



**International Journal of Research  
in  
Pharmaceutical and Nano Sciences**  
Journal homepage: [www.ijrpns.com](http://www.ijrpns.com)



**A STUDY OF MEDICINE RELATED PROBLEMS (MEDICATION ERRORS) IN  
HOSPITALISED PATIENTS OF A TERTIARY CARE HOSPITAL**

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**ABSTRACT**

The aim of the study was to see the incidence of medication errors in the hospitalised patients of a tertiary care hospital. Medication error may be defined as “Any avertable event that may cause or lead to in appropriate medication use or patient harm while the medication is in the control of the health care professional, patient and consumer”. This was a prospective observational study conducted for a period of 10 months in a tertiary care hospital. A total of 245 patients were enrolled in the study based on the inclusion and exclusion criteria. Each patient was with one medication error. Females were more in the study with 56%. Majority of the medication errors were done by nurses followed by doctors. Errors were more in the general medicine department. Out of 245 medication errors combination of errors were seen in 59 patients which was highest in number followed by prescribing error, omission error, wrong drug error etc. The major consequence of medication error observed was no harm to the patients. Although there is no harm to the majority of the patients, the incidence of medication errors gives an alarming signal to the prescribers and other health care professionals to prevent errors.

**KEYWORDS**

Medication errors, Hospitalised patients and Tertiary care Hospital.

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**INTRODUCTION**

The goal of drug therapy is the achievement of defined therapeutic outcomes that improve a patient's quality of life while minimizing patient risks known and unknown associated with therapeutic use of drugs and other pharmaceutical agents<sup>1</sup>. The National Coordinating Council for Medication Error Reporting and Prevention (NCCMERP) has defined medication error as “Any avertable event that may cause or lead to

inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient and consumer”<sup>2</sup>. Such events may be related to professional practice, health-care products, procedures, and systems including Prescribing, order communication, product labelling, packaging and nomenclature, compounding, dispensing, distribution, administration, education monitoring, and use<sup>3</sup>. American Society of hospital pharmacist’s guidelines for medication errors stated that the incidence of medication errors is not exactly known because of variations in different definitions of medication error or different methods<sup>4</sup>. An error is a disorder of intentional act, something incorrectly done through ignorance. Error arises when an action is anticipated but not performed<sup>5</sup>.

Medication errors may be committed by both experienced and inexperienced staff, including pharmacists, physicians, nurses, supportive personnel (e.g., pharmacy technicians), students, clerical staff (e.g. ward clerks), administrators, pharmaceutical manufacturers, patients and their caregivers, and others. Errors are possible at any step of the process, from medication selection and ordering, to order transcription, to drug formulation, to drug dispensing, to drug administration<sup>6</sup>.

Medication errors increase cost, significantly prolongs hospital stay, and increase the risk of death almost 2-fold. Several easily identifiable factors associated with large populations of medication errors includes inadequate knowledge regarding drug therapy such as age, impaired renal function and drug allergy, need for calculation of drug dose, specialized drug formulation characteristics, and medication prescribing nomenclature. Other most common factors contributed to medication error include lack of drug information, incorrect diagnosis, drug-drug related reactions, dose miscalculations, incorrect drug administration, and lack of patient education. Of course, not all medication errors lead to morbidity or mortality, but the relatively high incidence makes it a problem still worth dealing with<sup>2</sup>.

According to Mc Govern the ten golden rules for the safe administration of medication are<sup>8</sup>

- Administer the right drug
- Administer the drug to the right patient
- Administer the right dose
- Administer the drug by the right route
- Administer the drug at the right time
- Teach the patient about the drugs they are receiving
- Take a complete patient drug history
- Find out if the patient has any allergies
- Be aware of potential DDIs
- Document each drug administered.

The aim of the study was to identify the medication errors and analyzing the prescription errors of the patients admitted in the various wards of tertiary care teaching hospital.

## **MATERIAL AND METHODS**

### **Study design**

Prospective observational study

### **Study site**

This study was conducted in a 250 bedded tertiary care hospital.

### **Data collection**

Data was collected by using standard patient data entry form for a period of 10 months from May 2017 to February 2018.

