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RESEARCH ARTICLE

Awareness about drug information center among health-care professionals at a tertiary care hospital

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ABSTRACT

Background: Drug literature is vast and interprofessional. It is not easy to keep abreast with current drug information (DI). DI Center (DIC) is a facility specializing in the provision of DI in a suitable format; with diverse roles in many other activities. However, optimal utilization of DICs is questionable. There is hardly any data regarding awareness about DICs. **Aims and Objectives:** The study was planned to evaluate the awareness of DICs among health-care professionals, who are the primary beneficiaries of its services. **Materials and Methods:** A prospective, cross-sectional, questionnaire-based study was conducted at a tertiary care hospital. Health-care professionals (health-care teaching faculty, postgraduate students, interns, undergraduate students, nurses, and pharmacists) who gave informed consent were given a structured, pretested questionnaire. A total of 360 questionnaires were collected and analyzed. **Results:** About 68% of respondents never came across the term DIC before. The majority had knowledge - score <3 (out of 8). Pharmacologist was thought as the best suited to work for DIC by 74.7% of participants. It was agreed by 72% that topics regarding DIC should be included in continued medical education programs. Textbooks and internet were most widely referred for DI. For 56.4% respondents, available sources of DI were not satisfactory. The need for provision of DI was felt up to thrice a day by 66%. Irrational prescribing was the most commonly cited issue for the want of DI. An overwhelming 95% of participants felt the study increased their awareness about DIC. **Conclusion:** The lack of awareness about DIC, frequent need for provision of DI, preventable issues associated with drug prescribing, lack of accessible sources emphasize the importance and need for awareness about DIC.

KEY WORDS: Drug Information; Drug Information Services; Rational Use of Medicines

INTRODUCTION

For optimal patient care, the task of remaining informed about clinically relevant aspects of benefits and safety of drugs is critical. However, it is often not easy for health-care professionals to keep abreast with different facets of current information as drug literature is vast and ever increasing in size.[1] The main contributing reasons for irrational drug use in India are poor drug regulations and lack of independent, unbiased drug information (DI).[2]

DI is defined as the knowledge of facts acquired through reading, study, or practical experience concerning any chemical substance intended for use in diagnosis, prevention, or treatment of disease. It covers all types of information provision including subjective and objective information, as well as information gathered by scientific observation or practical experience.[3] A DI Center (DIC) refers to a facility specially set aside for and specializing in the provision of DI and related issues.[2] At some places, it is a "drug and poison

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information center." DIC participates in the education of health-care professionals within and outside the institute. The provision of accurate and timely information to health-care professionals is an important mechanism to promote safe and effective drug therapy.[4] Information must be available in a format suitable for health-care practitioners and relevant to current clinical practice.[5] The World Health Organization recognizes independent DICs as a core component of national programs to promote rational use of medicines.[6] A DIC also contributes to pharmacovigilance activities.

In 1962, the first DIC was opened in the United States at the University of Kentucky Medical Center.[7] According to a report published in 1995, there are about 120 full-fledged pharmacist operated DICs in the US.[8] In India, such DI services (DIS) are very few.[9] The first independent, council-based DIC was set up in August 1997 by the Karnataka State Pharmacy Council.[10] According to the guidelines of the Medical Council of India, a teaching hospital is recommended to have DIS.[11]

There is good scope to establish and spread the network of DICs in the country.[1] There is also online DIS, like the one run by Maharashtra State Pharmacy Council and the Online DI Portal of Punjab. The DIC has proved itself to be an impressive resource, which is used regularly as an information source by all levels of people involved in the health system from patient to provider.[4] DIC focuses on evidence-based medicine by collating information from various sources to improve patient care and keeping the health professional up-to-date.

There is hardly any data regarding awareness about DICs in India. The study was, therefore, planned to evaluate the awareness of DICs among health-care professionals, who are the primary beneficiaries of its services.

