

Original Research Article

# IMPACT OF COUNSELLING AND INTERVENTION IN PREVENTING DRUG RELATED PROBLEMS AFTER HOSPITALIZATION AND POST DISCHARGE BY CLINICAL PHARMACIST

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## ABSTRACT

### BACKGROUND AND OBJECTIVES:

A Drug-Related Problem is an event or circumstance involving drug therapy that actually or potentially interferes with desired health outcome. Drug-related problems can occur at any stage of therapy which might be during prescribing, dispensing, administration. DRP's account for most of the therapeutic failures. The prevention of DRP is the main responsibility of a pharmacist. According to PCNE system the DRP'S are classified according to problem, the underlying cause, intervention to be made, acceptance of intervention and outcome. Our primary objective was to assess the impact of interventions and counselling on preventable drug related problem by a clinical pharmacist.

**Methodology:** A prospective observational study was conducted in a tertiary care teaching hospital for a period of 6 months.

**Result and Discussion:** A total of 96 DRP'S were identified and resolved in which 68 out of 96 DRPs indicate therapeutic failure, 27 out of 96 DRPs were due to drug dose too high and 54 DRPs were resolved by intervention i.e., dosage changed. DRP'S were classified based on type of error in which 27 out of 96 DRPs are due to over prescription of drugs. 30 patients were counselled during discharge about possible DRPs in which 5 out of 30 patients were counselled for cardiovascular disease and after follow up it was found that only 1 patient was readmitted.

**Conclusion:** Clinical pharmacist plays a key role in detecting, monitoring, evaluating, resolving and preventing drug related problems. Pharmacist plays a vital role in counselling patients to improve the quality of life of patients.

*Keywords: Drug related problem, PCNE, Counselling, Clinical Pharmacist*

## 1. INTRODUCTION

A Drug-Related Problem is an event or circumstance involving drug therapy that actually or potentially interferes with desired health outcome. Drug-related problems can occur at any stage of therapy which might be during prescribing, dispensing, administration. DRPs account for most of the therapeutic failures. The pharmacist plays an important role in the detection, evaluation, prevention of DRPs. A proper drug-related problem has (a) a detail on the patient's condition or problem (b) the drug therapy in question and (c) the relationship between the treatment and the patient's condition. According to the PCNE system, drug-related problems are classified according to the problem, the underlying causes, intervention to be made, acceptance of intervention, outcome. <sup>[1]</sup>

Drug-related problems are classified into 7 types:

Drug therapy that is unnecessary, ineffective, Low dose, high dose, adverse drug reaction, Non-adherence, Additional therapy is needed <sup>[2]</sup>. Medication error is any preventable event that may cause or lead to inappropriate drug use or patient harm while the drug is in the control of health care professional, patient, or consumer <sup>[3]</sup>. Medication errors account for the majority of drug-related problems. Medication errors include prescribing errors, transcribing errors, dispensing errors, administration errors. Adverse drug reaction is defined as response to a drug which is harmful and unintended and which occurs at doses normally used in man for prophylaxis, diagnosis or therapy of the disease or for the modification of physiologic function <sup>[4]</sup>. An expected 12-17% of general medication patient experience adverse drug event after discharge and most of them are preventable. 6-12% of ADE occur at emergency visit and 5% in readmission <sup>[5]</sup>. ADR is classified as preventable and non-preventable. Most of ADR are preventable and most commonly occur at prescribing stage <sup>[6]</sup>. Patient counselling can be defined as giving prescription data orally or in composed structure to the patients or their care taker or giving appropriate headings of utilization, advice on side effects, storage, diet and way of life alterations. The effective counselling ought to incorporate every one of the boundaries to make the patient get his/her disease condition drugs and way of life change requirements <sup>[7]</sup>. Follow up is making contact with a patient later to check patient progress. Follow up can assist with recognizing misconception and answer questions or make further evaluation and change treatment. Follow up includes collection of data from patient after discharge and helps in better patient care and outcomes.

The primary objectives of this study were to evaluate the role of clinical pharmacist in detecting, evaluating, resolving and preventing drug related problems, to categorize drug related problems according to PCNE system, to classify drug-related problems based on the type of errors, to assess the number of drug-related problems pertaining the individual drugs, to categories drug-related problems into preventable and non-preventable, to counsel patients regarding possible drug related problems, to assess the impact of patient counselling on preventable drug related problems through follow-up.