### **Inclusion criteria**

All the inpatients of tertiary care hospital who were diagnosed to have medication error were included in the present study

### **Exclusion criteria**

Outpatients were excluded from the study

### **Sample size**

245

### **Statistical analysis**

In the present study, descriptive statistical analysis has been carried out.

## **RESULTS AND DISCUSSION**

A total number of 245 patients were enrolled in the present study. 245 medication errors were found totally.

Among the present study population, females were more with 137 (56%) when compared to males with 108 (44%). The incidence of medication errors were more in the females (56%) than the males (44%). This was in contrast to the study conducted by Karna *et al*<sup>2</sup> and Akhila *et al*<sup>8</sup>, where there is a male dominance.

Mean age of the present population was found to be 41.33 +/- 19.20 years. This was slightly comparable to the studies conducted by Karna *et al*<sup>2</sup>, Solanki *et al*<sup>9</sup> and Karna K *et al*<sup>10</sup>,

Out of 245 patients with medication errors, the professionals involved in the medication errors were doctors, nurses, pharmacists, doctor and nurse, doctor and pharmacist, nurse and pharmacist. In the present study the majority of medication errors were done by the nurses with 47% (116).

In 245 medication errors, majority of the errors were reached to the patients with 59%. Major consequences of medication errors observed in the study were no harm, monitoring/ intervention to prevent harm and temporary harm. In the present population no harm from medication errors were observed highest with 82%. This was similar to the study conducted by Sandip *et al*<sup>11</sup>. This shows us that there are no major loss to the patients in the present population and on the other hand it shows us the necessity of a clinical pharmacist for minimising most errors.

Patient interview was done to almost all the individuals who were enrolled in the present study with 96%.

Patients counselling was provided to almost all patients who enrolled in the study with 98%, the left individuals who were not counselled were the individuals who were in a hurry and didn't accept to talk much of their problem.

According to the distribution of patients to the different departments with medication errors, the maximum were found in General medicine (108) followed by psychiatry (44), cardiology (41), gynaecology (32) and paediatrics department (20). This was in contrast to the study conducted by Sandip *et al*<sup>11</sup>, where cardiology department was more with medication errors.

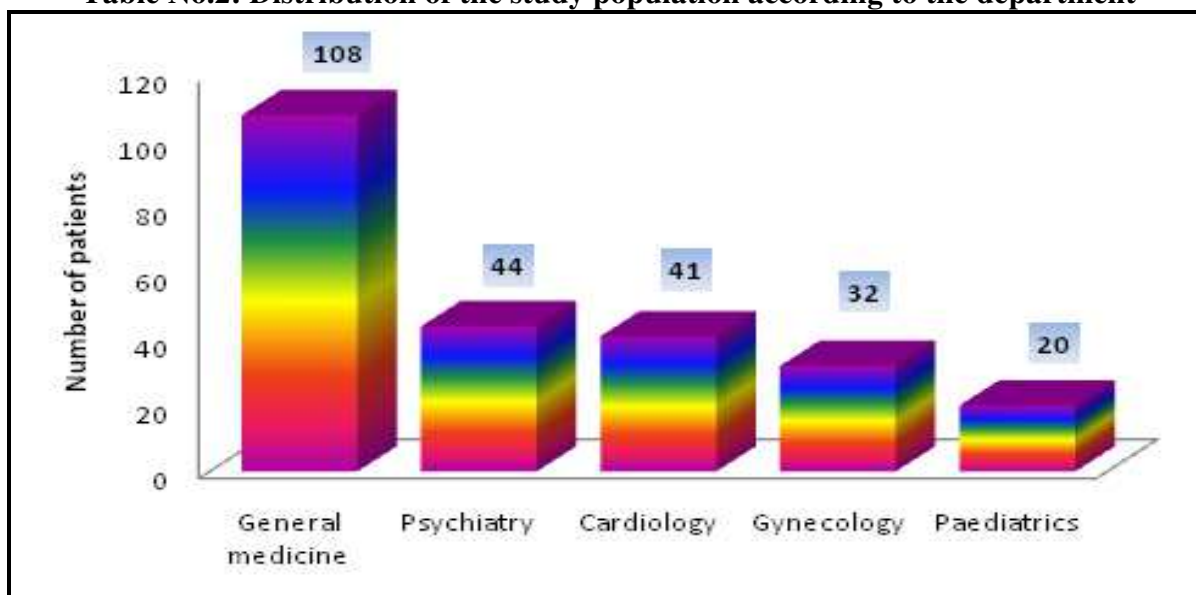
Out of 245 medication errors combination of errors were seen in 59 patients which was highest in number followed by prescribing error, omission error, wrong drug error, dispensing error, wrong route error, error due to poor handwriting, wrong duration error, compliance error, wrong dosage form error and wrong time error. This was comparable to the studies conducted by Patel N *et al*<sup>4</sup>, Solanki *et al*<sup>9</sup>, Pote S *et al*<sup>12</sup>.

