Drug and poison information centres: An emergent need for health care professionals in Pakistan

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Abstract

Objective: To determine the need of drug and poison information centres in public and private hospitals of Karachi.
Methods: The cross-sectional study was conducted at 3 public and 3 private tertiary care hospitals of Karachi, from July 2013 to April 2014, using a self-administered, multi-item questionnaire. Non-probability convenient sampling was used to select the participants. SPSS 18 was used to analyse data.
Results: Of the 307 physicians, 282(92%) highlighted the need for a 24/7 drug and poison information centre and 206(67%) suggested opening a drug information centre at the hospital. Besides, 215(70%) respondents said they took at least 15 minutes for searching information about the drug while managing a case. Regarding the poisoning case management, 160(52%) physicians complained about the unavailability of medicines in hospitals.
Conclusion: Provision of 24 /7 drug information centres with specialised staff are necessary to reduce treatment delays and to ensure provision of quality healthcare.
Keywords: Drug and poison information centres, Prescription, Physicians, Public and private hospitals, Pakistan. (JPMA 66: 639 ; 2016)

Introduction

Drug and poison information centres (DPICs) provide information to physicians, pharmacist, nurses and other allied health care professionals.[1] According to the International Pharmacist Federation (FIP),basic functions of these centres are drug evaluation, therapeutic counselling, pharmaceutical advice, education, and training, dissemination of information, research, pharmacovigilance and toxicology.[2] Their information must be accurate, timely and should respond to patient-oriented drugs problems.

Due to increase in the availability of new drug products, scientific publications and research, demand for DPICs in hospitals is on the rise.[3] A study in Los Angeles (n=47)indicated that on an average, physicians raise 269 questions during a half-day office practice about the patient management, but only 30% of these queries are resolved during the patient visit.[4]

Continuous advancement has helped medical literature expand, and patient treatment with updated medical guidelines has now become a challenge for physicians. This has resulted in increased demand for DPICs to facilitate physicians.[5]

The foundations of first poison control centre were laid in

1958 in California, United States,[6] followed by first drug information centre in 1962 at University of Kentucky medical centre.[7] In US, DPICs play a hybrid role by providing important prevention information, educational material, first-aid information, common household hazards and references to national helpline organisations and agencies.[8]

In high-income countries, other agencies like Occupational Safety and Health Administration (OSHA), Food and Drug Administration (FDA) and Agencies for Toxic Substance and Diseases Registry (ATSDR) also provide information about safety regulation, health promotion and risk identification associated with hazardous substances. In low- and middle-income countries, such structures either do not exist or their functionality is minimal.[6]

In Pakistan, there is a need for innovative health reform because of precarious economic situation. No official figures are available regarding the number and quality of DPICs. Private hospitals in the country tend to have small pharmacy units which unofficially provide information on drugs to buyers. But in most instances they are not an authentic source to collect information.[9]

Karachi is the largest metropolitan city of Pakistan, having a population of 23.7 million and a growth rate of 5%.[10] According to an estimate, the metropolis has more than 300 hospitals.[11] Among private-sector hospitals, the Aga Khan University Hospital (AKUH) established its DPIC in

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1995.[12] However, such a centre in a public-sector hospital was established in 2012 at the Jinnah Postgraduate Medical Centre (JPMC).[13] The scarcity of an organised channel for obtaining information about drugs and poisons is one of the most crucial problems for healthcare workers in Pakistan.[14]

Lack of timely information regarding judicious drug therapy often results in delays and disrupts continuity and quality of care. An optimal functioning DPIC helps in accurate, efficient, safe, quality and timely management of patients.[13]

The current study was planned to determine the need of DPICs in public and private hospitals of Karachi.

Materials and Methods

This cross sectional study was conducted at 3 public and 3 private tertiary care hospitals of Karachi, from July 2013 to April 2014. Participants included physicians having graduated from any medical school or university in Pakistan, who were full-time employees and had dealt with poisoning patients at the selected hospitals. Medical students, interns and volunteers were excluded. All the physicians who were working in any pharmaceutical company, insurance company or not practising in any hospital since last one year were also excluded. The sample size was calculated using World Health Organisation (WHO) estimation calculator using 95% confidence interval (CI) and 5% margin of error. Non-probability convenience sampling was used for data collection. A verbal consent was obtained from all the participants.

