

Assessment of Medicine Information Provided on Demand by Clinical Pharmacists in Nephrology Wards in a Tertiary Care Hospital

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ABSTRACT

Submitted: 13/02/2013

Accepted: 21/05/2013

Background: Clinical Pharmacy is an emerging field in India. As it is a new area, clinical pharmacists need to prove the importance of clinical pharmacy services. Provision of medicine information is one of the important clinical pharmacy services provided by the clinical pharmacists. **Aims:** To assess the medicine information given on demand by clinical pharmacists in nephrology wards. **Materials and methods:** Assessment of medicine information provided on demand for 4 months by clinical pharmacists was assessed. **Results:** The clinical pharmacists were asked 76 times to provide the medicine information during the study period. Out of 76, 53 (69.73%) queries were demanded by nephrologists, 20 (26.31%) by medical post graduates (PGs) and 3 (4.10%) by nursing staff. 39 (51.31%) queries were asked for the better patient care, 21 (27.63%) to update the knowledge and 16 (21.05%) were solicited to educate the patient. The results about time taken to answer the query, question category and reference consulted are given in detail in the context. **Conclusion:** It proves that clinical pharmacists including PharmD candidates can work well in the clinical set-up and can be considered as an emerging field in India.

Keywords- Clinical Pharmacy; Clinical Pharmacist, PharmD, India, Medicine information, drug information, nephrology, pharmacy practice

INTRODUCTION

Dispensing of the medications is the major job performed by many Indian pharmacists but, now-a-days the trend is changing towards clinical pharmacy services. Currently, the clinical pharmacists belong to two courses in India viz M.Pharm (Pharmacy Practice) and newly launched Pharm.D (Doctor of Pharmacy). Provision of drug/poison information to other healthcare professionals is a part of clinical pharmacy services.¹

As Pharm.D curriculum is newly started in India, there is pressing need for the awareness about the course as well as the role of Pharm.D candidates in healthcare system in India. There is requirement of the Pharm.D candidates to prove their role and importance of clinical pharmacy services in Indian scenario.²

Here, we have assessed the medicine information provided by the clinical pharmacists in Nephrology wards of a tertiary care hospital.

Objective

To assess the drug information given on demand by clinical pharmacists in nephrology wards

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MATERIALS AND METHODS

After Institutional Ethics Committee (IEC) approval, prospective, observational study was conducted for 4 months in nephrology wards of a tertiary care hospital. In 4-months duration, 4 clinical pharmacists i.e. Pharm D candidates were posted in nephrology wards on the basis of 2 candidates for 2 months. On the first day of posting in the wards they introduced themselves as Pharm D i.e. clinical pharmacists, explained their role for provision of medicine information and insisted nephrologists, post graduate medicine candidates and nurses to ask for medicine information if required. The clinical pharmacists participated in ward rounds daily with nephrologists. The medicine related queries asked during ward rounds were documented and answered as per the requirement of medical/ nursing staff. During study period, patients in nephrology wards were counseled voluntarily but only nephrologist-solicited patient medication counseling was considered for the study.

A nephrology ward in the hospital has an intensive care unit (ICU), dialysis room, acute care ward and male and female wards. During four months of the study, total of 178 patients were admitted in nephrology wards with the range 12-95 yrs.

For the documentation of medicine information the form as shown in [figure 1] was used.

RESULTS

The clinical pharmacists were asked 76 times to provide the medicine information during the study period.

Out of 76, 53(69.73%) queries were demanded by nephrologists, 20(26.31%) by post graduates (PGs) and 3 (4.10%) by nursing staff. The queries asked for patient education for medicines were 16 out of which 15 were asked by nephrologists and 1 by the nurse. Out of 76, 31(40.70%) were answered immediately, 16(21.05%) were answered within 2-4 hrs, 23 (30.26%) queries were answered within a day and 6 (7.99%) query was answered within 1-2 days. Pharmacists were late in providing medicine information for 7 (9.21%) times. The reasons for the late were compilation of data and literature search.

As far as purpose of the enquiry is concerned, 39 (51.31%) queries were asked for the better patient care, 21 (27.63%) to update the knowledge and 16 (21.05%) were solicited to educate the patient.

In question category, 25 (32.89%) queries were solicited for dosage/administration, 16 (21.05%) for patient education, 10 (13.15%) regarding adverse drug reactions (ADRs), 7 (9.21%) for availability/cost of the medicine, 6 (7.89%) for drug therapy and 4 (5.26%) for determination of drug interactions (drug-drug or drug-food), 2 (2.63%) for determination of pharmacokinetic-aspects of drugs, 1 (1.31%) for belonged to pregnancy category and 3(3.94%) queries were solicited under category 'others'.

