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Study and Evaluation of Drug Information Services Provided In A Tertiary Care Teaching Hospital

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ABSTRACT

To study and evaluate the drug information services provided in a tertiary care teaching hospital. Eight month prospective observational study was done from June 2015 to February 2016. The received drug information queries by ward rounds, direct access and telephone were documented. The documented queries were evaluated by various parameters like status of enquirer, mode of receipt, time frame to reply, purpose of enquiry, types of queries and references used. The quality of drug information centre was evaluated on the basis of feedback questionnaire circulated. A total of 219 queries were received during the study period. Majority of questions are received from general medicine department (73.51%) and the service is more utilized by physician (46.1%). Greater number of queries was received during the ward rounds (65.80%) and answers to queries were most often needed within 2-4 hours (40.63%). Majority of queries were for better patient care (49.3%). Majority of the quires were related drug therapy (21%) and most frequently used reference was internet (42.07%). For the evaluation of quality of drug information service a total of 30 feedback questionnaire were distributed. The feedback questionnaire showed that 76.6% aware about drug information centre and 66.6% rated the performance as very good. The present study shows that drug information services provided by pharmacists were useful to healthcare professionals in providing better patient care and to updating knowledge.

Keywords: Drug information centre, Drug information service, Queries, Pharmacist

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INTRODUCTION

Drug information is the provision of written and or verbal information or advice about drugs and drug therapy in response to a request from other healthcare providing organizations, committees, patients and public community. One of the most important services of drug information centre is to provide up-to-date, unbiased, well referenced, critically evaluated drug information to healthcare providers and public for better patient care [1].

The main objective of the study was to study and evaluate the drug information services provided in a tertiary care teaching hospital. The first drug information centre was opened at the University of Kentucky medical centre in 1962. In 1983 there are 54 pharmacists operated drug information centers were identified in USA and in 1995 it grown up to 120 drug information centre [2].

In India first DIC was established at Christian medical college, Vellore in the early 1970s by Rosemary Sharp, a missionary from UK. The first drug information centre in Karnataka was started by Karnataka state pharmacy council in August 1997. And the first independent DIC in India was started by Karnataka state pharmacy council and centre was registered with international register of drug information service. In 2011, the drug information center was established by Nitte Gulabi Shetty Memorial Institute of pharmaceutical sciences under the department of pharmacy practice in Justice. K. S. Hegde charitable hospital Mangalore, Karnataka. This centre provides drug information to healthcare professionals between 9.00 AM to 4.30 PM in week days except in Sunday and government holidays [3].

In our country physician receives the drug information mainly from the medical representatives of different pharmaceutical companies. But the information from medical representatives is sometimes biased and incomplete. In an era of information explosion it is very difficult for the healthcare professionals to update their knowledge and to locate and retrieve the correct information from the pool of information due to their busy schedule. It will increase the irrational use of drugs and it leads to increased adverse drug reaction, drug interactions, antibiotic resistance, iatrogenic diseases and other drug related problems [4].

The drug information resources used for retrieval of information was categorized as primary, secondary and tertiary sources according to the nature of the content and speed of publication. For answering drug information queries various approaches are adapted. The most widely used approach for providing drug information is modified systematic approach [5].

To achieve better pharmaceutical care for the patients ,it is necessary that physicians should receive accurate drug information services. So it is necessary to conduct a study to evaluate the quality and performance of the drug information provided centre.

MATERIALS AND METHOD

A prospective observational study was conducted over a period of eight months from June 2015 to February 2016 at K S Hegde charitable hospital centrally located in Dakshina Kannada, Mangalore. Approval for the study was obtained from the central ethical committee of Nitte University (NU/CEC/P.G.-06/2015). The study criteria included the drug information queries from healthcare professionals and the criteria excluded queries received from patients, patient party and healthcare professionals of other hospitals.

The centre equipped with well trained staffs, library, and computer lab with electronic data bases such as Micromedex and IDIS. Drug information queries were received through telephone, direct access and during ward rounds. All the queries will be answered by using the three sources like primary, secondary and tertiary sources. Modified systematic approach was used to handle drug information queries and the steps involved are given below.