A self-administered questionnaire was developed through a detailed overview of the literature, including: physician demographics; need analysis of a DPIC; and challenges about drug and poison information like knowledge about the poisoning cases and drugs indication, contraindications, doses, pharmacokinetics, adverse reactions, availability of skilled staff and resources, internet access, reference books, antidote and time for searching information about drugs and poisonous substances.[15]

SPSS 18 was used for data analysis.

Results

Of the 382 questionnaires distributed, 307(80.4%) were a returned duly filled. Of those 307 respondents, 212(70%) were females and 95(31%) were males. Most of them 279(91%) were aged between 25 and 34 years, while 248(81%) had basic medical graduate degree. Only 22(7%) had specialised medical education (clinical residency and fellowship). Also, 183(60%) responses were received from entry-level physicians with one-year experience (Table-1).

Table-1: Demographic Profile of study participants.

Demographic Information Age	N (%)	Demographic Information Designation	N (%)
25 to 34 years	279 (90.9)	House officer	167 (54.4)
35 to 44 years	23 (7.5)	RMO	87 (28.4)
45 years or more	5 (1.6)	Others	53 (17.3)
Gender		Job Experience	
Male	95 (30.9)	1 year	183 (59.6)
Female	212 (69.1)	2 to 5 years	102 (33.2)
Education		More than 5 year	22 (7.1)
Graduate (MBBS)	248 (80.8)	Department	
Post Graduate Fellow	22 (7.2)	Medicine	190 (61.8)
Post Graduate Diploma	37 (12.1)	Surgery	117 (38.1)

MBBS: Bachelor of medicine, bachelor of surgery
RMO: Resident medical officer.

Table-2: Responses of Physicians about the Need of Drug information centre.

Responses of Physicians about the Need of Drug information centre	Yes n (%)	No n (%)
Do you have internet facility in your hospital for accessing updates about drug and poisoning case management?	237 (77.2)	70 (22.8)
Do you have drug and poison information centre facility in your hospital for accessing updates about drug and poisoning case management? (75.2.)	76 (24.7)	2 3 1
Does your organisation organise continued medical education (CME) sessions and trainings on drug and poisoning?	225 (73.5)	82 (26.7)
Do you think is it necessary to run a 24-hour drug information centre in ahospital?	282 (91.9)	25 (8.1)
Do you think you have essential medicines and required antidotes in the hospital?	148 (48.2%)	51.8 (159)

Table-3: Information needed from drug and poison information centre.

In your opinion, what are the commonly needed information from drug and poison information centre	Category N (%)
Drug Indication	171 (55.7)
Drug Contraindications	170 (55.4)
Drug dosage	249 (81.1)
Renal failure doses	191 (62.2)
Hepatic Failure doses	133 (43.3)
Paediatric doses	223 (72.6)
Poisoning case management	259 (84.4)
Lactation and pregnancy and drug safety	134 (43.6)
Bioavailability of a drug	131 (42.7)
Drug Infusion rate	157 (51.1)
Other*	202 (65.8)

*Adverse drug reactions, drug allergy, antibiotic and chemotherapy protocols.
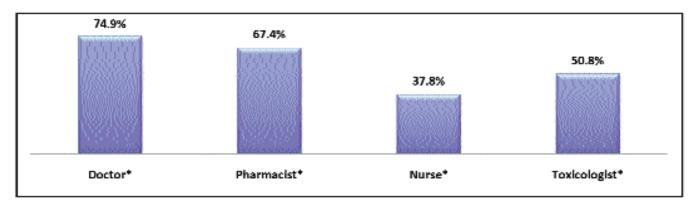
Figure-1: Knowledge regarding the role for running a Drug and Poison Information Centre (DPIC) by study participants*: In order to reduce bias in responses, multi-response questions were asked.
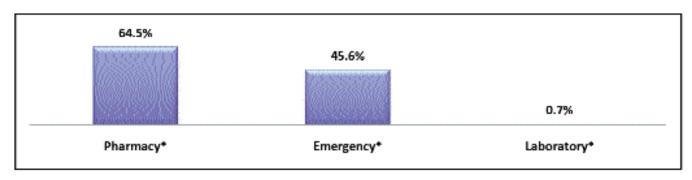*The participants had the option to choose more than one choices and as such the sum total of percentage exceeds 100%.