In the present study, majority of the medication errors didn't required any action to resolve with 77 patients followed by other interventions such as change to correct dose, other interventions, change frequency, change to correct drug, mixed interventions needed and administration of antidote.

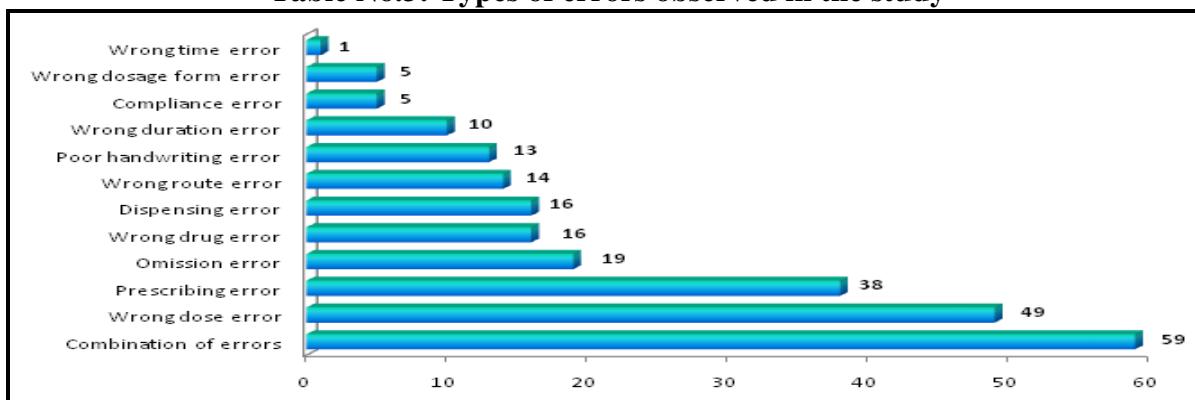
**Table No.1: Various characteristics of the study population**

S.No	Characteristic	No. of patients	Percentage
<b>Gender</b>			
1	Male	108	44%
2	Female	137	56%
3	Age (mean ± SD)	41.33 ± 19.20	
<b>Professional involved in the medication error</b>			
4	Doctor	92	38%
5	Nurse	116	47%
6	Pharmacist	28	11%
7	Doctor and Nurse	3	1%
8	Doctor and Pharmacist	3	1%
9	Nurse and Pharmacist	3	1%
<b>Does error reach to patient</b>			
10	Yes	144	59%
11	No	101	41%
<b>Consequences</b>			
12	No harm	200	82%
13	Monitoring/ Intervention to prevent harm	36	15%
14	Temporary harm	9	4%
<b>Was patient interview done</b>			
15	Yes	236	96%
16	No	9	4%
<b>Was patient counselling provided</b>			
17	Yes	239	98%
18	No	6	2%

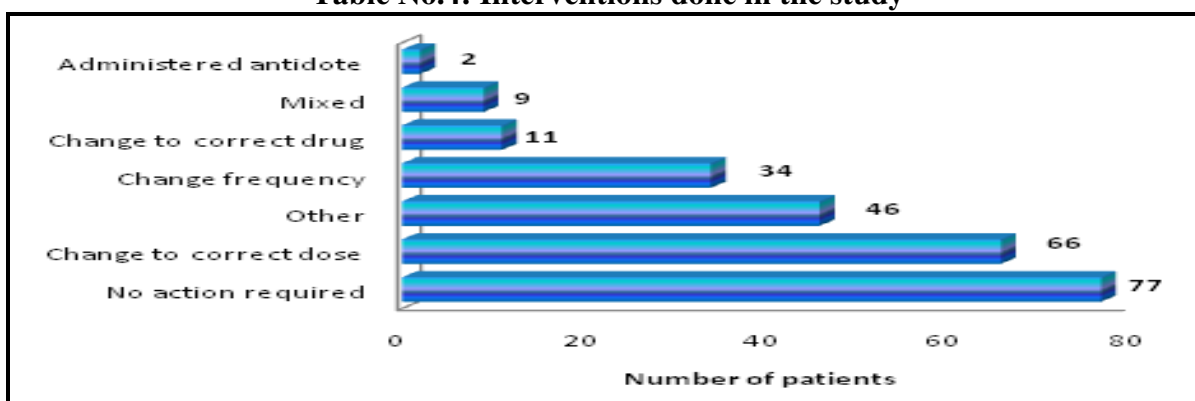
**Table No.2: Distribution of the study population according to the department**



