Short Communication

Poisoning Surveillance and Creation of Protocol for the Treatment of Rare Poisons in a Private Corporate Hospital

Rexy J

ABSTRACT

A survey on the incidence of poisoning was conducted at Sri Ramachandra Medical College and Research Institute, Porur, Chennai, Tamil Nadu. The retrospective study by the Drug/Poison Information Center on incidence of poisoning in the department of Accident and Emergency Medicine indicated the requirement of treatment protocols for some rare poisons. Hence, the Drug/Poison Information Center developed and introduced the "Protocol for the Treatment of Rare Poisons" to the physicians of various departments and their response to the protocol was collected in the feedback form. Analysis of the feedback data revealed that the protocol was well appreciated by the physicians involved in the study.

Key words: *poisoning surveillance, poison protocol, rare poison, treatment protocol*

Introduction

As pharmaceutical care expands globally, pharmacists are expected to play an active role in patient care with newer responsibilities. One of the vital roles of Drug/Poison Information Pharmacists is to prepare protocols for the management of poisoning.[1] A protocol for the treatment of common/conventional poisons has been already established and maintained by the Drug/Poison Information Center for treatment of poisoning in the hospital where this particular study was done. Apart from this, protocols for some rare poisons were required. Hence, the Drug/Poison Information Center developed and introduced a "Protocol for the treatment of rare poisons" and obtained the feedback from the physicians to whom it was made available.

Objectives of the study:

- To survey the prevalence of poisoning cases from February-July 2002.
- To identify rare poisons for which treatment protocols were not available.
- To prepare the "Protocol for the treatment of rare poisons."
- Introduction of the protocol to the physicians of various departments and to obtain their feedback.

Materials and Methods

The study was conducted at Sri Ramachandra Medical College and Research Institute (Deemed University), Chennai, Tamil Nadu, which is a 2100-bedded multispeciality hospital. The plan of work was divided into four stages as follows:

Stage I:

- To survey the total number of poisoning cases in the Accident and Emergency Medicine department from Feb 2002 to July 2002.

Stage II:

- To identify the poisons for which the treatment protocols were not available.
- Preparation of the protocol for the treatment of rare poisons based on the analysis of the surveyed data, suggestions from the emergency physicians, and queries received by the Drug/Poison Information Center of the Hospital.
- Preparation of the feedback form.

Stage III:

- Introduction of the protocol to Accident and Emergency Medicine department and various Intensive

Lecturer, School of Pharmacy, UCSI (University College Sedaya International), Off Jalan Cerdas, Taman Connaught, Cheras, 56000, Kuala Lumpur, Malaysia

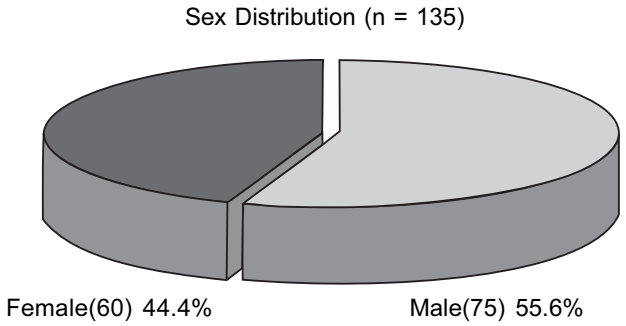
Care Units, and to obtain the feed back from the physicians.

Stage IV:

- Analysis and interpretation of data.

Results

Out of 6199 cases admitted to the Accident and Emergency Medicine department from February 2002 to July 2002 (6 months), 135 cases were diagnosed as due to poisoning. Analysis of these poisoning data revealed information that is laid out in the figures.