Figure-2: Appropriate Department for running a Drug and Poison information centre*.
*The participants had the option to choose more than one answers and the sum total of percentage as such exceeded 100%.
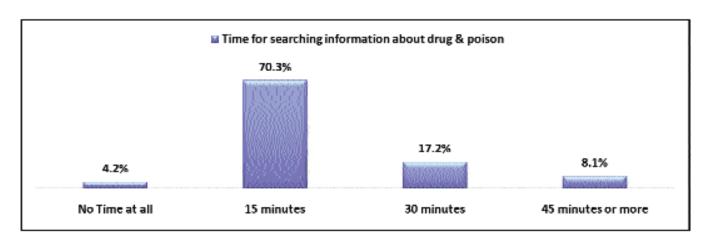

Figure-3: Time needed for Searching information about drugs and poison.

Overall, 237(77%) physicians had access to the Internet in their hospitals for education purposes, and 225(73%) physicians attended continued medical education (CME) sessions. Of the total, 282(92%) physicians insisted on the need of a 24/7 DPIC, and 159(51%) complained about the non-availability of medicines in the hospital (Table-2).

According to 230(75%) participants, a doctor should run a

DPIC (Figure-1), while 198(64.5%) suggested that DPIC should be housed within the pharmacy department (Figure-2).

As many as 216(70.3%) physicians took around 15 minutes and 53(17.2%) took 30 minutes for searching the information related to any drug or poison (Figure-3).

The most common pieces of information the physicians needed from a DPIC related to poisoning case management 259(84.4%), followed by routine dosage of drugs 249(81.1%) and paediatric doses of drugs 223(72.6%) (Table-3).

Discussion

Physicians are among the most active healthcare professionals involved in the diagnosis, management and treatment of patients.[16] Therefore, the study aimed at collecting data from the physicians working in public and private hospitals of Karachi.

Majority of the physicians (92%) working in public and private sectors hospitals of Karachi had work experience of less than 5 years. This deprivation of non-specialised and senior physicians also exists in other Asian countries in Sri Lanka and Nepal.[17] In the current study, only 7.2% physicians received higher medical education, as most medical graduates migrate to developed countries for better prospects. Pakistan is the third leading source of international medical graduates' emigration with the ratio of 13.5 to 17.6% to the affluent countries like USA, Canada, Australia and UK.[18] The depletion of skilled and specialised physicians and surgeons has drastically widened the gap in health inequalities and provision of care.[19]

In our study, 73% doctors were receiving CME in their organisations but they still took15 minutes or more to search the drug and poisonous substances information while managing a case. Physicians were found to be spending a third of their time in searching information about a drug, which leads to delay in medical care, and increases the risk of adverse clinical outcomes in patients.

The use of Internet has significantly increased in Pakistan in the past two decades, and it is now used for medical education, training and research in the field of medicines. Unfortunately, the reliability and authenticity of available information on the Internet is questionable and sometimes dubious for the healthcare professionals.[15]

The provision of Internet facility and advancement of bioinformatics is unsuccessful because only a few doctors have learnt to operate computer systems and different software[20] though the use of information technology in health sciences is a wonderful tool for high-quality decision-making processes.[17] In our study, 282(92%) physicians strongly mentioned the need for DPICs, which is similar to the demand by 94% of physicians in Singapore.[15] Globally, DPICs are run by pharmacists. But in our study a medical doctor was identified as the most suitable candidate which shows lack of knowledge regarding the role of pharmacists in Pakistan who lack clinical exposure.[13] The basic solution for improving the clinical skills of pharmacists is partnering with other healthcare professionals like physicians, nurses, etc.[21]

Another challenge identified by the study respondents (52%) was unavailability of medicines, especially antidotes, for poisoning case management.[22]

The physicians need support, guidance, affirmation and feedback for safe, effective and timely management of patients.[21,23] A multidisciplinary team consisting of a physician, pharmacist, nurse and toxicologist is needed for running a DPIC. The centre must be equipped to resolve the queries of physician, pharmacist, nurses and patients. A system with written protocols and guidelines for the management of patients is crucial for organising the work of healthcare professionals and helps in navigating the complexity of care.[24]

The data for the study was collected from six tertiary care hospitals of a single city, and, as such, may not represent the overall situation in the country.

Conclusion

Provision of a 24/7 DPIC with specialised staff offers multiple benefits to the hospitals while reducing treatment delays, addressing awareness gaps of all stakeholders and ensuring provision of quality healthcare. Access of timely and accurate information to the healthcare professionals is crucial for the quality care of patients.

Acknowledgment

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