

ASSESSING THE PATTERN OF DRUG INFORMATION QUERIES IN A RURAL SOUTH INDIAN TERTIARY CARE TEACHING HOSPITAL

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The purpose of this study was to assess the pattern of drug information queries received by the drug information center (DIC) of a tertiary care teaching hospital in South India. A retrospective review of drug information queries received by the DIC over a period of 8 months (November 2009 to June 2010) was performed. Data were collected for various parameters such as status of enquirer, mode of receipt of query, purpose and type of query, mode of reply, and references used. A total of 70 drug information queries were received; 38 (54.28%) during ward rounds through clinical pharmacist, followed by direct access (22; 31.42%). Most queries were from the Medicine Department (42; 60.00%) followed by Pediatric Department (23; 32.85%), Pharmacy (4; 5.71%) and Surgery Department (1; 1.42%). Post graduate students utilised the service to a greater extent (50; 71.42%) followed by clinicians (16; 22.85%). The references used for answering the queries were textbooks, Micromedex®, database websites and journals. Although the number of drug queries was small, our pharmacist at the DIC had attempted to provide unbiased information to health care professionals to help improve therapeutic decision making.

Keywords: Drug information queries, Drug information center (DIC), Clinical pharmacist

INTRODUCTION

India has an exploding drug market in generic and combination products. The number of drugs entering the market each year and the cost of these drugs have been increasing. Many physicians get overwhelmed with the volume and variety of products that they tend to rely on pharmaceutical manufacturers' representatives for their prescribing information. It has also been reported that the country has significant drug use problems. Irrational and unnecessary prescribing is common and antibiotic resistance is widespread. Besides poor drug regulation, lack of independent and unbiased drug information for doctors and other health care professionals have been identified as the main contributing reasons for irrational drug use in the country (Mohanta *et al.* 2005).

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Drug information from commercial sources is very often biased and hence noncommercial, independent and unbiased source of drug information is important. The provision of accurate and timely drug information to health care professionals is an important mechanism to promote safe and effective drug therapy to patients, but such service is lacking in India (Lakshmi *et al.* 2003).

Drug information service refers to a service that encompasses the activities of specially trained individuals to provide accurate, unbiased, factual information, primarily in response to patient-oriented problems (Wongpoowarak *et al.* 2010). It is the provision of written and/or verbal information or advice about drugs and drug therapy in response to a request from other healthcare providers, organisations, committees, patients or members of the public (Johnstone and Vienet 1996). A pharmacist at a drug information centre (DIC) can be an excellent source for providing current drug information. In fact, the provision of drug information to physicians and nurses has been identified as the responsibility of clinical pharmacists (Mishra *et al.* 2006).

In 1997, several drug information services were started in India at Jagadguru Sri Shivarathreewara (JSS) in Mysore, Trivandrum Medical College and Karnataka State Pharmacy Council (KSPC) in Bangalore (Lakshmi *et al.* 2003). Many DICs have since been established in many hospitals and the National Human Rights Commission has recommended the establishment of such centers in every hospital (Mohanta *et al.* 2005). In South India, a few institutions are actively involved in providing drug information services. The successful establishment of this service by the Clinical Pharmacy Department has motivated other institutes to establish the same services in their hospitals. This study aimed at assessing the handling of drug information queries by the Clinical Pharmacy Department of Adichunchanagiri Hospital and Research Centre.

METHODS

A retrospective study was carried out at the Clinical Pharmacy Department, Adichunchanagiri Hospital and Research Centre, Balagangadaranatha Nagara (B. G. Nagara), Karnataka, India. Adichunchanagiri Hospital and Research Centre is part of Sri Adichunchanagiri Mutt situated in B. G. Nagara. It is a 750-bed tertiary care teaching hospital with 15 medical departments. Established in the year 2008, the Clinical Pharmacy Department is an integral part of the hospital which caters clinical pharmacy services to health care professionals and provides drug information as a part of its clinical pharmacy activities. The DIC is well equipped with well trained staffs and a library consisting of textbooks, national and international journals, computers and Internet facilities along with electronic databases such as Micromedex® (Thomson Reuters, USA). It provides various services like drug information, adverse drug reaction (ADR) reporting, patient counseling and drug interaction checker. The center is managed by five well qualified and trained members. The drug information service is provided between 9 am to 5 pm on all days except on Sundays and government holidays.

Drug information service is provided through telephone calls, direct access and during ward round participation. Direct access is where any health care professional came directly to the DIC to ask for the information. In our institution, a DIC member who is also a clinical pharmacist routinely participates in ward rounds with doctors and frequently receives drug enquiries. The drug information queries are evaluated by the DIC staff

according to the modified systematic approach (Kier *et al.* 2001). The modified systematic approach is used to handle drug information queries, which include: (1) secure demographics of requestor, (2) obtain background information, (3) determine and categorise ultimate question, (4) develop strategy and conduct search, (5) perform evaluation, analysis and synthesis, (6) formulate and provide response, and (7) conduct follow-up and documentation. The drug information queries provided are documented in a suitably designed drug information documentation form and maintained in a documentation file (Appendix 1).