1. Secure demographics of requestor
2. Obtain background Information
3. Determine and categorize the ultimate question
4. Develop strategy and conduct search
5. Perform evaluation, analysis and synthesis
6. Formulate and provide a response.
7. Conduct follow-up and documentation

Evaluation of drug information services were carried out in two steps.

The first step was evaluation of drug information request and documentation forms for various parameters like status of the enquirer, medical specialty, mode of request, type of queries, mode of reply, time frame to reply and references used to provide response. The queries received will be classified as drug interaction, ADR, dose, availability, pharmacokinetic etc…

The second step was assessment of the quality of services from receiver's perspective by providing feedback questionnaire to the requestor. The questions included in the questionnaire were to access the awareness of DIC among healthcare professionals, communication skill of clinical pharmacist and performance of DIC etc…

Data analysis was carried out using statistical package for social science (SPSS) version 16.0 for windows. Data was analyzed by using descriptive statistics such as mean, frequency, standard deviation and percentage.

RESULTS AND DISCUSSION

During the eight month study period a total of 219 queries were received by the DIC. Highest number of queries was obtained in the month October (36) and less number of queries received in the month June (18). The number of queries received in month July, August, September, November, December and January were 25, 28, 30, 31, 23 and 28 respectively. The average queries per month were 27 shown in table 1

Evaluation of drug information services

More number of queries was obtained during the ward rounds (65.8%) followed by direct access (32.90%) and least was seen with telephone (1.42%). Answers to queries were most often needed within 2-4 hours (40.63%). In other cases answers were required either on immediately (27.39%), within a day (27.85%) or within 1-2 days (4.1%). The service is utilized to a greater extent by the physicians (46.1%) and the other healthcare professionals, post graduate students (30.1%), interns (21.5%) and nurses (2.3%). Present study shows that majority of queries asked were for better patient care (49.3%) and other queries asked to update knowledge (42.0%) and for education purpose (8.7%). More frequently asked question were about drug therapy (21%) followed by others (20.5%). The most frequently used resource was Internet (42.07%) followed by text books (27.4%) as shown in table 2

Assessment of quality of drug information services

A total of 30 feedback questionnaire distributed among the healthcare professionals and all 30 responded. Majority of the respondents aware about the DIC and service provide by the DIC (76.6%) and 23.3% are not aware about the DIC.

For a question on performance of DIC 66.6% rated as very good, 16.6% rated as good, 10% rated as excellent and 6.6% rated as satisfactory. When asked about the communication skill of clinical pharmacist 13.3% rated as excellent, 56.6% rated as very good, 26.6% rated as good and 3.3% rated as satisfactory as shown in table 3.

DISCUSSION

The most important service given by the drug information centre is providing complete, unbiased, up to date drug information to other health care providers. And DIC promote the safe and effective drug therapy as well as prevent ADR events and help in the management of ADR. An eight month prospective observational study was done in the drug information centre under the department of pharmacy practice in K S Hegde hospital for the evaluation of services provided by the DIC. During the study period a total of 219 queries were received.

The current study shows that the drug information service is more utilized by the physicians (46.1%). Similar results were observed in other studies carried out by Kumar MM et al, Venkatraghavan S et al, George B et al, Kumar SV et al and Vijayakumar et al. In current

study the utilization of DIS was predominantly by physician as they are the main prescribers and thus need to access appropriate drug information. In our study least queries received from nurses (2.3%) and the finding was similar to the findings of studies conducted by Kumar SV et al[11] and Ali AA et al where the queries asked by the nurses were 8.72% and 2.8% respectively. This shows that there is a need of awareness program to familiarize the services provided by DIC among nurses [3, 6-8, 9 15].

The present study shows that great percentage of the queries were from the general medicine department (73.51%), which is similar to the results of studies conducted by Jeevangi VM et al [2], Kumar MM et al [3], Venkatraghavan S et al [6], George B et al [7], Kumar SV et al [8] and Vijayakumar TM et al [9] It is because majority of the drugs are used and diseases are more in general medicine department and more number of staffs and students are posted in the general medicine department [3,6-8, 9].