As far as the references are considered, MICROMEDEX software was used to answer 38 (50%) of queries, websites were used for 26 (34.21%) queries, journals were referred 5 (6.57%) times, hospital formulary for 4 (5.26%) times and other references were employed to solve 3 (3.94%) queries. For 16 patient educations, websites were referred 10 times and MICROMEDEX software was used 6 times. Among the websites 'patient.co.uk' was used 7 times while 'Medscape' was used 3 times. The results are as shown in Table 1.

DISCUSSION

Nephrology pharmacy is originated in the world in 1970s.³⁻⁵ Skoutakis et al., first illustrated the function of clinical pharmacist in the treatment of hemodialysis patients.⁶ Since that time the development has started and now it is much advanced in the western world.

Studies on clinical pharmacy services in India are rare and among those studies, assessments of medicine information by clinical pharmacists are rarer. To the best of our knowledge, this is the first study on assessment of medicine information on demand by clinical pharmacists i.e. PharmD candidates in nephrology wards in a tertiary care hospital in India.

Table 1: Outcomes of the Study

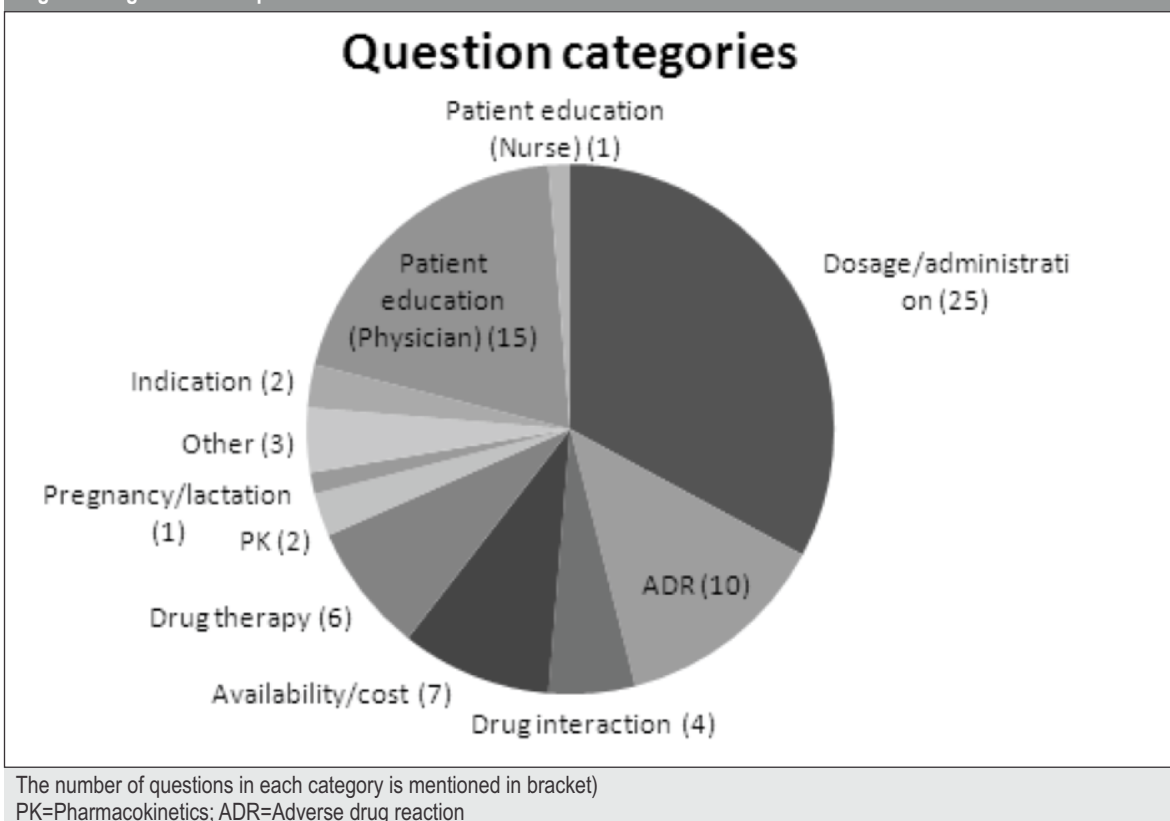
Parameter	Value (% out of total queries)
Number of medicine information demanded	76
Professional status of the enquirer	
Nephrologist	53 (69.73%)
PG	20 (26.31%)
Nurse	3 (4.10%)
Intern	0 (0.00%)
Queries answered	
Immediately	31 (40.70%)
Within 2-4hrs	16 (21.05%)
Within a day	23 (30.26%)
Within 1-2days	6 (7.99%)
Purpose of the enquiry	
or better patient care	39 (51.31%)
To update the knowledge	21 (27.63%)
Asked to educate the patient	16 (21.05%)
Question category	
Dosage/administration	25 (32.89%)
Adverse drug reaction	10 (13.15%)
Indication	2 (2.63%)
Drug therapy	6 (7.89%)
Availability/cost	7 (9.21%)
Pharmacokinetics	2 (2.63%)
Pharmacodynamics	0 (0.00%)
Pregnancy/Lactation	1 (1.31%)
Interactions	4 (5.26%)
Stability	0 (0.00%)
To educate patient	16 (21.05%)
Other	3 (3.94%)
References consulted	
MICROMEDEX	38 (50.00%)
Websites	26 (34.21%)
Journals	5 (6.57%)
Hospital formulary	4 (5.26%)
Other	3 (3.94%)