MATERIALS AND METHODS

A cross-sectional, questionnaire-based study was conducted, for 8 weeks from May to June 2016, at a tertiary care teaching hospital in Solapur, Maharashtra. The study was approved by Institutional Ethics Committee. A pretested, validated, closed-ended, multiple-response type, self-administered questionnaire was given by hand to participants and purpose of the study explained. Anonymity of participants and confidentiality of data was strictly maintained.

The study population included health-care professionals (medical teaching faculty, postgraduate (PG) students, interns, pharmacists, and nurses) and medical undergraduate (UG) students. "DI" is a part of syllabus for medical UG students and they are health-care professionals of future; and hence were also included. Those not willing to give written informed consent and UG students of first and second year (have not passed pharmacology) were excluded from the study. Estimated sample size by Cochran's formula was 217 (confidence level = 95% and margin of error = 5%).

Assessment of questions pertaining to awareness was done using a scoring system. Each correct response was given one point while incorrect/invalid responses were not given any point. Total eight questions assessed knowledge; maximum possible score was eight. Questions pertaining to attitude were not included in the scoring system and were assessed separately. Four items in the questionnaire were designed to evaluate the need for DIS by addressing their current practices related to referring DI. The questionnaire was designed after comprehensive review of literature.[12,13]

Data obtained were entered into Microsoft Excel 2013 spreadsheet according to the group of participants (teaching faculty, PG students, pharmacists, nurses, and so on) for statistical analysis and percentages were calculated for concerned responses.

RESULTS

A total of 360 duly completed questionnaires (120 questionnaires from UG students, 50 from interns, 90 from PG students, 41 from faculty, 9 from pharmacists, and 50 from staff nurses) were obtained. Incomplete questionnaires were not considered for analysis. Results are expressed using suitable pictorial representations and percentages.

In this study, 68% of respondents never came across the term DIC before and the majority of them have a knowledge-score ≥3 (out of 8) (Figure 1). None of the pharmacists scored below two. A general tendency of decline in number of respondents with increase in knowledge score was clearly evident (Figure 1). Knowledge-based questions included "advantages of information provided by DIC are-," "DICs provide services to-," "whether the number of DICs in India is optimal?," "how does the DIC help the health-care system?," "whether a teaching hospital is recommended to have a DIC?" and so on.

Nearly half of the study population (51.7%) agreed that lay people from community should have free and easy access to DI. 5% think that DIC does not promote rational use of medicines. It was thought by 65.3% of respondents that DIC could affect doctor-pharmacist-patient relationship. Pharmacologist was thought to be the best suited to work for DIC by 74.7% followed by physicians (55.8%), then pharmacists (36.9%), and nurses (10.3%) (Figure 2). A large majority agreed that topics regarding DIC should be included in the UG syllabus (65%) and also at continued medical education programs (72%) (attitude-based questions are listed in Table 1).

Table 1: Percentages of responses for attitude-based questions

Question	Yes	No	Don't know/can't say
Available sources of DI satisfactory?	36.67	56.38	6.94
Do you think lay people should have free and easy access to DI?	51.67	39.44	8.89
Do you think DIC promotes RUD?	82.5	5	12.5
Do you think DIC can affect doctor-pharmacist-patient relationship?	65.28	11.94	22.78
Do you think topics on DIC need to be included at CMEs?	72	9	19
Do you think topics DIC should be included in UG syllabus?	60	25	5
Do you think this study helped to increase your awareness about DIC?	96	1	3

DI: Drug information, DIC: Drug information center, RUD: Rational use of drugs, CME: Continuing medical education, UG: Undergraduate