## 2. METHODOLOGY

This is a prospective, observational and interventional study which was conducted in a tertiary care hospital for a period of 6 months. A structural data collection form was designed for data collection. Review of case sheets by clinical pharmacists during daily visit to the general medicine ward assisted

in detection of DRPs which were resolved on further communication with the physician. Monitoring of the patients for DRPs was done regularly. Patient counselling was given by clinical pharmacists regarding the patient's disease condition, possible DRPs during discharge by doing case study and checking the medications prescribed during admission and discharge. Patient information was collected for further follow up. Follow up of the patients was done by clinical pharmacists after 1 week followed by 1 month. If any new symptoms were identified, they were resolved after consulting with the physician. Documentation, interpretation of data and classification of DRPs according to PCNE system.

### 3. RESULTS AND DISCUSSION

A total of 96 drug-related problems were analyzed during the study period of 6 months. In the present study, over prescription was found to be the major DRP which can be inferred from table 1, it was found that 83 of 96 DRPs are preventable which was represented in table 2 and 68 out of 96 DRPs indicate problem 1.1 i.e., therapeutic failure, 27 out of 96 DRPs were due to cause 3.2 i.e., drug dose too high, 54 out of 96 DRPs were resolved by intervention 3.2 i.e., dosage change which can be inferred from table 3. The present study also focused on counselling the patients regarding possible DRPs and 30 patients were counselled which was represented in table 4.

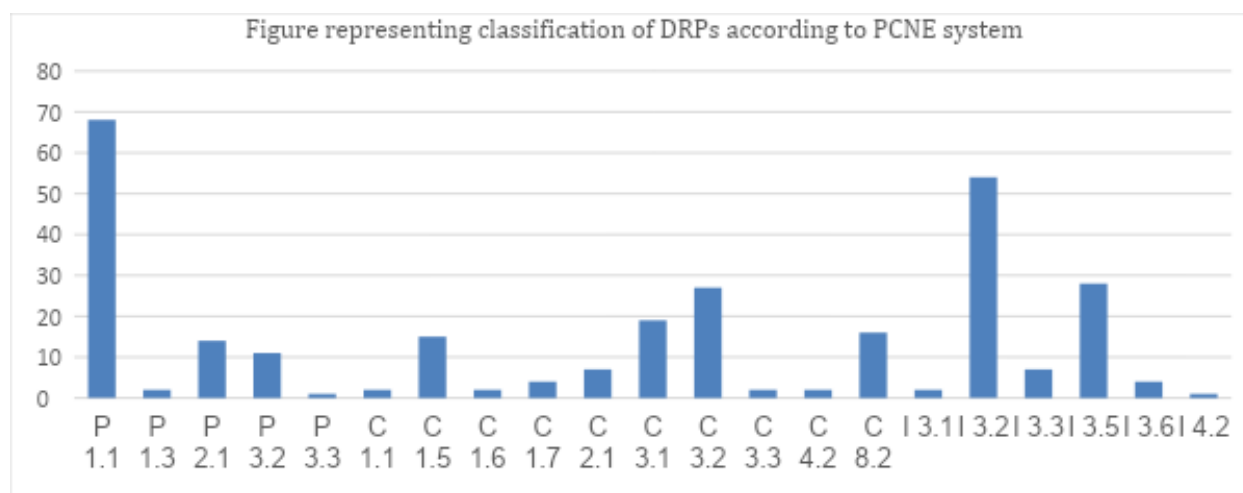
<b>s.no</b>	<b>Name of DRP</b>	<b>count</b>	<b>Percentage</b>
1	Overprescribed	27	28.1%
2	Under prescribed	21	21.8%
3	Adverse drug reaction	13	13.5%
4	Duplication error	12	12.5%
5	Ineffective prescribing	08	8.33%
6	Dosage form error	08	8.33%
7	Frequency error	07	7.2%

<b>TYPE</b>	<b>NO OF DRPs</b>	<b>PERCENTAGE</b>
Preventable	83	86.45%
Non-preventable	13	13.54%

