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MEDICATION ERRORS : SERIOUS GLOBAL HEALTH CONCERN,TIME TO REDUCE IT.

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ABSTRACT **Introduction :** The risk of medication errors is high globally. but most studies on ME have been undertaken in developed countries and very little is known about ME globally.ME significant global concern and can cause serious medical consequences for patients.This study aimed systematically to identify and review research done on ME globally in order to identify common types of ME and estimate its prevalence. **Methods:** The literature relating to MEs globally was systematically reviewed in Last 10 years by using; Medline, Pubmed, google scholar. Inclusion criteria were studies published in English language that investigated the incidence of ME in patients of all ages. **Results:** Total number of MEs 36%; Of which 38% were in Medicine and 35% were in Paediatric wards.

- The most common ME was prescription errors 65% followed by administrative errors 31%.
- A potential significant drug-drug interactions (DDI's) were observed in 17% and serious DDIs in 4% prescriptions.
- Majority of prescriptions were semi rational 53% followed by irrational 30%, while 17% prescriptions were rational.

Conclusion: There is a need to establish ME reporting system to reduce its incidence and improve patient care and safety.

KEYWORDS : Medicine inpatients, paediatric, Phadke's criteria

INTRODUCTION

Medication error (ME) is defined as "any preventable 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, or consumer. 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" [1].

Medication errors (MEs) are under-reported in all countries [2], particularly in developing countries. MEs present a universal problem and can cause serious consequences for patients, especially those with acute complex medical conditions [3]. The National Patient Safety Agency revealed that MEs in all care settings in the UK occurred in each stage of the medication treatment process, with 16 % in prescribing, 18 % in dispensing and 50 % in administration of drugs [4].

For paediatric MEs it has been estimated that 3–37%occur during prescribing, 5–58 % during dispensing, 72–75 % during administration, and 17–21%are documentation errors [5]. Over an 8-year period in the UK, at least 29 children died due to MEs [6].

Despite increased focus on medication safety, there have been no comprehensive estimates of the prevalence of medication errors among paediatric inpatients{ 7,8}

The purpose of this review was to provide comprehensive estimates of medication error prevalence (i.e. overall medication errors, prescribing errors, and medication administration errors) among all age group inpatients globally. Hence did systemic review study .

Medication error (ME) is- “Any preventable event that may cause or lead to inappropriate medication use or patient harm, while the medication is in control of the health care professional, patient, or consumer.”

Medication errors are a significant global concern .Frequency of MEs reported in the literature ranged from 2.1 to 5.7 errors per 100 medication orders .

ME has caused 48000-98000 deaths annually in U.S., making ME the sixth leading cause of death.

The Institute of Medicine estimated costs due to medical errors in the US was approximately $37.6 billion/year. About $17 billion was associated with preventable errors.

- ME increases mortality, morbidity & economic burden to health care system

OBJECTIVES

- To determine nature and type of medication errors.
- Evaluate effect of interventions on medication error .
- Assess consequences of medication errors.
- Medications involved in medication errors.

METHODOLOGY

- We searched articles in pub med, google scholar using key words-medication errors, paediatric, medicine inpatients In last 10 years-(58 original research articles)
- Inclusion criteria - Articles which were related to medication errors like prescribing, administrative and dispensing errors in all age group in inpatient were selected
- Total 400 freely accessed articles found. Out of which 58 articles selected for the study which fulfilled inclusion criteria.

RESULTS

Medication error, prescribing error and administration error varied across studies.

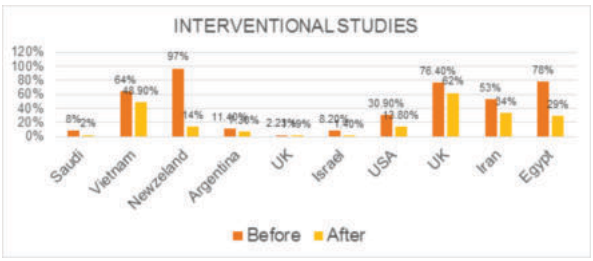
Prescribing errors made up the greatest proportion of medication errors and were the focus of most studies.

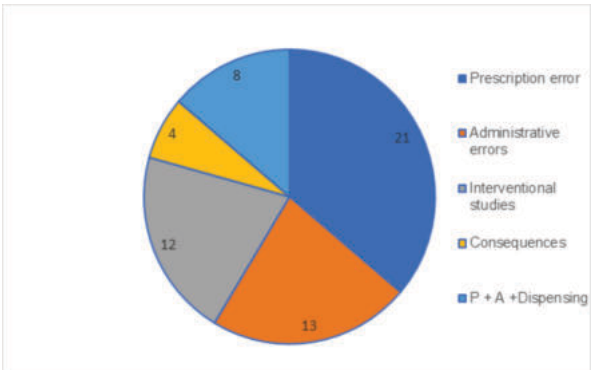
Prescribing error is defined as any error in the process of prescribing the medication that leads to (or has the potential to lead to) patient harm [9]. The error rates reported varied greatly; the highest rate of prescribing error was reported in spain., which was 89%, while the lowest error rate was 10 % reported in Malaysia.

Medication administration error is defined as any discrepancy between the medicine given to the patient and the prescriber's medication order as written on the patient's chart or manufacturers' preparation/ administration instructions [10]. Highest was reported in Ethiopia (62.7%) and lowest in UK (7 %) .

Dispensing errors happen when the medication dispensed/delivered by the pharmacy is not compatible with the order written in the prescription by the doctor [11]. It was highest in Hongkong (54 %) and lowest in UK and Iran.

MEs usually arise from poorly designed work environments and systems rather than the individual performance of a single practitioner [12]. Staff shortage/high workload [13], Nurse/doctor distraction [13], Incorrect interpretation of prescription/medication chart [, 14,], Lack of knowledge [15], Lack of experience [16]





Medication involved in ME-
Saudi Arabia- Antibiotic and cardiovascular drugs.
Israel- Cardiovascular drugs
Hongkong- iv fluids, cardiovascular drugs.
Japan- Antibiotics.
India- Antimicrobials.

DISCUSSION

The aim of this systematic review was to review studies of the incidence and types of MEs globally and to identify the main contributory factors involved. MEs are an important variable in determining patient safety.

To our knowledge, no previous systematic review has evaluated MEs globally. Poor knowledge of clinical pharmacology was a major factor in many of the papers. This systematic literature review has shown that the scientific literature on MEs published globally is limited.

The reported incidence of prescribing errors in this review ranged from 10 % to 89% of medication orders. A high rate of prescribing errors is known to be an international problem [17, 18. In a previous systematic review conducted in the UK to identify the prevalence, incidence and nature of prescribing errors in hospital inpatients, prescribing errors were found to be a common occurrence [17], and this is consistent with our findings. The incidence of prescribing errors in that review were 2–14 % of medication orders [17], which was lower than that found in our review of MEs found globally.

Our review showed that administration errors occurred in 7 % to 62 % of drug administrations. This is similar that reported in studies in HIC.{ 19,20}

Special emphasis should made to reduce different types of medication errors.

Limitation

The search strategy and search terms were designed in order to be as comprehensive as possible, but the databases used were directly biased to English language research and studies. We therefore may have missed some studies published other than English language.

CONCLUSION

- There is need to establish ME reporting system to reduce its incidence and improve patient care and safety.
- There is need of periodic training of medical & paramedical staff & interventional measures to reduce ME

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