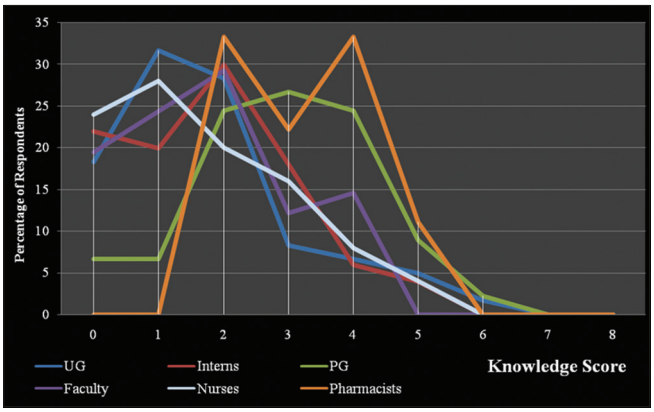

Figure 1: Graph of knowledge score in different groups

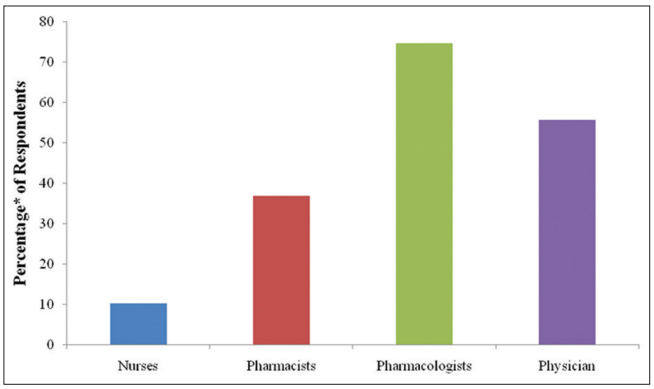

Figure 2: Professionals thought to be best suited to work at a drug information center. *Net sum of percentages exceeds 100 as respondents could select more than one option

In all groups, textbooks followed by internet were the most widely referred sources of DI, while sources from pharmaceutical companies were used the least. The need for provision of DI was felt up to 3 times in a day by 66% (Figure 3). Respondents who were not satisfied with available sources of DI amounted to 56.4%. The most common reason cited for not referring to DI was lack of easy access to sources of DI. Time factor and awareness about DIS closely followed. Irrational prescribing was the most commonly (71.3%) cited issue that would have been prevented if DI was made available at the right time (Figure 4). It was followed by adverse drug reaction (ADRs), drug interactions and lastly legal issues.

95% participants felt that the study helped them increase their awareness about DIC.

DISCUSSION

Access to authoritative and independent information is fundamental for the rational and effective use of drugs. India has a very few DICs, more so in the southern states.[2] It is questionable whether the utilization of DICs is optimal. Low awareness can be cited as one of the reasons for underutilization. Published data regarding awareness about DICs is rare. The best time to inculcate awareness and proper attitude is during the education phase. Hence, UG and PG medical students were also included in the study. Moreover, inclusion of all the health-care professionals concerned with DIS makes this study unique.

Prior evaluation of baseline knowledge, attitude, and practices in the subjects helps in suitably planning the necessary interventions. It also helps administrators and policy-makers in important decisions and taking appropriate steps. It is far from obscure that DIS in our country need to go the extra mile when compared to the world scenario.

Among the 26.1% respondents who came across the term DIC, majority belonged to the pharmacology fraternity or were pharmacists. The knowledge score shows poor awareness about DIS. Highest knowledge score obtained was 6, which was in the UG and PG group (<2.5% of the respondents in each group). Those PG students who scored >5 were from pharmacology department. This can be attributed to inclusion of "DIS" in the PG syllabus. Pharmacists performed well and the same reason can be cited here.

As far as attitude is concerned, the responses were satisfactory and show the willingness of respondents to learn more about DIC. The fact that 56.4% respondents do not find available sources of DI satisfactory highlights the need for availability of better sources as well as personnel trained in the provision of DIS. Agreeing for free and easy access of DI to the community underlines the right to knowledge as well as transparency in working of health-care system. The remainder, who either denied or were not sure about easy access to laymen, cited reasons such as substance/drug abuse,