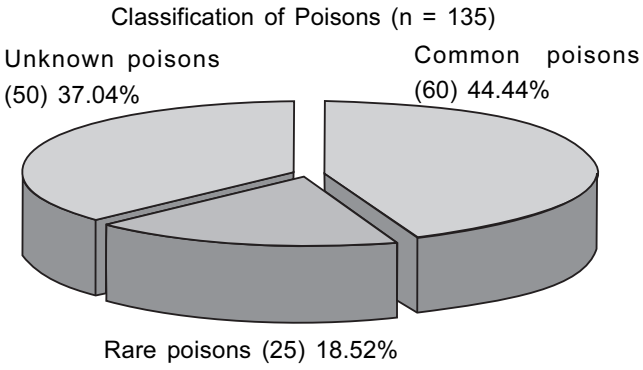
Note: 'n' represents number of poisoning cases

Fig. 1

The poisons were classified on the basis of whether the treatment protocol was already available in the conventional poison management protocol (common poisons) or not available (rare poisons).

Based on these data, queries received by the Drug/Poison Information Center from various departments and ICUs of the hospital, and suggestions from the physicians of Accident and Emergency Medicine department, "Protocol for the treatment of rare poisons" was prepared by the Drug/Poison Information Center for the poisons listed below.

1. Abrus precatorius [5,6]
2. Acid[3,4]
3. Bleaching solution[4,7]
4. Bleaching powder[4,7]
5. Camphor[5,8]
6. Copper sulphate[10,9]
7. Dapsone[11]
8. Datura[5]
9. Dettol[3,5]
10. Eucalyptus oil[4,5]
11. Kerosene[3,4]
12. Moth balls[4,12]
13. Nail polish remover[3,4]
14. Nerium oleander[5,13]
15. Phenyle[14,15]
16. Turpentine[3,5]



Note: 'n' represents number of poisoning cases

Fig. 2

The prepared protocol was circulated to the physicians of various departments like Accident and Emergency Medicine, General Medicine, Paediatrics, and Pharmacology along with feedback form. Totally 28 physicians participated in the study and feedback from all these physicians were analysed.

Discussion

Analysis of the survey reports reveals that 135 poisoning cases were identified out of 6199cases reported in the department of Accident and Emergency Medicine during the 6 months study period (February 2002-July 2002). Of the 135 poisoning cases reported, the male population (55.6%) fairly exceeded the female population (44.4%) (**Fig 1**).

A practice set of "Protocol for the Management of Common Poisons" had been distributed already to the Accident and Emergency Medicine department by the Drug/Poison Information Center of the Hospital. Hence, those poisons whose management protocols were available, were classified under 'Common Poisons'. Organophosphates, rodenticides (rat killer poison), and other insecticides such as carbamates, organochlorines, etc., were the more frequently encountered common poisons. Poisons for which the treatment protocols were not available in the Protocol for the Management of Common Poisons were classified as 'Rare Poisons'.

Common poisons accounted for up to 44.5%, and rare poisons up to 18.5% of the total number of poisoning cases. For 37% of the cases, the poison category could not be identified (**Fig 2**). The most frequent 'common poisons' included organophosphates (OPC) (45%),

rodenticides (30%), and other classes of pesticides (21.6%) such as carbamates and organochlorines (**Fig 3**). The most frequent 'rare poisons' comprised oleander, acids (corrosive), and kerosene (**Fig 4**).

