

## REVIEW ON MEDICATION ERRORS - A MAJOR PROBLEM IN INDIA

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### ABSTRACT

Medication errors are the leading cause of morbidity and mortality among the patients receiving pharmacological treatment for their co-morbid conditions. Polypharmacy or the complex pharmacotherapy in the hospitalized patients are considering as a major risk factors of medication errors. Medication errors are common in general clinical practice and in hospitals and occurs at any stage of patient care and drug therapy. Hence there is an essential need for detection, monitoring and prevention of medication errors. Clinical pharmacists play an integral in identification of medication errors and should create awareness among other health care professionals to prevent such errors caused by the drugs. The guidelines for the safe use of drugs in the geriatrics should be established to prevent medication errors.

**KEYWORDS:** Medication errors, Pharmacological treatment, Polypharmacy, Co-morbid conditions.

### INTRODUCTION

Medication error is an episode associated with the use of a medicine that should be preventable through effective control systems. The National Coordinating Committee on Medication Error Reporting and Prevention (NCCMERP) defines medication errors as any preventable event that may lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient or consumer.<sup>[1]</sup> Medication errors can occur during prescribing, dispensing, administering and monitoring drugs. Drug related problems including medication errors are mainly due to irrational use of drugs especially in India and have a significant economic burden on the patient. FDA has received more than 20,000 medication error reports since 1992. Every year 5.2 million injuries have

been reported in India while in US 7000 deaths have been reported in hospitals per year. Majority of the reported medication errors are preventable, and did not cause any harm to the patient but some of the medication errors cause significant morbidity and mortality in the patients and drags the attention of the people.<sup>[2]</sup>

Medication usage is a process, which begins with the prescription of a physician, and followed by the review and provision of medications by a pharmacist, and ends with the preparation and administration of the medication to the patient by a nurse.<sup>[3]</sup>

The medication errors committed by the nurses takes the first place because they spent 40% of their work time in administering drugs. In hurry to complete their work, their may be a chance for occurrence of medication errors. The high risk group for wrong administration are look alike and sounds alike drugs. Clinicians committed medication errors are at the level of patient individual characteristics such as age, weight and drug kinetics such as possibility of accumulation, interactions due to lack of time, over patient load. These errors can be prevented by creating awareness and educating the health care professionals regarding the medication errors and their preventive measures.<sup>[4]</sup>

To overcome wrong drug administration errors “six Rights of the Medication Use Process” has to be followed are:<sup>[5]</sup>

1. Right patient
2. Right drug
3. Right dose
4. Right route
5. Right time
6. Right outcome

### **SERIOUSNESS AND TYPES OF MEDICATION ERRORS**

G. R. S. Dalmolin *et al* evaluated the seriousness and type of medication errors in a sample of 165 written error reports from 2010-2011. The reports were analyzed for the type of errors as per the American Society of Health System Pharmacists (ASHP, 1993). 48.25% of prescribing errors, 4.39% of dispensing errors, 2.63% of omission errors, 1.75% of wrong time errors, 11.40% of unauthorized drug errors, improper dose errors, wrong drug-preparation errors, 7.02% of wrong administration technique errors, and 1.75% of other medication errors were reported. The seriousness of the medication errors were analyzed as

per the classification of seriousness of medication errors according to the National Coordinating Council for Medication Error Reporting and Prevention (NCCMERP). The seriousness of the reports showed that 30.91% of reports were potential errors (category A) and in 60.0% of reports, medication errors did not reach the patient (category B) or reached the patient but did not cause harm (C and D). In the remaining reports, there were no temporary harm associated (E and F); there were no reports associated with permanent harm or death (G, H, and I). They concluded that reflection of medication errors and the possibility of harm resulting from these errors and the methods for error identification and evaluation should include a broad perspective of the aspect involved in the occurrence of errors.<sup>[6]</sup>