If the study is analyzed, during the study period no MBBS (Bachelor of Medicine and Bachelor of Surgery) intern had exposure to nephrology wards, so medicine information demanded by them was nil. Nurses consulted us 3 times during the study, though it was less in number, it designates that healthcare professionals other than nephrologists also need to know more about the medicines. Out of all the queries 27.63% queries were asked in the study to update the knowledge mainly of nephrologists, means the pharmacists can also be a useful person for other healthcare professionals.

Fig. 1: Medicine information request form

Medicine information request form	
Date	
Professional status of the enquirer-	
	<ul style="list-style-type: none">• Nephrologist• Post-graduate student i.e. MD• Intern (MBBS)• Nurse• Others-
Query-	
Answer needed-	
	<ul style="list-style-type: none">• Immediately,• Within 2-4 hrs,• Within a day,• Within 1-2 days
Purpose of enquiry	
	<ul style="list-style-type: none">• To update knowledge,• For better patient care,• Asked to educate patient• Others
Question category-	
	<ul style="list-style-type: none">• Drug therapy• Adverse drug reaction• Indication• Dosage• Availability/cost• Pharmacokinetics• Pharmacodynamics• Pregnancy/Lactation• Interactions• Stability• To educate patient• Other
References-	
	<ul style="list-style-type: none">• Textbooks• Journals• Micromedex• Website• Hospital formulary• Other
Answer of the query-	
Answer given in-	
	<ul style="list-style-type: none">• Immediately• Within 2-4 hrs• Within a day• Within 1-2 days
Reason for delay-	

Fig. 2: Categorization of questions solicited



All the queries were answered within the expected time except 7 of those. Nearly half of the queries were solicited for better patient care and 1/5th for patient education about the medicines, it shows that the pharmacists can play an important role in patient care.

Dosage adjustment in medicines is generally required for renal failure patients. In our study, we have got the similar result where nearly one-third queries were asked in 'dosage/administration' category in renal failure patients. Medicine information was demanded in various aspects of drugs including ADR, drug interactions, indications, pharmacokinetics (PK), pregnancy/lactation, availability/cost, drug therapy and patient education. It illustrates that the enquirers found the pharmacists to be 'professionally competent'. Unfortunately, we could not get the queries in the category of pharmacodynamics and stability of the drugs.

It is the world of computers' and technology now. There are many sources available for medicine information such as softwares, internet, e-books etc. To answer half of our queries we referred MICROMEDEX software as the primary source of medicine information. MICROMEDEX is the collection of different databases on drugs, diseases, toxicology, acute care and alternative medicine.⁷ Websites, journal and hospital formulary were also used as references. Interestingly none of

the pharmacist used hard copy of references like textbooks/handbooks. It reveals the usefulness of the computers in the pharmacy practice especially in medicine information in current world. It will be better if the government provides the advanced resources such as MICROMEDEX software for provision of drug information.

Patient education is the most important part of clinical pharmacy services from patient's perspective. In our study, we educated 16 patients for medicine use. References used for it were MICROMEDEX and websites like 'patient.co.uk'⁸ and 'Medscape'.⁹ The references used for patient education were as per the reliability, acceptance and perspectives of the individual pharmacist.

If we consider the limitations of the study, we considered only in-patients here for education about medicines on demand, and no out-patient. Healthcare professionals other than nephrologists and nurses did not solicit for any medicine information. The probable reason for this may be no or less association of them with drugs. Evaluation of the medicine information was not performed as seen in some other Indian studies.^{10,11} As the PharmD candidates were well trained, had experience of provision of medicine information previously in the curriculum and moreover the information was provided on professional basis so the evaluation of the medicine information was not required.

CONCLUSION

Overall, clinical pharmacists gave medicine information in a variety of areas of medicine in nephrology wards. The information was solicited for better patient care, to update the knowledge and patient education and all these things are enough to create a place of clinical pharmacists in the healthcare system. Of course there is need of such studies for betterment of the clinical pharmacy field in India. The study denotes the importance of clinical pharmacist as well as clinical pharmacy services in India. In conclusion, clinical pharmacists (PharmD) seem to have good future in Indian healthcare system.

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