Total	n=96	
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<b>Table 3: classification of DRPs according to the PCNE system</b>				
<b>S.NO</b>	<b>CODE</b>	<b>COUNT</b>	<b>PERCENTAGE</b>	<b>TYPE OF CAUSE</b>
Problem	P 1.1	68	70.8%	No effect of drug treatment/ therapy failure
	P 1.3	2	2.08%	Untreated symptom or indication
	P 2.1	14	14.5%	Adverse drug event
	P 3.2	11	11.4%	Unnecessary drug treatment
	P 3.3	1	1.04%	Unclear problem/ complaint
	Total	n=96		
Cause	C 1.1	2	2.08%	Inappropriate drug according to guidelines
	C 1.5	15	15.6%	Inappropriate duplication of therapeutic drug
	C 1.6	2	2.08%	No drug treatment in spite of existing drug
	C 1.7	4	4.16%	Too many drugs prescribed for indication
	C 2.1	7	7.29%	Inappropriate drug form
	C 3.1	19	19.7%	Drug dose too low
	C 3.2	27	28.1%	Drug dose too high
	C 3.3	2	2.08%	Dosage regimen not frequent

				enough
	C 4.2	2	2.08%	Duration of treatment too long
	C 8.2	16	16.61%	Other cause
	Total	n=96		
Intervention 1	I 1.4	96	100%	Intervention discussed with prescriber
Intervention 2	I 3.1	2	2.08%	Drug changed
	I 3.2	54	56.25%	Dosage changed
	I 3.3	7	7.29%	Formulation changed
	I 3.5	28	29.1%	Drug stopped
	I 3.6	4	4.16%	New drug started
	I 4.2	1	1.04%	Side effect reported to authorities
	Total	n=96		
Acceptance	A 1.1	96	100%	Intervention accepted and fully implemented
Status	O 1.1	96	100%	Problem totally solved



name of the disease	count	percentage
Cardiovascular diseases	5	16.6%
Stroke	4	13.3%

Anaemia	4	13.3%
Hepatic diseases	4	13.3%
Pneumothorax	2	6.6%
Deep vein thrombosis	2	6.6%
Pancreatitis	2	6.6%
Covid	2	6.6%
Young hypertension	2	6.6%
Denovo diabetes mellitus with diabetic keto-acidosis	1	3.3%
Meningoencephalitis	1	3.3%
Organophosphate poisoning	1	3.3%
Total	n=30	

The present study was undertaken to assess the impact of counselling and intervention in drug related problem after hospitalization and post-discharge by a clinical pharmacist. The study was conducted in a tertiary care teaching hospital and the sample size was analyzed as per our inclusion and exclusion criteria. In our study, 96 drug-related problems were identified and resolved. DRP's were classified according to the PCNE system indicates that problem 1.1: 70.8% i.e. No effect of drug treatment, cause 3.2: 28.1% i.e., drug dose too high, intervention 3.2: 36% i.e., Dosage changed which was correlating to the study done by Berhane YH, Derebew FB with concluding that clinical pharmacist intervention helps to minimize drug-related problems.<sup>[9]</sup> Also, we have counselled 30 patients regarding their disease condition and possible drug-related problem. 16.5% of patients were counselled for cardiovascular disease which was similar to the study done by Unnati P; Anushreya A.S stating that counselling for chronic disease can improve patient's quality of life. It is observed that counselling in chronic disease condition would help in improving the patient's health.<sup>[10]</sup> The present study indicates Pantoprazole (10.4%) drug accounts for most DRP'S which is a contradictory to the study conducted by Mojtaba SK, Negin M, Dena F which states that drug interactions with warfarin and aspirin accounts for majority of DRP's.<sup>[11]</sup> In our study, over-prescription of drugs, 28.1% is most commonly seen in drug-related problems which were supporting to the study done by Irsa J, Fatima A, Anam J stating that pharmacist intervention can reduce most of DRP'S which are existing in our health care system.<sup>[12]</sup>

After follow up, only one patient out of 30 patients who were counselled was readmitted in hospital. This is due to initiation of anti-tubercular drugs in that patient

#### 4. CONCLUSION

Pharmacists play a key role in detecting, monitoring, evaluating, resolving, and preventing drug-related problems. Drug-related problems are mostly due to medication errors and may lead to adverse drug reactions. In our current study, we have observed that most of the DRP's are due to prescription errors and are preventable when monitored properly by a clinical pharmacist. The clinical pharmacist also plays a very vital role in counselling the patients for better health outcomes. Patient's health condition can be monitored and quality of life can be improved through Follow-up. Thus, we

conclude that clinical pharmacist has a very positive impact on patients through counselling and follow-up. Therefore, better patient care can be provided.

#### ETHICAL APPROVAL

Ethical approval was obtained and preserved by all the authors

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**ABBREVIATIONS**

DRP-Drug related problem, ADR-Adverse drug reaction, WHO-UMC- world health organization-Uppsala monitoring center, ADE-Adverse drug event, PCNE- Pharmaceutical care network Europe.