In our study more queries are received during the ward rounds (65.80%). The similar results were reported by Kumar MM et al, Venkatraghavan S et al, George B et al, Das Skr et al and Kumar SV et al. The findings in our study are contrast to the studies conducted by Rajanandh MG et al and Jeevangi VM et al where the more queries are received through direct access, 80.7% and 50.82% respectively. During ward rounds more number of healthcare professionals were involved which includes physician, post graduate students, interns, nurses, clinical pharmacist etc… So chances for receiving the drug information queries are also increasing [3, 4, 6, 7, 10-12].

According to current study more queries were asked for better patient care (49.3%) and to updating knowledge (42.0%) and which is very similar to other studies done by Jeevangi VM et al, Rajanandh MG et al, Kumar SV et al and Puttegowda SKBK et al. This shows that the drug information given by the clinical pharmacist is accepted by the other health care professional and they think that clinical pharmacists plays a crucial role in the better patient care and updating knowledge [4,11-13].

The result of a study conducted by Kumar SV et al shows that the type of query received more are related to the drug therapy. In our study also more queries are related to the drug therapy followed by dosage/administration. But the result is contrast with the studies conducted by Puttegowda SKBK et al, George B et al, and Jeevangi VM et al where the query related to Dosage/route of administration was more common. [8, 11-13].

Most frequently used reference in the current study was Internet followed by text books. The frequently used reference in the study conducted by the Jayasutha J et al also internet. For an experienced skilled pharmacist it is very easy to locate the correct drug information from the

internet and also to get the updated knowledge. For giving immediate response to the drug information queries internet is the fast and better option [14].

In order to assess the quality of drug information services, a feedback questionnaire was prepared and provided to the healthcare professionals and all completely filled questionnaires were received. In the present study 73.6% are aware about the drug information centre and the services provided by the DIC which is very similar to the studies conducted by Venkatraghavan S et al and Jeevangi VM et al where the awareness were 80.6% and 88.52% respectively. The current result is contrast to the result of a study conducted by George B et al[8] where awareness about DIC is 100% [6, 12]

All the responds in the feedback questionnaire agreed that there is a need of DIC in the hospital. And majority of respondents (76.6%) opined that drug information service is useful in providing better patient care. The current result is supported by the study done by Jeevangi VM et al [12].

In our study 66.6% rated the performance of the DIC is very good. The present result is similar to the result of the study conducted by Venkatraghavan S et al. The study shows that there is a need to improve drug information service [6.]

In our study 96.7% rated that the communication skill of the clinical pharmacist is above satisfactory. Present study claimed that other health care providers are satisfied with the communication skill of the clinical pharmacist.

Table 1: Number of queries received per month

Number of queries per month			
Sl. no	**Month**	**No. of queries**	**Percentage**
1	June	18	8.21
2	July	25	11.41
3	August	28	12.78
4	September	30	13.69
5	October	36	16.43
6	November	31	14.15
7	December	23	10.50
8	January	28	12.78

Table 2: Categorization of drug information queries

Categorization Specialty	**Number of queries**	**Percentage of queries**
General Medicine	161	73.51
Oncology	18	8.21
Psychiatry	12	5.47
Pediatrics	10	4.56
Cardiology	9	4.1
Nephrology	8	3.64

Neurology	1	0.45
Status of enquirer		
Physician	101	46.1
PG students	66	30.1
Interns	47	21.5
Nurses	5	2.3
Mode of receipt		
Ward rounds	144	65.8
Direct access	72	32.8
Telephone	3	1.3
Purpose of query		
Better patient care	108	49.3
Update knowledge	92	42.0
Education	19	8.7
Time frame to reply		
Immediately	60	27.39
Within 2-4 days	89	40.6
Within a day	61	27.8
Within 1-2 days	9	4.1
Question category		
Drug therapy	46	21
Dosage/administration	39	17.8
ADR	36	16.4
Indication	22	10
Interaction	13	5.9
Availability/cost	10	4.6
Pharmacokinetics	4	1.8
Pregnancy/Lactation	3	1.4
Stability/Incapability	1	0.45
Others	45	20.5
References		
Internet	92	42.07
Text books	60	27.4
Micromedex	51	23.17
Journals	14	6.3
IDIS	1	0.45
Others	1	0.45