**Table No.3: Types of errors observed in the study**



**Table No.4: Interventions done in the study**



## CONCLUSION

This study shows the incidence of medication errors in the hospitalised patients in a tertiary care hospital. This study gives an alarming signal to the prescribers and other health care professionals to prevent errors in the hospitalised patients. In addition, this study also supports the need of valuable services of the clinical pharmacist to avoid, prevent and resolve medication errors and thus leading to better quality of life of patients.

## ACKNOWLEDGEMENT

Our appreciation and gratitude are extended to Dr. P. Ravi Prakash, head of the institute for his guidance, generosity to share their tremendous knowledge, for giving continuous and unlimited motivation. Last but not least, we want to express our deep gratitude to our parents, all well-wishers whose enormous helps assist us to complete this research paper.

## CONFLICT OF INTEREST

We declare that we have no conflict of interest.

## REFERENCES

1. Basarkar S. Patient safety and erroneous medication in healthcare organisation: A learning lesson, *Int J Sci Res Publ*, 5(6), 2015, 1-9.
2. Karna K H, Sharma S A, Inamdar S H, Bhandari A N. Study and evaluation of medication errors in a tertiary care teaching hospital—a baseline study, *Int J Pharm Sci*, 4(5), 2012, 58.
3. Parthasarathi G. A Text Book of Clinical Pharmacy Practice Essential Concepts and Skills, *Hyderabad: Universities Press*, 2008, 596.
4. Patel N, Desai M, Shah S, Patel P, Gandhi A. A study of medication errors in a tertiary

- care hospital, *Perspectives in Clinical Research*, 7(4), 2016, 168-173.
5. Walker E E. Medication Errors, *Imperial Journal of Interdisciplinary Research*, 2(5), 2016.
  6. American Society of Hospital Pharmacists. ASHP guidelines on preventing medication errors in hospitals, *Am J Hosp Pharm*, 50(2), 1993, 305-314.
  7. Akhil N, Thomas P P et al. Assessment evaluation and analysis of the medication errors of the patients admitted at the emergency department of a tertiary care teaching hospital of a south Indian city, *Asian Journal of Pharmaceutical and Clinical Research*, 10(5), 2017, 161-165.
  8. Solanki N D, Shah C. Root cause analysis of medication errors at a multi-specialty hospital in Western India, *International Journal of Basic and Clinical Pharmacology*, 2(6), 2013, 819-823.
  9. Karna K, Sharma S, Inamdar S, Bhandari A. The impact of educational intervention strategies in reducing medication errors in a tertiary care teaching hospital-a second intervention study, *International research J of Pharmacy*, 3(11), 2012, 1-7.
  10. Sandip et al. Study of Medication Error in Hospitalised Patients in Tertiary Care Hospital, *Indian Journal of Pharmacy Practice*, 11(1), 2018, 32-36.
  11. Pote S, Tiwari P, D'cruz S. Medication prescribing errors in a public teaching hospital in India: A prospective study, *Pharmacy Practice (Granada)*, 5(1), 2007, 17-20.
  12. Nikitha M K, Vinay B C, Sunil P B, Devi O J. To identify medication errors in treatment charts in pediatric and medication wards in a tertiary care teaching hospital in Davangere, *Int J Pharm Bio Sci*, 6(3), 2015, 126-132.

**Please cite this article in press as:** Shaik Ali Basha et al. A study of medicine related problems (medication errors) in hospitalised patients of a tertiary care Hospital, *International Journal of Research in Pharmaceutical and Nano Sciences*, 7(3), 2018, 79-84.