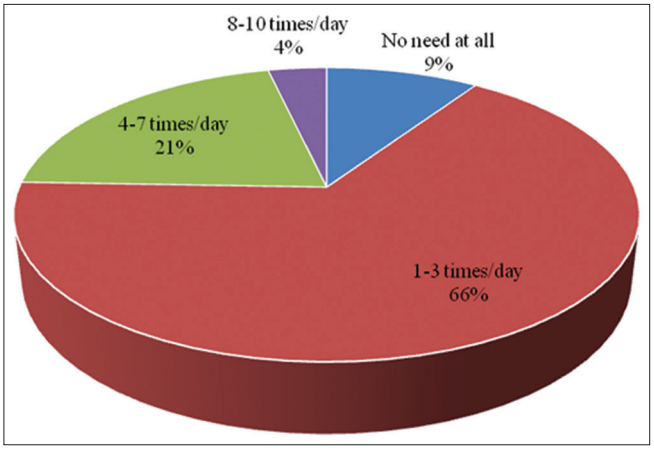

Figure 3: Frequency of need for provision of drug information

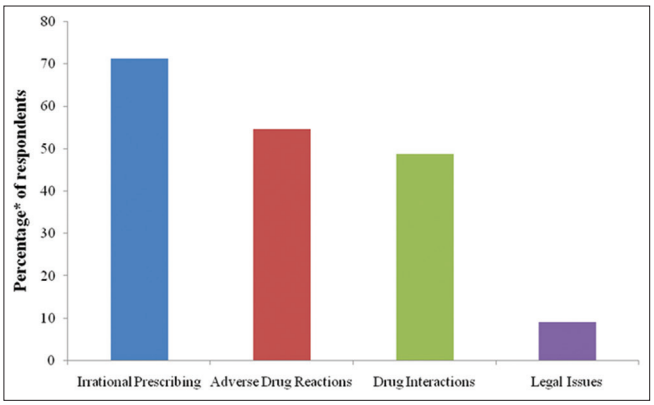

Figure 4: Issues that would have been prevented if drug information was available at right time. *Net sum of percentages exceeds 100 as respondents could select more than one option

self-medication, misuse of information concerning legal liabilities, and confidentiality.

In our study, 74.8% participants think that a pharmacologist is the best suited professional to work at a DIC, followed by physician (55.8%), pharmacist (36.9%), and nurse (10.2%). Ponampalan et al.[12] (Singapore) report the percentages as poison information officer (39.1%), pharmacist (28.3%), clinical toxicologist (24.3%), doctor (12.8%), nurse (2.8%), and so on, whereas Khaliq and Sayeeda (Karachi) reported the following percentages - doctor (74.9%), pharmacist (67.4%), and toxicologist (50.8%). These variations could be due to local preferences.

At least 25% respondents feel the need for referring to DI more than 4 times a day. Those respondents (9%) who felt no need for DI at all were from nonclinical departments. Textbooks are the most used sources, followed by sources from the internet. In the study conducted by Ponampalan et al., 70.1% used textbooks, 27.7% used journals and a significant proportion relied on other sources also. Although awareness about sources of DI is the third important cause of not referring to DI, lack of time and access to good sources cannot be ignored.

Ponampalan et al. report that junior physicians are keener for the provision of DI. A study from Karachi[14] reports that as many as 87% physicians took 15 min or more for searching the information related to any drug or poison which can delay medical care and may increase the risk of adverse outcomes.

Interestingly, irrational prescribing was chosen as the most common preventable issue with timely availability of DI; closely followed by ADRs and drug interactions. This is supported by the fact that drug interactions, ADRs, indications/contraindications, dosage, etc., happen to be the topmost enquiries at some of the currently established DICs.[2,4,9]

This was a single-centerd study. A multi-centric study would be more helpful in generalizing the facts. Another limitation of our study was inclusion of respondents from nonclinical disciplines, which may affect the overall results of the prescribing population, although to a minor extent.

CONCLUSION

The role of a DIC can range from that in dispensing DI to contributing in pharmacoepidemiological activities to research. According to a study from Brazil, a DIC may be used as a strategy to seek improvements in processes involving medication use.[15]

The frequent need for provision of DI, large number of preventable issues associated with drug prescribing, lack of accessible sources and lack of awareness about sources, emphasize the importance and need for DIC. Awareness about DIC will go a long way in the optimal utilization of its intended roles.

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