Table 4: Need for the drug information centre

Need for drug information centre				
Sl. No:	**Need for DIC**	**If yes Drug information help in**	**Frequency**	**Percentage**
1		Better patient care	12	40%
2		Update knowledge	5	16.6%
3	Yes	Educational/academic	2	6.6%

4		All of the above	11	36,6%
5	No		0	0.0%

CONCLUSION

After evaluation of drug information queries, it was found that providing drug information has helped the physicians to a great extent in optimizing the drug therapy for better patient care. Evaluation of feedback questionnaire shows that there is a wide acceptance of drug information service and majority of the users appreciate the quality of DIS. Even though wide acceptance, still there is a greater need of awareness for the encouragement to healthcare professionals to utilize the drug information service in a great extent. The present study shows that the quality and performance of the DIC in K S Hegde hospital are in the acceptance range. It is necessary to conduct more studies in future to assess the improvement in quality and performance.

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REFERENCES

1. Chauhan N, Moin S, Pandey A, Mittal A, Bajaj U. Indian aspects of drug information resources and impact of drug information centre on community. J Adv Pharm Technol Res. 2013;4:84-93.
2. Malone MP, Kier LK, Stanovich EJ, Malone JM. Drug information: A guide for pharmacists. 5th ed. USA: McGraw-Hill companies; 2014.
3. Kumar MM, Sowmya B, Dinesh R, Karthik M, Nagar AK, Yogananda R et al. Evaluation of performance of drug information center providing quality of information services to healthcare professionals in a tertiary care teaching hospital of south India. Innovations in pharmaceuticals and pharmacotherapy. 2013;1:81-90.
4. Rajanandh MG, Varghese R, Ramasamy C. Assessment of drug information services in a south Indian tertiary care hospital in Kanchipuram district. International journal of pharmacy and pharmaceutical sciences. 2011;3:273-276.
5. Parthasarathy G, Hansen NK, Nahata CM.The textbook of clinical pharmacy practice: Essential concept and skills. 2nd ed. Himayatnagar: Universities press; 2012.
6. Venkatraghavan S, Rama M, Leelavathi DA. Performance of a drug information centre in a south Indian teaching hospital. International journal of pharmtech research. 2010;2:390-403.

7. George B, Rao PGM. Assessment and evaluation of drug information services provided in a south Indian teaching hospital. Indian J Pharmacol. 2005;37:315-318.
8. Kumar SV, Chakilam V. Quality of services provided by the drug information centre of the pharmacy practice department in a tertiary care teaching hospital at Warangal district: Andhra Pradesh, India. Indian journal of hospital pharmacy. 2012;49:151-156.
9. Vijayakumar TM, Poovi G, Dhanaraju MD. Opinion on drug information services provided in a multi-specialty teaching hospital. Archives of pharmacy practice. 2011;2:57-59.
10. Das SKr, Acharya S, Anand Vijayakumar PR, Gupta S. Drug information service as pharmaceutical care; provided by clinical pharmacists in a south Indian government hospital. Austin journal of pharmacology and therapeutics. 2014;2:1-3.
11. Kumar SV, Chakilam V. Quality of services provided by the drug information centre of the pharmacy practice department in a tertiary care teaching hospital at Warangal district: Andhra Pradesh, India. Indian journal of hospital pharmacy. 2012;49:151-156.
12. Jeevangi V M, Patil N, Geni AB, Hinchageri SS, Manjunath G, Shanttveer H, et al. Assessment and evaluation of drug information service provided by pharmacy practice department based on enquirer's perspective. International research journal of pharmacy. 2012;3:193-199.
13. Puttegowda SKBK, Lakshminarayana SY, Ramarathnam NM. Assessing the pattern of drug information queries in a rural south Indian tertiary care teaching hospital. Malay J Pharm Sci. 2010;8:1-9.
14. Jayasutha J, Ashok Kumar M, Sriram S, Nithila MJ. Statistical survey and evaluation of drug information services at a tertiary care hospital. Research journal of pharmaceutical, biological and chemical sciences. 2011;2:249-253.
15. Ali AA, Yusoff SM, Joffry SM, Wahab MSA. Drug information awareness program and its impact on characteristics of inquiries at DIS unit in Malaysian public hospital. Journal of pharmacy practice. 2013;4:9-14.