MEDICATION ERRORS: ROLE OF CLINICAL PHARMACIST IN A TERTIARY CARE HOSPITAL

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ABSTRACT

A Non-experimental prospective interventional study has been carried out in a tertiary care teaching hospital of General medicine department for a period of 12 months i.e. March 2014-February 2015. The data is collected from the prescription through treatment chart review and by interviewing the patient during the ward round participation in Inpatient ward of general medicine department. The main objective of this study is to magnify the errors that occur unintendedly in a clinical setting and where clinical pharmacist plays his role as an entity of health care team. Totally 182 medication errors were identified and intervened during the period of March 2014 to February 2015 of which errors of prescribing are 28% among them incorrect drug selection are 12%, and errors of dispensing and administration are 72% among them omission of medication (23%), incorrect medication (17%) are commonly observed. All the medication errors were informed and discussed with the physician and some with the nursing staff, among them 71% was accepted, rectified and corrected through intervention. This study strongly spotlights that, Clinical Pharmacist as a part and parcel of health care system plays a major role in identifying, rectifying and modifying the medication errors that helps in achieving better outcomes.

Keywords: Medication errors, Clinical Pharmacist, Prescription Review, Patient Interview.

INTRODUCTION

Medications play a major role in diagnosis, prevention and treatment of various ailments. Although these medications are useful to patients, if used inappropriately they are
Medication errors occur when a health care professional perform an act that fails to achieve the intended goal or due to imperfect execution. These errors carry financial burden and affects the patient’s quality of life. Pharmacist has a major role to play in Patient safety by preventing medication errors to a great extent in many cases. Hence, Clinical Pharmacists should play a key role by adopting various strategies in preventing the medication errors. The most common types of errors that arise in practice are errors of commission and errors of omission. Some how when occurred, these errors carry financial burden and affects the patient’s quality of life. Therefore, identifying the cause and attempting to prevent medication errors are vital in clinical setting. In most of the countries, the Pharmacist has a limited role to play in drug selection and patient care. But it has proved that, pharmacist can prevent medication errors to greater extent in many cases. Hence, Clinical Pharmacists should play a key role by adopting various strategies in preventing the Medication Errors.

OBJECTIVES
The main objective of this study is to make a mark regarding the role of a clinical pharmacist which is to identify the cause and to take a step towards the path of prevention of drug related problems that arise while providing health care services in a clinical setting.

METHOD
A prospective, interventional study has been carried out in a tertiary care teaching hospital for a period of 12 months. Data was collected from the inpatient’s case sheets through treatment chart review and by interviewing the patient during the ward round participation in Inpatient ward of general medicine department and screened for any drug related problems (such as inappropriate drug selection, dosing, compliance, untreated condition, drug schedule and administration, and dispensing errors). The patient’s drug therapy was routinely monitored during their hospital stay. The relevant issues related to medication errors were notified and discussed with the physician and some with the nursing staff. The Suggestions made by the clinical pharmacist, the acceptance level of physician for the particular intervention such as whether the therapy was changed or not were noted and documented in the Pharmacist Intervention Documentation Form during the period of March 2014 to February 2015. The study data was analyzed by using suitable statistical procedures.
RESULTS
A total of 182 medication errors were identified, intervened and documented in Pharmacist Intervention Documentation Form during the period of March 2014 to February 2015.

![Medication errors graph]

The number of Dispensing and Administration errors is found to be more than the prescribing errors. The number of Prescribing Errors during the study period is 51, Dispensing and Administration Errors were 131.

![Prescribing errors graph]

The total number of prescribing errors during study period is 51, among them errors of Incorrect drug selection cases is more i.e. 21.
Out of 131 dispensing and administration errors, the number of Incorrect dose errors were 11, Incorrect schedule were 25, Omission of medication were 42, Incorrect medication error were found to be 31, Incorrect route errors were 8, and non compliance were observed in 10 patients.

All the medication errors were informed to the respective physician and some with the nursing staff by the Clinical Pharmacist. The type of recommendations provided by the Clinical Pharmacist is shown below.
Clinical Pharmacist assisted and monitored the nursing students on distribution and administration system to deliver the correct administration of drugs i.e. right drug to a right patient at right dose and schedule.

RESULT OF INTERVENTIONS
Out of 182 recommendations concerning with drug related problems, 129 (71%) were accepted and therapy was changed, 29 (16%) of cases suggestions were accepted but therapy was not changed, whereas 24 (13%) neither suggestion were accepted nor therapy was changed.

DISCUSSION
Medication Errors may occur at any time, from the medication order to consumption by the patient. In this study, the most common types of medication errors were dispensing and administration errors i.e. 72%. The percentage of medication errors vary with many other studies.[5,6] The percentage of prescribing errors is found to be 28% among them Incorrect drug selection is most commonly observed, this might be due to lack of government supply, larger number of drug formularies available in market, lack of standard treatment protocols. Incorrect or unclear dosing and incorrect instructions which may be due to lack of physician awareness and stress during work. The percentage of Dispensing and administration errors is 72%, among them 37% of medication errors were made by nursing students during the medication dispensing and administration use process. The most commonly observed errors were omission errors (23%), errors of incorrect drug administration (17%) and incorrect Schedule (14%) by the prescribing physician respectively. In this study, medication errors occur mainly due to lack of training and knowledge of nursing students and staff, improperly written medical orders, poor hand writing skills of the treating physicians and the use of unsafe abbreviations.

As our study is conducted in a teaching hospital, medical and nursing students and medical residents are involved in treatment team and responsible for some part of patient’s care that can be sources of errors more than hospital staff. In this study, types of other drug related problems had minority of occurrence which involves compliance problems contributed by patients non adherence, it was due to economic constraints of the patients that leads to non-procurement of prescribed drug. The incorrect route and incorrect dose, this was found possibly be due to the lack of knowledge of nursing students or misunderstanding or lack of awareness by the patient. Most of recommendations made were drug dose modifications 18%
followed by change in drug frequency 13 %, which differ from other studies were the drug discontinuation or cessation was the most frequent recommendation.\textsuperscript{[7,8,9]} However, differs from some other Indian study where change in drug dose was reported as most common suggestion made.\textsuperscript{[6]}

In our study, Clinical Pharmacist recommendations led to prevention of errors before the administration resulted in improved care and outcome. 71% of the recommendations were accepted and therapy was changed by the respective physician. However in, 16 % of total recommendations provided by the clinical pharmacist were accepted but therapy was not changed, may be because of lack of government supply of suggested drug or insignificant in contrast to patient’s current clinical condition; where as 13 % of suggestions neither accepted nor therapy was changed this might be due to lack of pharmacist understanding. This finding differs with other published Indian studies.\textsuperscript{[10,11,12]} Participation of Clinical Pharmacists, from prescribing, dispensing to administration to the patient, can reduce medication errors and to be beneficial to patient care. This study provides a preliminary basis for the initiation of future comprehensive studies on this area of pharmacy and pharmacist intervention. This study strongly spotlights the, benefit of Pharmacist’s interventions in improving the quality, safety and efficiency of care by involving in the health care team rounds, interviewing patients, detection and prevention of medication errors and reconciling medications.

**CONCLUSION**

Medication errors are a major threat to patient safety. They not only lead to increased hospital stay, cost of treatment, disability and also increase the mortality and morbidity rates. Clinical Pharmacist as a part and parcel of health care system plays a major role in identifying, rectifying and modifying the medication errors which are a cynosure for emerging pharmacy practice education in India and thus assures the patient safety by rendering his services.

**REFERENCES**

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