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Toxicology Information and Support Centre: Empowering Healthcare Professionals and the Public

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Abstract: *The Toxicology Information and Support Centre is a specialized resource designed to provide timely and accurate information on toxicology and poisoning management to healthcare professionals and the public. The centre aims to empower healthcare professionals with the knowledge and expertise needed to manage poisoning cases effectively, while also educating the public on poisoning prevention and safety. By providing 24/7 telephone and online services, expert advice, and educational resources, the centre plays a critical role in promoting public health and safety, and reducing morbidity and mortality due to poisoning. This abstract highlights the importance of the Toxicology Information and Support Centre in supporting healthcare professionals and the public in the prevention and management of poisoning.*

Keywords: Poison, Poison Information Centre, Toxicology

I. INTRODUCTION

Poisoning is a significant public health concern worldwide, accounting for a substantial number of hospitalizations, disabilities and deaths. In India, poisoning is a major health issue, with a high incidence of poisoning cases reported every year.

A Poisoning information centre is a specialized resource that provides timely & accurate information on poisoning management, prevention, and treatment. The centre serves as a vital link between health care professionals, the public, and the healthcare system, providing critical information & support to manage poisoning cases effective.

Toxicovigilance also studied in this and it is active process of identifying & evaluating the toxic risks existing in a community, evaluating the measures taken to reduce or eliminate them.

AIM

To establish a comprehensive and accessible poison information centre organization that provides accurate & timely information on poisoning management, reduces morbidity and mortality due to poisoning, and promotes poison prevention & safety in India.

OBJECTIVES:

- To provide 24/7 telephone & online services to healthcare professionals and the general public, offering expert advice on the diagnosis, treatment and management of poisoning cases.
- To collect, analyse, and disseminate data on poisoning trends and patterns in India
- To develop and disseminate educational materials and resources on poison prevention & safety
- To collaborate with healthcare professionals, regulatory agencies, and other stake holders to improve poisoning management & prevention
- To provide training capacity- building programmes for healthcare professionals on poisoning management & prevention
- To promote public awareness and education on poison prevention & safety through various media channels.

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POISON

A poison can be defined as any liquid, gas or solid substance ingested through oral, topical or inhalation route & has the potential to interfere with life processes of body organs of an organism

- The word poison has been derived from the latin word **POTARE** which means **TODRINK**
- The study of poison is known as TOXICOLOGY

TYPES OF POISONS:

It can be categorized into 3 broad groups

- Agricultural and industrial chemicals- Insecticides, herbicides, fungicides, rodenticides, plant growth regulators, hydrocarbons, alcohols, air pollutants
- Drugs and health care products – painkillers, transquilizers and sleeping pills, vitamins & iron pills and antidepressants
- Biological poison: plants & animal sources – representative toxic microfungi, representative poisonous mushrooms, representative poisonous plants, representative crinotoxic animals

ANTIDOTES USED AGAINST POISON

S.NO.	ANTIDOTE	INDICATION
1	Diazepam [I.V]	Organochlorine poison
2	Oral succimer [DMSA]	Lead, arsenic poison
3	Pentabarbitone [I.V]	Pyrethroids
4	Dimercaprol [I.M]	Cartap
5	Activated Charcoal	Herbicidal poisoning
6	Vitamin K [Oral]	Rodenticide poison
7	Unithiol	Copper poisoning
8	Acetyl cysteine	Paracetamol poisoning
9	Naloxone	Opoid overdose
10	Dextrose	Hypoglycaemia

POISON INFORMATION CENTRE[PIC]

It is a part of medical facility is able to provide immediate, free, expert treatment, advice and assistance over the telephone in case of exposure to poisonous or hazardous substances

INDIAN SCENARIO: In India, as of 2010 there was only four WHO recognised centres in india. In addition a few other centre established

The first national PIC was established in December 1994 at **"ALL INDIA INSTITUTE OF MEDICAL SCIENCES" [AIIMS],** New Delhi

POISON INFORMATION CENTRE IN INDIA:

