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Toilet Cleansing Agent (Harpic) Poisoning and its Outcome among Patients attending in Rajshahi Medical College Hospital

M Emdadul Haque*[1], M Zahirul Haque[1], Abu Shahin Mohammed Mahbubur Rahman[1]

[1] Department of Medicine, Rajshahi Medical College Hospital, Rajshahi, Bangladesh

Abstract: ***Background:*** Harpic is a toilet cleansing agent. Due to its accessibility, Harpic poisoning is common among young people. We conducted this study to assess the poisoning of the toilet cleansing agent (Harpic) and its outcome among patients attending Rajshahi Medical College Hospital. ***Methodology:*** This observational study involved 50 patients who were exposed to Harpic poisoning in the medicine department of Rajshahi Medical College Hospital from January 2018 to December 2018. ***Results:*** Here, the female-to-male ratio was 3.55:1, and the mean age of the patients was 24.9 ± 6.3 years. Most (74%) were between 18 and 30 years old. Our patients were more from urban areas (76%) than rural areas (34%). 78% of the cases were either illiterate or below the SSC level. 88% of patients took Harpic for suicidal attempts. The average amount of Harpic ingestion was 21.6 ± 8.4 ml. In all cases, the tongue, throat, and abdomen felt painful and burning. 54% had endoscopic evidence of injury in different grades, including 20% had Grade II A injuries, 2% had Grade IIB lesions, and 32% had Grade III lesions. Around 84% of cases completely recovered, whereas the rest developed some complications. Only one case developed esophageal stricture. Fortunately, no death occurred. ***Conclusion:*** In this study, younger individuals often ingested Harpic as a means of suicide, with more cases among females living in urban areas. Grade III lesions were predominant on endoscopy, and about 85% were fully cured. The study's limitations include a short follow-up period and a small sample size, suggesting the need for further research.

Keywords: .

Original Research Article

Correspondence:
Dr. Md Emdadul Haque
Registrar,
Department of Medicine,
Rajshahi Medical College Hospital,
Rajshahi, Bangladesh
E-mail: dr.emdadmithu@gmail.com

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Article at a glance:

Study Purpose: *The purpose of this study was to investigate the effect of low dose OCP on ALT and AST, the most important two liver enzymes.*
Key findings: *Serum level of ALT and AST were increased with increased duration of OCP use.*
Newer findings: *Obesity was observed increase significantly with the duration of combined oral contraceptive use (p=0.001).*
Abbreviations: *ALT: Alanine Aminotransferase, AST: Aspartate aminotransferase and OCP: Oral contraceptive pill.*

INTRODUCTION

Poisoning is a common medico-social problem all over the world, causing considerable morbidity and mortality. Commonly encountered poisoning in our setting is organophosphorus compound (OPC), copper-sulfate, sedative, snakebite kerosene, paracetamol, and a significant portion is corrosive poisoning, particularly acid (4.98%).[1,2] The estimated prevalence of morbidity is above 50%, and the mortality is 13%.[3] According to the study 'Patterns of Self Poisoning by Household Substances' done by Mk K et al. among the corrosive agents Savlon and harpic[4] (a toilet cleaner contain hydrochloric acid (10%) as the active ingredient, along with butyl oleylamine and others in an aqueous solution.)[7] is the most common and prevalence are 50.4% and 30.8% respectively among the poisoning cases.[6] It is observed that the majority of victims are young and in their productive age group, and the reason may be the emotional vulnerability and the high accessibility of sanitary cleansing agent.[4,6]

In adults, Harpic ingestion is mainly suicidal rather than accidental. After ingestion, it immediately causes severe burn, erosion, and sometimes perforation.[6] Later, it causes stenosis, primarily affecting the distal and middle third of the esophagus, though no part is immune from the corrosive injury.[4,8]. Strictures can occur in the esophagus, the antrum, the body, or the pylori duodenal area[9-10,] which causes gastric outlet obstruction that leads to considerable morbidity.[7,11] Patients also suffer from a lack of nutrition due to varying grades of dysphagia and respiratory complications.[11-12] But the prime problem in managing the patient is symptoms and signs are poor indicators of the degree and extent of damage to the gastrointestinal tract.[13] . The best method to stratify patients with acute corrosive ingestion is upper gastro duodenal endoscopy, whose safety has been well established.[13-14]

Despite the significant mortality and morbidity of toilet cleansing agent (Harpic) poisoning, there is a lack of systemic inquiry regarding Harpic poisoning and its outcome. Most of the research focused on a pattern of poisoning and its prevalence. Therefore, the study was designed to assess the poisoning of the toilet cleansing agent (Harpic) and its outcome among patients attending Rajshahi Medical College Hospital.

