in this part of the country, in order to understand the incidence and implications. Results revealed a female preponderance, with the most common age group affected being 20-30 years.

Key Words: Hair dye; Vasmol 33[®]; Paraphenylenediamine; Autopsy study

Introduction

Super Vasmol 33[®] is a popular emulsion-based permanent hair dye, containing mainly paraphenylenediamine (4%), with liquid paraffin, cetostearyl alcohol, sodium lauryl sulphate, EDTA disodium, resorcinol, propylene glycol, herbal extracts, and permitted preservatives and perfume.

The present study was carried out in the district of Karaikal (of Union Territory of Puducherry) on deaths due to Super Vasmol 33[®] poisoning from 01 January 2008 to 31 December 2009, as there were alarming indications of growing incidence of poisoning due to this particular brand of hair dye in this region.

This is an autopsy-based survey of deaths due to this particular brand of hair dye. In all cases, reliable history was available of ingestion of Super Vasmol 33[®], and viscera specimens from the cadavers were sent to the regional Forensic Science Laboratory for chemical analysis. Relevant tissue specimens were also collected for histopathological analysis.

Results

There were a total of 9 cases (all females) falling within the period of study (01 January 2008 to 31 December 2009). **Table 1** shows different age groups affected, with the majority of the cases belonging to the 20-30 year group. **Table 2** concerns toxicological reporting, which showed negative result in five cases, while three cases were positive for aromatic amino compounds. The common causes of death were acute renal failure (5) and asphyxia (4).

Table 1 Age Distribution of Cases

Age (yrs)	Number of Cases
0-10	Nil
10-20	1 (11.11%)
20-30	6 (66.67%)
30-40	1 (11.11%)
50-60	1 (11.11%)

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Table 2 Results of Toxicological Analysis

	Aromatic amino compounds	Unknown alkaloidal drugs	Negative
No. of cases	3	1	5
Percentage	33.33	11.11	55.56

Discussion

Paraphenylenediamine (PPD) is a derivative of paranitro aniline. Chemically, it is an aromatic diamine related to aniline. However, the major product formed is Bondrowski's base, which is allergic, mutagenic and highly toxic.¹

Resorcinol is a toxic phenolic derivative, and a corrosive chemical. It is known to cause irritation to the eyes, skin, and GI mucosa.²

This study comprised 9 victims, all females, all suicidal in nature, and mostly belonged to the 20-30 year age group (66.67%). Toxicological analysis revealed aromatic amino compounds in 3 cases (33.33%), while five cases (55.56%) were negative for these compounds, probably because they were excreted due to longer duration of survival. In all cases, the mode of intake was ingestion.

Postmortem findings were mostly consistent with an earlier cohort study of 374 Moroccan patients from 1992 to 2002,³ and consisted of swelling of the face and neck, froth mixed with blood oozing out of the mouth and nos-

trils, congested conjunctivae and oral mucosa, and swollen tongue. Extremities showed bluish purple discolouration. Internal viscera were mostly congested, and some cases revealed evidence of renal tubular necrosis on histopathological examination. Urinary bladder invariably contained dark brown urine in cases which survived for more than 24 hours, with congested mucosa. Pulmonary oedema was also common, as also petechial haemorrhages of the surface of the myocardium. Histopathological examination revealed rhabdomyolysis in some cases.

Acknowledgement

The authors would like to thank Dr. P Sivasankara Pillai, former Director of Medical Education, Govt. of Kerala, and Dr. N. Murthy of General Hospital, Karaikal, for their valuable guidance and help.

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