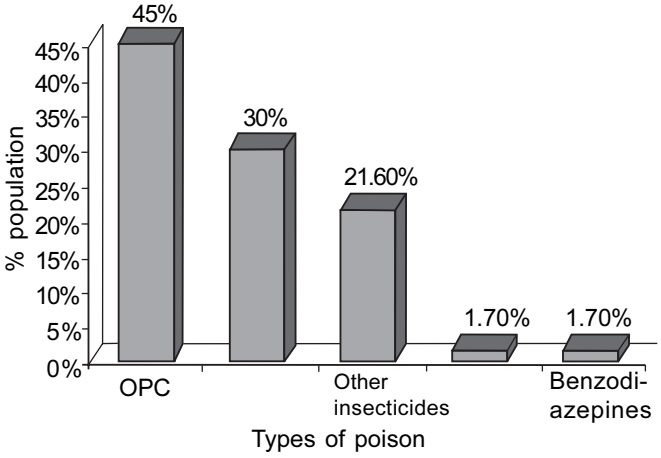


Fig. 3

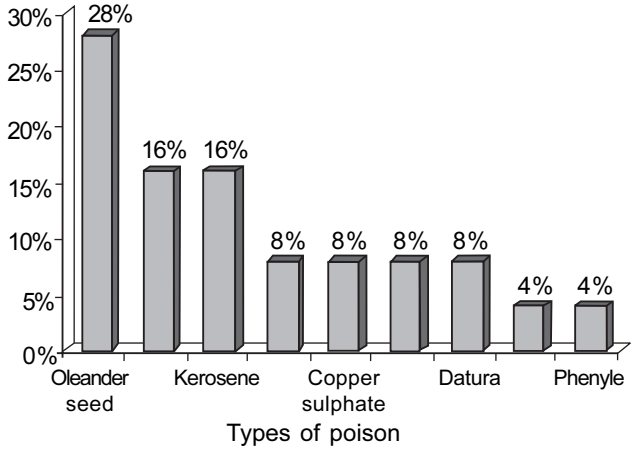


Fig. 4

The "Protocol for the Treatment of Rare Poisons" was framed to contain information such as other common names of the poison, toxic ingredient, clinical features of poisoning, and management of poisoning (life supportive procedures, symptomatic/specific treatment, decontamination, elimination and antidote therapy)[3,4,5]. All the physicians of Accident and Emergency Medicine department were included in the feedback study, which was the most dominant among all other departments included in the study (**Fig 5**). Postgraduates (64.3%) from various departments constituted the major group of respondents in the feedback survey (**Fig 6**). From the feedback obtained it is obvious that the "Protocol for the Treatment of Rare Poisons" was well received by the physicians of various departments.

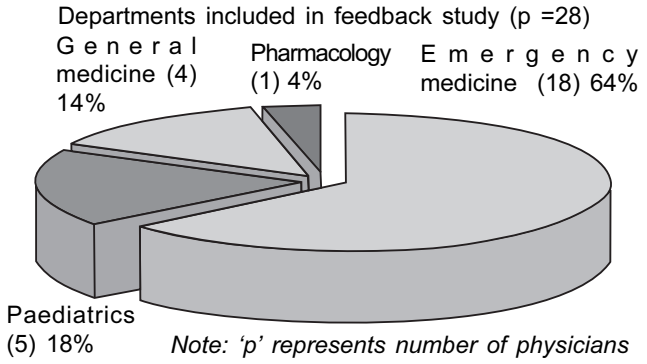


Fig. 5

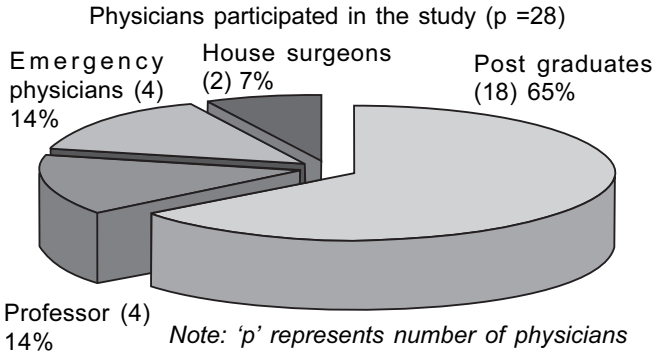


Fig. 6

Analysis of the 28 feedback forms received uncovered the following results. Based on the usefulness of protocol in the feedback analysis, 15 of the responders stated "Useful" and 18 responders stated "Highly Useful". Regarding adequacy, 19 responders stated "Adequate"and 8 responders suggested for the need of