METHODS

This is a hospital-based observational study conducted among 50 poisoning patients who ingested toilet cleansing agent (Harpic) using a purposive sampling technique in the medicine department of Rajshahi Medical College Hospital, Rajshahi, from January 2018 to December 2018 after obtaining approval from the Ethical Review Committee.

Study procedure

Data were collected after obtaining informed written consent through face-to-face interviews and reviews of medical records using a pre-tested semi-structured questionnaire. The questionnaire gathered information on the respondents' details, socio-demographic factors, risk factors, and clinical presentations. If available, attendees were asked to provide a sample to confirm Harpic poisoning. Confirmation was done through photographs or reliable histories if no sample was available. Upper GIT endoscopy was then conducted and assessed using Zarger's modified endoscopic classification for burns due to Harpic ingestion. They are graded as below:

Grade 0: Normal mucosa
Grade 1: erythema/hyperaemia
Grade 2a: superficial ulcer /erosion /friability /haemorrhage/exudate
Grade 2b: findings in2a+deep discrete/circumferential ulcer
Grade 3a: Scattered necrosis (black/gray discoloration)
Grade 3b: extensive/circumferential necrosis of mucosa

RESULTS

In this study, out of 50 patients, thirty-nine (78%) were females, and only eleven (22%) were males, with an overall female-to-male ratio of 3.55:1. (Figure 1).

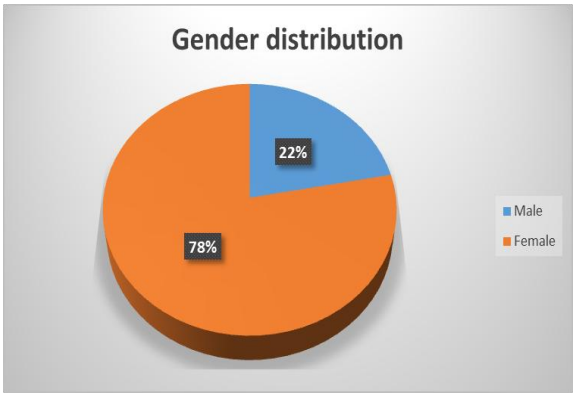

Figure 1: Gender distribution of the cases (n=50)

Age

The mean age of the 50 patients was 24.9 ± 6.3 years. Most (74%) were between 18 and 30 years old, with the remainder ranging from 18 to 48.

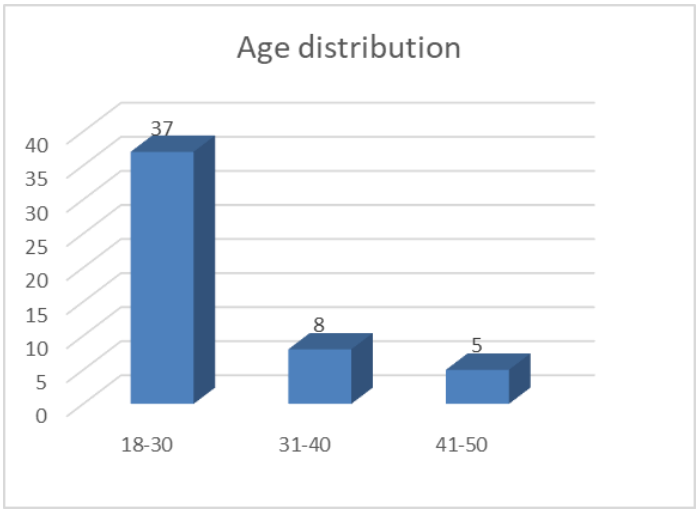

Figure 2: Age distribution of the cases (n=50)

Residence

Our study's patients were more likely to be from urban areas (76%) than rural areas (34%).

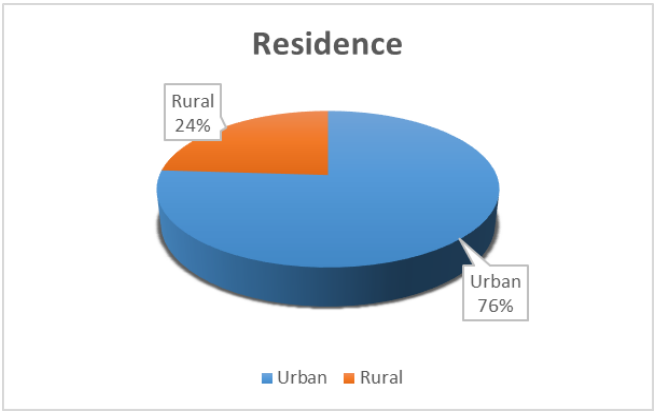

Figure 3: Distribution of cases according to their residence (n=50)

Marital Status

Thirty-one of the cases were married, and nineteen of them were unmarried (n=50).