S.NO	POISON INFORMATION CENTRE	LOCATION
1	PIC at all India institute of medical sciences[AIIMS]	Bhopal
2	PIC at Christian medical college	Vellore
3	PIC at amrithainstitute of medical sciences	kerala
4	PIC at JSS College of pharmacy	Ooty
5	PIC at government general hospital	Chennai
6	PIC at JN medical college	Karnataka
7	PIC at sriramachandra hospital	Porur
8	PIC at national institute of occupational health	Ahmedabad
9	PIC at kasthurba medical college	Manipal
10	PIC at kempagouda institute of medical sciences	Bangalore

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POISON INFORMATION CENTRE IN TELANGANA:

PIC at sriindu institute of pharmacy –Rangareddy

ROLES OF PIC:

- Emergency advice
- Poisoning treatment of guidance
- Identification of unknown substances
- Poison prevention & safety education
- Toxicovigilance

RESPONSIBILITIES OF PIC:

- Emergency response
- Information dissemination
- Research & surveillance
- Collaboration & partnership
- Community research

FUNCTIONS OF PIC:

- Provision of toxicological information & advice
- Management of poisoning cases
- Provision of laboratory analytical services
- Toxicovigilance activities
- Research education and training in the prevention & treatment of poisoning

ESTABLISHING A PIC:

A PIC should be available in every country irrespective of its size or population

Location –

- the centre should be located at a leading hospital with emergency and intensive care services as well as the medical library and lab
- it should be linked directlywith the hospital department were poison patients are treated
- the lab facilities of such hospitals should allow toxicological analysis
- it should operate 24 hours a day all year around

Staff –

- PIC needs a multidisciplinary team of poison information specialist lead by physicians with toxicological experience
- The team may include physicians, nurses, analysts, pharmacists, veterinarians, and other scientist from various fields including biology, chemistry, medicine & pharmacology
- A poison information specialist should work under the supervision of medical toxicologist
- Minimum of 2 poison information specialist should be on duty to answer calls

Equipment and facilities –

- Suitable office furniture and facilities for the storage of confidential data
- Specific areas should arranged for answering telephone enquiries, consultation with patients, preparation of documents, staff meetings &secretarial and administrative work
- PIC's should their own libraries & facilities for handling & reproducing documents

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Organization and Operation –

- The effective function of a PIC depends on the availability of an adequate volume of evaluated data to furnish a basis for advice given
- PIC's should establish a mechanism for obtaining access to adequate data on commercial products from manufacturers & should be regularly updated and it's confidentiality protected
- Once a PIC becomes operational i.e, able to offer an emergency respose service, it should function around the clock
- Rapid identification of poison'sof type of poison involved in an emergency is one of the centres main task

Minimum sources required for a PIC:

Primary sources –

- Human and environmental toxicology published by Macmillan basing stock England
- Online general scanning services for A M E D E O current awareness in clinical toxicology
- Pharmacology & toxicology published by books gardCopenhagen Denmark
- Toxicology and applied pharmacology published by academic press sandiego CA USA

Secondary sources –

- POISONDEX
- Toxbase
- Intex
- MEDLINE
- Toxicology abstracts

PROCEDURE OF PIC

- Initial response 24/7 hotline – call reception triage, information gathering
- Toxicology assessment – identification, toxicology assessment, dose calculation
- Treatment recommendation –decontamination advice, medical treatment, hospital referral
- Follow-up& monitoring – repeated assessment, adjusting treatment, outcome tracking
- Collaboration & referral –healthcare provider consultation, emergency service notification
- Data collection & analysis – poisoning surveillance, data analysis, quality improvement
- Education & prevention –public education, healthcare provider education, community outreach
- Key resources – poison centre data bases, toxicology resources, collaboration with other poison centres
- Poison centre certification – American Association of Poison Control Centres [AAPCC] certification, compliance with national standards

TOXICOLOGY AND TOXICOVIGILANCE

Swiss physician PARACELSUS [1493-1541] : "Father of Modern Toxicology"

All substances are poisons: there is none which is not a poison. The right dose differentiates a poison from a remedy.

Toxicology–

Study of poisonous effect of drugs and other chemicals [household, environmental pollutants, industrial, agricultural, homicidal] with emphasis on detection, prevention, and treatment of poisonings

It also includes the study of adverse effects of drugs, since the same substance can be a drug or poison, depending on the dose

Toxicovigilance –

Active process of identifying and evaluating the toxic risks existing in a community, evaluating the measures taken to reduce or eliminate them

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HOW IT STARTED?