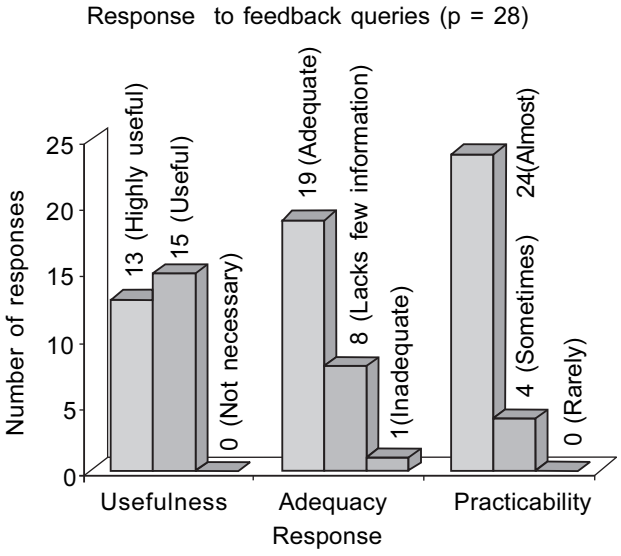


Fig. 7

some additional information. With reference to practicability assessment, 24 responders stated "Almost", whereas 4 responders stated "Sometimes". Overall response to the protocol was good and most of the physicians found it useful, adequate, and practicable. No response stating "Not necessary" or "Rarely practicable" was received, and only one response stated that the protocol was inadequate (**Fig 7**).

Conclusion

The protocol was welcomed and appreciated by all the physicians involved in the study. As suggested by most of the physicians, it is intended to update the protocol periodically and include more poisons. There are also plans to create a website in the near future, containing detailed treatment protocols for a wide range of poisons.

Acknowledgement

My sincere and special thanks to Ms.Vasantha Janardhan, Ms. Sompriti Roy, Ms. Sonia Jose, and Ms. Sudi Reddy Vasanthi for guidance and help in the study.

References

1. Sharma BR, Harish D, Sharma V, Vij K. Poisoning in Northern India: Changing trends, causes and prevention thereof. Med Sci Law. 2002; 42(3): 251-257.
2. Siwach SB, Gupta A. The profile of acute poisonings in Harayana - Rohtak Study. J Assoc Physicians India. 1995; 43(11): 756-759.
3. Dreisbach RH, Robinson WO, editors. Handbook of Poisoning: Prevention, Diagnosis and Treatment. 12th ed. Los Altos, California: Appleton and Lange; 1987. p. 180-219.
4. Kathleen Parfitt, editor. Martindale, The Complete Drug Reference. 32nd ed. London: The Pharmaceutical Press; 1999. p. 972-1410.
5. Kunkel DB. Poisonous plants. In: Haddad LM, Winchester JF, editors. Clinical Management of Poisoning and Drug Overdose. Philadelphia: Saunders; 1983. p. 317-1012.
6. Davis JH. Abrus precatorius (rosary pea). The most common lethal plant poison. J Florida Medical Assoc. 1978; 65: 189-191.
7. Racioppi F. Household bleaches based on sodium hypochlorite: Review of toxicology and poison control center experience. Fed Chem Toxicol. 1994; 32 (9): 845-861.
8. Aronow R. Camphor poisoning. J Amer Med Assoc. 1994; 235: l260.
9. Chuttani HK, Gupta PS, Gulati S, Gupta DN. Acute copper sulphate poisoning. Am J Med. 1965; 39: 849-854.
10. CCOHS (Canadian Centre for Occupational Health and Safety, Ontario, Canada 1999) Copper sulphate. CHEMINFO Record. International Programme on Chemical Safety (IPCS) INTOX CD-ROM, Issue 98-102.
11. Cooke TJL. Dapsone poisoning. Med J Austral. 1970; 23: 1158-1159.
12. Gidron E, Leurer J. Naphthalene poisoning. Lancet. 1956; 1: 228-230.
13. Bose TK, Basu RK, Biswas B, De JN, Majumdar BC, Datta S. Cardiovascular effects of yellow oleander ingestion. J Indian Med Assoc. 1999; 97(10): 407-410.
14. Baker EL, Landrigan PJ, Bertozzi PE, Field PH, Basteyns BJ, Skinner HG. Phenol poisoning due to contaminated drinking water. Arch Environ Health. 1978; 83: 94-98.
15. Haddad LM, Dimond KA, Schweistris JE. Case report: Phenol poisoning. Burns. 1979; 20: 45-50.