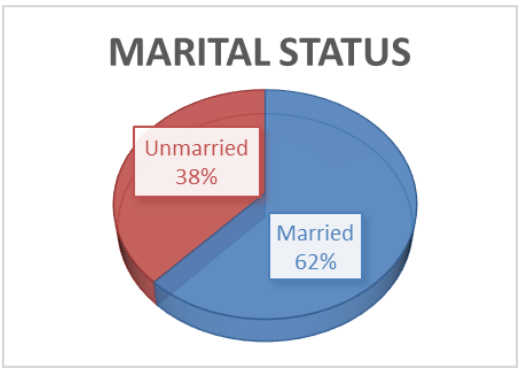

Figure 4: Marital status of the cases (n=50)

Education

The educational history of the cases showed that the majority were poorly educated. 78% of the cases were either illiterate or below the SSC level.

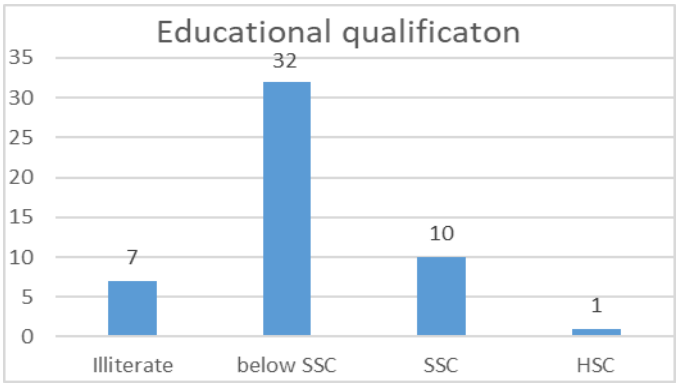

Figure 6: Educational qualification of the cases (n=50)

Occupation

According to the occupational history, most cases involved housewives or housemaids. Only 18% were employed.

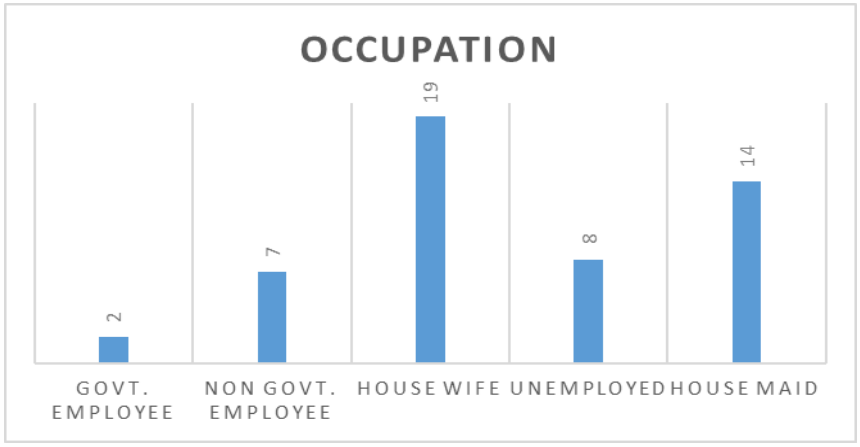

Figure 7: Occupational history of the cases (n=50)

Cause of Harpic ingestion: 88% of patients took Harpic for suicidal attempts.

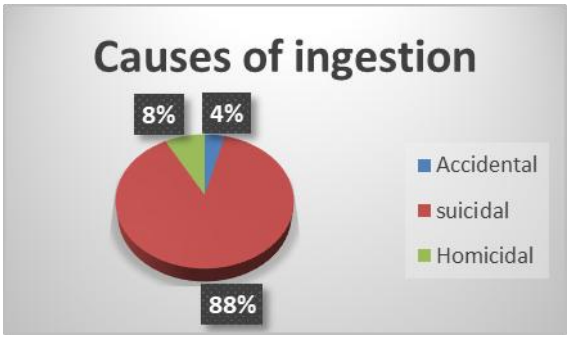

Figure 8: Causes of Harpic ingestion among cases (n= 50)

Clinical presentation

The average amount of Harpic ingestion was 21.6 ± 8.4 ml. In all cases, the tongue and throat felt painful and burning. Table 1 shows the presence of significant clinical symptoms among the patients.