The drug information queries which were received during a period of 8 months i.e. from November 2009 to June 2010, were evaluated retrospectively, screened and analysed. Data were collected for parameters like professional status of the enquirer, specialty of practice, mode of receipt of query, purpose of the enquiry, category of the questions and references used. Finally, data was entered into Microsoft Excel for analysis.

RESULTS

The DIC received a total of 70 drug information queries during the study period. A great number of queries were from the Department of Medicine (42; 60.0%). Drug information queries were also obtained from various other departments such as pediatrics (23; 32.9%) pharmacy (4; 5.7%) and surgery (1; 1.4%). Post graduate students utilised the service to a greater extent (50; 71.4%) followed by clinicians (16; 22.9%). A small percentage of queries were from pharmacists (4; 5.7%).

The majority of queries were received during ward rounds (38; 54.3%) through clinical pharmacist, followed by direct access (22; 31.4%). Ten (14.3%) queries were received via telephone. Reasons for queries were for updating knowledge (50; 71.4%) and for patient care purposes (20; 28.6%). For the majority of queries, the mode of reply was through printed literature (46; 63.9%), verbal (20; 27.8%), written (4; 5.6%); out of the 70, 2(2.8%) queries were answered in both written and verbal form. The categories of questions asked were about dosage/administration (27; 25.0%), drug therapy (19; 17.6%), ADR (18; 16.7%), drug indications (15; 13.9%) and poisoning (10; 9.3%). The types of queries are shown in Table 1. The resources used for answering drug queries are listed in Table 2. The majority of resources used were text books followed by Micromedex®, websites and journals.

DISCUSSION

A low number of queries were received during the study period, which was less when compared to that reported by Rao and Gore (2004). This may be due to our department being quite new to the hospital and is in a rural setup. Furthermore, the drug information services of the Clinical Pharmacy Department officially started its services in 2009, therefore the drug queries started coming to us 2009 onwards.

Table 1: Categorisation of queries.

	Number of queries, n (%)
Specialty	
Department of Medicine	42 (60.00)
Department of Pediatrics	23 (32.85)
Pharmacist	4 (5.71)
Department of Surgery	1 (1.42)
Status of enquirer	
Postgraduate students	50 (71.42)
Clinicians	16 (22.85)
Pharmacists	4 (5.71)
Mode of request	
Ward rounds	38 (54.28)
Direct	22 (31.42)
Phone	10 (14.28)
Type of query	
Dosage/administration	19 (17.59)
Drug therapy	18 (16.66)
ADR	15 (13.88)
Indications	10 (9.25)
Poisoning	6 (5.55)
Pharmacokinetics/pharmacodynamics	3 (2.77)
Contraindications	
Efficacy	2 (1.85)
Interactions	2 (1.85)
Cost/availability	1 (0.92)
Others	5 (4.62)
Purpose of query	
Update knowledge	50 (71.42)
Patient care	20 (28.57)
Mode of reply	
Printed literature	46 (63.88)
Verbal	20 (27.77)
Written	4 (5.55)
Both verbal and written	2 (2.77)

We found a great percentage of the queries were from the Department of Medicine, which was similar to the result of a study conducted by Rao and Gore (2004). This could be due to the greater number of students from the Faculty of Clinical Pharmacy Department attending the ward rounds and the vast number of drugs used in the department that necessitates the need for unbiased information. There were no queries received from the Nursing Department and this may be due to lack of awareness about the existence of the DIC. In the future, perhaps an awareness program towards the centre

needs to be undertaken among nursing staff and students. Furthermore, it may be necessary to provide awareness about the DIC to consumers or patients also.

Table 2: Frequency of resources used for provision of queries.

References	Frequency of usage
Micromedex® Health Care Series	38
Text books	
PARFITT, K. (1999) <i>Martindale the complete drug reference</i> , 32 nd edition (London: Pharmaceutical Press).	13
MCEVOY, G. K. (2001) <i>AHFS drug information</i> , 44 th edition (New York: ASHP).	8
LACY, C. F. (1999) <i>Drug information hand book</i> , 7 th edition (Lexi Company).	4
WALKER, R. and WHITTLESEA, C. (2007) <i>Clinical pharmacy and therapeutics</i> , 4 th edition (New York: Churchill Livingstone Elsevier).	3
KIMBLE, K. (2009) <i>Applied therapeutics, the clinical use of drugs</i> , 9 th edition (USA: Lippincott Williams & Wilkins).	1
ROGER, G. (2004) <i>Antibiotics and chemotherapy</i> , 8 th edition (UK: Elsevier).	1
PILLAY, V. V. (2009) <i>Text book of toxicology</i> , 15 th edition (Hyderabad: Paras Publishers).	1
TRIPATHI, K. D. (2003) <i>Essentials of medical pharmacology</i> , 5 th edition (New Delhi: Central Publishers).	1
ELLSWORTH, A. (1999) <i>Mosby's medical drug reference</i> (New York: Mosby Inc.).	1
Internet	18
Poison Index DIC, (Manipal)	6
Journals (pharmaceutical press, Indian pediatrics, dental journals etc.)	5

Post graduates students utilised the service to a greater extent and most queries were for updating their knowledge and for patient care purposes. In this study queries on dosage/administration (25%) predominated whereas in two other studies, conducted in Nepal and in Calcutta (northern India), information on drug indications and drug therapy have been reported to be the most commonly asked (Joshi 1998; Hazra, Sen and Roy 2001).