### **EVALUATION OF MEDICATION ERRORS**

Hamoudi A. mosah *et al* conducted a prospective, exploratory, and evaluative study, using direct observational method to detect medication errors in 299 patients from July 2009 to September 2009. They reviewed patient files including medication orders treatment sheets to detect existing errors. The detected errors were classified using a special form designed according to standard classification of medication errors. The incidence of medication errors was 8.7%. The most common type of errors were incorrect medications which includes 38.46% of drug without indications, 19.23% of drug interactions. The second most common type is incorrect dose which includes 15.38% of over dose, 3.85% of under dose errors. The other type of medication errors identified in this study includes 7.69% of wrong route of administration errors.<sup>[3]</sup>

### **POTENTIAL SYSTEM BASED CAUSES OF MEDICATION ERRORS IN INDIA<sup>[1]</sup>**

- Dispensing of drugs without labels to indicate the patient's name or direction for use.
- Returning original prescriptions to patients once medications have been dispensed.
- Transcription of hospital treatment chart orders on to prescription forms before dispensing.
- Recording of drug administration in hospitals on separate stationery from treatment chart orders.
- Use of treatment charts which do not include a space for documentation of drug allergies or adverse reactions.
- Use of treatment charts which do not include a space for route of administration.
- Separate medical records for the inpatient and outpatient visits.
- Lack of drug information references and guidelines for parenteral administration on wards.

## IMPLICATIONS FOR PHARMACISTS IN INDIA<sup>[1]</sup>

India is a developing country where there are more variations in health care system including the use of homeopathic and ayurvedic medicines in addition to allopathic medicines. It is unrealistic to expect the rapid adoption of expensive technologies that can improve patient safety. Therefore the pharmacists in India should be aware of medication related problems and should develop safer medication use systems. Clinical pharmacists play a vital role in the identification of such errors and should provide unique information of the drugs involved in medication errors to the physicians and other health care professionals by interacting with them in the ward rounds. The presence of clinical pharmacists in the ward rounds will make the physician to take better clinical decisions before finalizing the medication orders. The following are some of the suggestions for the pharmacists in India to minimize the drug related problems:

- A pharmacist should acknowledge the problems of medication errors and Adverse Drug Events (ADEs) to develop methods to detect errors and ADEs in the hospitals and clinics.
- Improving medication use safety should be declared as a serious and dedicated aim for the pharmacists in India.
- Identify the medication errors that frequently cause harm to the patient and focus attention on finding ways to improve the system so that those errors are less likely to happen again.
- Critically examine each step of the medication use process in your hospital or pharmacy and identify areas where the risk of medication errors can be minimized.
- Begin by making the improvement of medication use safety an individual pharmacist's duty, day by day and patient by patient.

## DISCUSSION

Studies shows that most common type of medical error is medication error. The most common type of errors are prescribing and dispensing errors. There is a need to establish and implement medication error reporting systems in India to reduce the incidence of medication errors and to improve the patient health and safety. The institute of medication errors "To Err is Human" Building safer Health System estimates that out of thousand people ten were experiencing death and out of thousand people hundred were experiencing non-fatal injuries every year in United States due to medication errors. There is also a significant economic burden on the patient due to medication errors which includes additional laboratory costs, non invasive procedures, additional medication treatment, invasive monitoring or procedures,

increase in length of stay, transfer to intensive care unit and other expenses during hospital stay.

## CONCLUSION

The use of medications is to achieve better therapeutic outcome and to improve patient quality of life but unfortunately in India there is an increased risk of medication errors due to use of multiple number of medications for early relief and due to lack of proper monitoring systems. Hence there is an essential need to reduce medication errors for public health concern. A rational use of drugs by the health care professionals will improve the patient quality of life. The prevalence of medication errors in India is under reported due to sparse of data on medication errors. A national program on medication errors in the country will definitely improve the health care scenarios on medication errors.

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## CONFLICT OF INTEREST

We declare that we have no conflict of interest.

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