Table 1: Presence of significant clinical symptoms in the cases (n=50)

Clinical symptom	Frequency	Percentage
Burning and Pain in the oral cavity	50	100
Abdominal pain	32	64
Vomiting	17	34
Hypersalivation	09	18
Dysphagia	38	76
Respiratory distress	18	36

Endoscopic findings

The majority of cases (23%) had normal endoscopic findings. About 54% of cases had endoscopic evidence of injury in different grades. 20% had Grade II A injuries, 2% had Grade IIB lesions, and 32% had Grade III lesions.

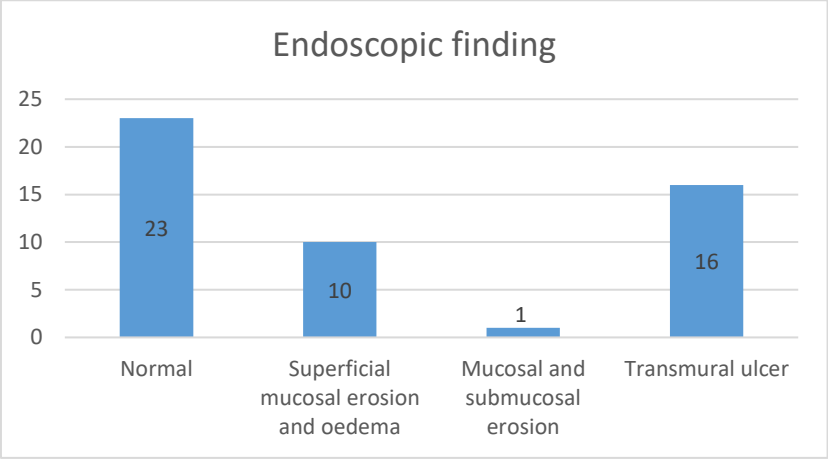

Figure 10: Endoscopic finding of the cases (n=50)

According to endoscopic findings, the major organ involved in the corrosive agent was the esophagus (19 cases), followed by the stomach (17 cases). Both the esophagus and stomach were injured in 12 cases.

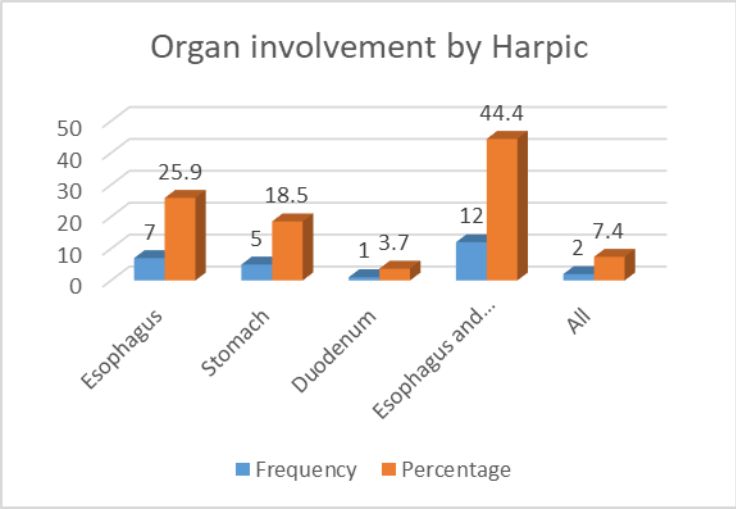

Figure 11: According to endoscopic findings, organs injured by the Harpic agent (n=27)

The outcome of the patient

The treatment result was satisfactory in most cases. Around 84% of cases completely recovered, whereas the rest developed some complications.

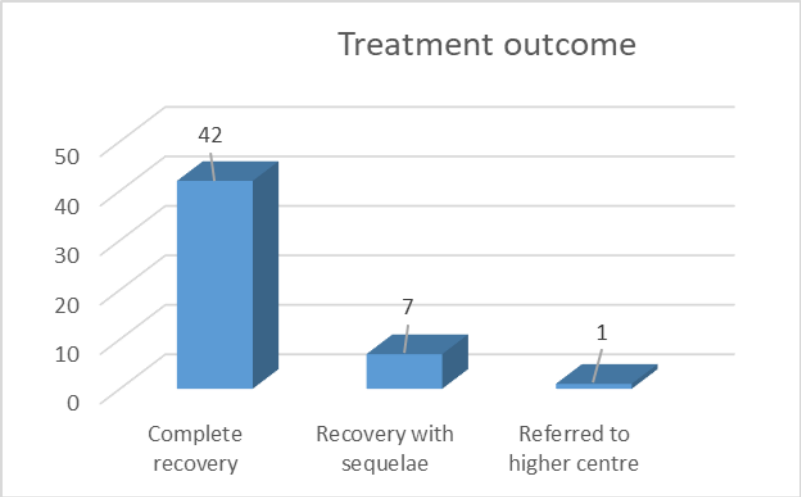

Figure 12: Treatment outcome of the cases (n=50)