We found that tertiary sources such as textbooks and Micromedex® were the most frequently used to answer the queries. This finding is similar to that of Devi and George (2008). Micromedex® provides updated, unbiased and quick information compared to text books. However, the use of Micromedex® is limited to some centers because of its subscription cost. Online resources (eg. PubMed) were also used to some extent for getting recent updates, however the center subscribes to a limited number of journals. As such, the Internet is an alternative source of information. It provides quick access to and in depth information about pharmaceutical products. Both the journals and

Internet provide access to updated professional information, information on ongoing clinical trials and on new drugs being developed.

CONCLUSION

The Clinical Pharmacy Department of the Sri Adichunchanagiri Hospital and Research Centre caters to the need of health care professionals by handling drug information queries. It is essential to create awareness of the services provided by the DIC among physicians, pharmacists, nurses and consumers so that they should come forward to utilise these services.

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Appendix I

 DEPARTMENT OF CLINICAL PHARMACY. SAC COLLEGE OF PHARMACY. AH & RC, B.G.NAGARA-571448 DRUG INFORMATION REQUEST & DOCUMENTATION FORM			
Sl.No:		Date:	
Name of Enquirer:		Time:	
Designation:		Mode of request:	
Phone No:		<input type="checkbox"/> Direct <input type="checkbox"/> Ward rounds <input type="checkbox"/> Phone	
Unit:		Answer needed:	
Professional Status:		<input type="checkbox"/> Immediately <input type="checkbox"/> Within 2-4 hrs <input type="checkbox"/>	
<input type="checkbox"/> Physician <input type="checkbox"/> Surgeon <input type="checkbox"/> Resident		<input type="checkbox"/> Within 1-2 days <input type="checkbox"/> Others (Specify)	
<input type="checkbox"/> PG's (Specify) <input type="checkbox"/> Interns <input type="checkbox"/> Pharmacists			
<input type="checkbox"/> Nurse <input type="checkbox"/> Others (Specify)			
Signature.....			
Details of Enquiry:			
Question Category:			
<input type="checkbox"/> Drug Therapy		<input type="checkbox"/> Pregnancy/Lactation	
<input type="checkbox"/> Indications		<input type="checkbox"/> Poisoning	
<input type="checkbox"/> Efficacy		<input type="checkbox"/> Stability	
<input type="checkbox"/> Pharmacokinetics/Pharmacodynamics		<input type="checkbox"/> Identification	
<input type="checkbox"/> Dosage/Administration		<input type="checkbox"/> Incompatibility	
<input type="checkbox"/> ADR		<input type="checkbox"/> Cost/Availability	
<input type="checkbox"/> Interactions		<input type="checkbox"/> Others	
<input type="checkbox"/> Contraindications			
Purpose of enquiry: <input type="checkbox"/> Update knowledge <input type="checkbox"/> Better patient care (if yes give details below)			
<input type="checkbox"/> Others			
Patient details:		Age(Yrs):	Weight(Kgs):
Sex: M/F			
Allergies:			
Current medical problem:			
Hepatic / Renal function details:			
Pregnancy/Lactation: Y/N (If Yes give details)			
Other important investigations			
Drug therapy:			

<p>Answer given:</p> <p><input type="checkbox"/> Immediately <input type="checkbox"/> Within 2-4 hrs</p> <p><input type="checkbox"/> Within 1-2 days <input type="checkbox"/> Within a day</p>	
<p>Delay for answer (if any)</p>	
<p>Mode of reply:</p> <p><input type="checkbox"/> Written <input type="checkbox"/> Verbal <input type="checkbox"/> Both <input type="checkbox"/> Printed literature</p>	
<p>Information provided:</p>	
<p>References:</p> <p>Text book (Mention): <input type="checkbox"/> Pregnancy/Lactation <input type="checkbox"/> Indications <input type="checkbox"/> Toxicology <input type="checkbox"/> Efficacy</p> <p>Journals (Mention): <input type="checkbox"/> Stability <input type="checkbox"/> Pharmacokinetics/Pharmacodynamics <input type="checkbox"/> Identification <input type="checkbox"/> Dosage/Administration <input type="checkbox"/> ADR <input type="checkbox"/> Incompatibility <input type="checkbox"/> Interactions <input type="checkbox"/> Cost/Availability <input type="checkbox"/> Others <input type="checkbox"/></p> <p>Others (Specify):</p>	
<p>Follow up:</p>	
<p>Name & Signature of Attending Pharmacist:</p>	
<p>Date:</p>	