The National Poison Information Centre [NPIC] was established in the department of pharmacology at AIIMS in 1995

Surveillance

- Capturing all the poisoning casesfrom intensive an acute medical care units, general accidental &emergency departments, that causuality of all the public healthcare hospitals
- Getting poisoning cases from local & oversea media reports play a main role for a better understanding of poisoning risk in the population
- Use of computerised laboratory data as a detention support tool of toxic reactions in hospital plays a major step for easy identification of risk factors and improves patient medical care

Investigations

- Identification and investigation should start immediately upon acknowledge of notification of poisoning incidents of public health implication & consequences
- For investigation, efforts should be made from both the government departments& other health care services for implementation of effective control measures
- The government laboratory supplies a comprehensive analytical service to the department of health in the testing of drugs & poisons to alleviate the investigation of poisoning incidents

Risk communication

- Press release will be issued as appropriate on current health issues and concerns
- Health education materials in the form of electronic publications and fact sheets are uploaded on to the community health profile website to keep the public & health professionals informed of the latest development
- Important messages are disseminated to the public through the distribution of pamphlets, fact sheets, posters &health talks

HOW TO REPORT AT PIC?

To report a poisoning or request information from a PIC, follows these steps:

Phone:

- Call the national poison hotline
- 1-800-222-1222 [US only]
- Call your local PIC Phone number [available 24/7]
- Provide information about poisoning including: the substance involved, amount taken, time of exposure, patients age, patients weight

Online:

- Visit the poison help website: https://WWW.poison help.org/ for online guidance and resources
- Some PIC offer online reporting or consultation forms

In-person:

- If the patient is experiencing severe symptoms, go to the emergency room or call emergency services
- Bring the substances container or label to the hospital, if possible

Information to provide:

- Substances involved – name, brand, quantity
- Time of exposure
- Amount taken

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- Patient age, weight, any medical condition

Additional tips:

- Remain calm and follow instructions carefully
- Don't attempt to treat the patient with guidance
- Keep the PIC phone number handy

WHERE TO REPORT AT PIC?

United states:

- National poison help hotline: 1-800-222-1222[24/7]
- Poison help website: https://WWW.poisonhelp.org/
- American association of poison control centre [AAPCC]:https://WWW.aapcc.org/

International:

- Europe: European association of poison centres and clinical toxicologists [EAPCCT]:HTTP://WWW.eapct.org/
- Uk: national poison information centres [NPIC] – 111[24/7]
- Australia: poison information centres – 131126[24/7]
- Canada: Canadian poison helpline – 1-866-454-4433[24/7]
- India: NPIC -011-2323-9299[24/7]

Online resources:

- WHO: HTTP://WWW.WHO.int/en/news-room/fact-sheets/details/poisoning
- International programme on clinical safety [IPCS]: HTTP://WWW.WHO.int/ipcs/en/
- **In patient reporting:** if the patient is experiencing severe symptoms go to the emergency room or call emerge

II. CONCLUSION

poison information centre in India plays a vital role in providing timely& accurate information to healthcare professionals and the general public on the management of poisoning cases. Despite the challenges faced, the centre as made significant strides in reducing morbidity & mortality due to poisoning in the country. However, there is still a need for increased awareness & education among the public, as well as improved infrastructure & resources to support the centres efforts. With continued support and development, the poison information centre in India can continued to serve as a life line for those affected by poisoning & contribute to the overall improvement of public health in the country

REFERENCES

[1]. American association of poison control centres [AAPCC]
[2]. European association of poison centres & clinical toxicologists [EAPCCT]
[3]. World health organization [WHO] – link unavailable: search for poison control or toxicology
[4]. National poison information centre, India
[5]. Indian association of clinical toxicology [IACT]
[6]. Ministry of health and family welfare, government of India
[7]. "The role of poison control centres in public health" [journal of medical toxicology,2018]
[8]. "Toxicology information centres: a review of their role in patient care" [clinical toxicology, 2019]
[9]. "Empowering healthcare professionals and the public through toxicology education" [toxicology,2020]
[10]. Medlineplus – link unavailable [search for "poison control" or "toxicology"]
[11]. PubMed
[12]. Toxnat–link unavailable [a toxicology database from the US national library of medicine]