DISCUSSION

Acute poisoning is a global problem that has steadily increased over the past few years in developing countries and has become one of the significant causes of morbidity and mortality in these countries[15,16]. This study was designed to observe the manifestation of toilet cleansing agent (Harpic) poisoning and its outcome among patients attending Rajshahi Medical College Hospital. We studied 50 cases of Harpic poisoning presented to the Department of Medicine in Rajshahi Medical College Hospital over twelve months. These patients were presented with a history of ingesting a toilet cleansing agent (Harpic) before admission, with or without a sample brought by the patient or attendants. Thirty-nine (78%) were females, and only eleven (22%) were males, with an overall female-to-male ratio of 3.55:1.

The mean age was 24.9 ± 6.3 years. Most patients were between 18 and 30 years old (74%), ranging from 18 to 48, consistent with a recent study by Caganova et al.[17] and Another study by Bari et al.[18] from Bangladesh. The result is such because young adults are more vulnerable to this health problem, which might be due to emotional and social disharmony, occupational issues, and risk-taking behaviors at these ages. More patients in our study were from urban areas (76%) than rural areas (34%). In 71 (73.95%) cases,[19] rural habitats were found. This result may vary because more people migrate from rural to urban areas. Also, the competition to live in urban areas leads to depression. Thirty-one cases were married, and nineteen were unmarried (n=50), the same as a study by Ali et al.20 from India; after marriage, economic problems in the family result in frequent quarrels and familial disharmony, leading to increased stress could be the explanation.

An educational history found that 78% of the cases were illiterate or below the SSC level. A study by Hashmi et al.[21] shows the incidence of corrosive ingestion was much higher in underprivileged populations belonging to lower socio-economic status. Another study[22] from Dhaka Medical Hospital (DMCH) shows that 45.20% were high school students, whereas Islam AHMS and Faiz MA[23] showed that 36.7% were illiterate. In my study, most cases involved homemakers or housemaids. Only 18% were employed. In a small series in DMCH[24], 16.7% were homemakers, 11.7% were business people, 11.6% were farmers, 1.7% were government employees, and 40% were other occupations. The primary cause of Harpic poisoning was ingestion of the corrosive agent as a suicidal attempt. A few cases had accidental or homicidal poisoning. A study reported from Hong Kong[25] showed that 95% took these products (mostly Dettol or cleaning products) with the intention of self-harm.

The average amount of Harpic ingestion was 21.6 ± 8.4 ml. All cases had painful and burning sensations in the tongue and throat. Also, there are complaints of abdominal pain, vomiting, hypersalivation, dysphagia, and respiratory distress; these matched with Zargar et al.[26] and Dilawari et al.[27]

Endoscopic examinations were done in all cases of Harpic poisoning. The majority of cases had normal endoscopic findings. We found that 54% of cases had endoscopic evidence of injury per Zargar's modified endoscopic classification; 20% had Grade II A injuries, 2% had Grade IIB lesions, and 32% had Grade III lesions. Our study was consistent with Fazz et al. [28] and Cheng et al. [29.] where mentioned that a higher volume of ingestion ($p = 0.021$) was significantly associated with a higher severity of mucosal damage with a higher morbidity rate. The treatment was satisfactory in most cases. 84% of cases recovered, whereas the rest developed complications. Only one case developed esophageal stricture, and the patient was referred to Dhaka. However, no death occurred in my study. A similar study from Bangladesh[30] showed that 79% of patients completely recovered, 3% of patients recovered with complications, and 18% of patients died.

CONCLUSION

In this study, younger people in the third decade of age frequently ingested harpic as a suicidal agent. Female respondents are more common and live predominantly in urban areas. About sixty percent of the population had endoscopic findings following ingestion of harpic, and grade III was the most prevalent. Considering the lesion, about 85% of patients were completely cured. However, the study was limited to a shorter follow-up period and a small sample size. Therefore, further study is recommended.

Limitations of the study

This was a single-center study with a small sample size**.** Long-term follow-up is still needed.

Recommendations

A more extensive study could be done to finalize the comments on the study findings.

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