



Original Research:

Is The Incidence of Medication Administration Errors in A Tertiary Care Hospital a Secret Factor in our Health-Care System?

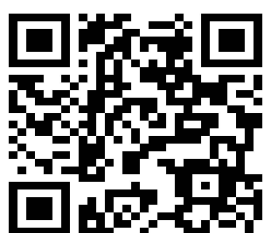
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Abstract:

Medication Error (ME) are one of the biggest problems in healthcare that occur often Hospitalized. MEs can aid in examining major morbidity or mortality as well as significantly lowering the expenses of medical care for patients and the healthcare system. The goal of the current study was to determine the prevalence and risk factors of such drug administration mistakes as well as to identify and evaluate the MAEs that occurred in patients admitted to the tertiary care hospital. The current cross-sectional study was carried out in the tertiary care hospital over the period of 4 months, from 1st May 2022 to 31st August 2022. Data was collected by Clinical Pharmacist, who are highly trained to spot all categories of medication related errors. Each and every patient's medication chart as well as admission chart was thoroughly analyzed, evaluated and reviewed to figure out any kind of suspected administration error as well as medication error. In this study it has been observed that Delay in administration, Wrong drug administration and failure to intercept drug interaction and contradiction has been observed in tertiary care hospital which need to be improvised and proper guidelines should be followed so that in future further such incident may not repeat and provide safety and efficacy to the patient.

Keywords: Administration Error, Medication Error, Incident Reporting, Wrong Medication

Introduction:

Medication Error (ME) are one of the biggest problems in healthcare that occur often Hospitalized. MEs can aid in examining major morbidity or mortality as well as significantly lowering the expenses of medical care for patients and the healthcare system.^{1,2} The National

Coordinating Council for Medication Error Reporting and Prevention claims that (NCCMERP), "A medication error is any avoidable occurrence that might result in improper pharmaceutical usage or patient damage while the medicine is at the control of the patient, the consumer, or the healthcare provider".³ This includes prescription, order communication,

product labeling, packaging, and nomenclature, compounding, dispensing, distribution, administration, teaching, monitoring, and usage, among other healthcare-related activities.^{4,5}

The goal of the current study was to determine the prevalence and risk factors of such drug administration mistakes as well as to identify and evaluate the MAEs that occurred in patients admitted to the tertiary care hospital.^{6,7}

NABH criteria was used for the assessment of rationality of prescription orders.

Prescribing errors were considered as any error which arose from treating patients with incomplete prescription, which includes :-

1. Improper or inadequate documentation of patient details.
2. Prescribing drugs which will have adverse effect on patient.
3. Incorrect dose.
4. Prescribing contraindicated drugs.
5. Negligence towards potential drug-drug interaction.
6. Wrong medication.
7. Not describing component drugs in a combination medication.
8. Wrong frequency, route of administration.⁸

MAE's can be categorized into nine categories, according to 2018 guidelines of NCCMERP. These were as follows :-

Category A : Circumstances or events that have the potential to cause incident

Category B : Error has occurred but the error did not reach the patient

Category C : Error has occurred that has reached the patient but didn't cause harm to patient.

Category D : Error has occurred that reached the patient and requires frequent monitoring to make sure that it resulted in no harm to the patient and also required intervention to avoid any harm.

Category E : Error has occurred that have been suspected to contribute to or causes in temporary

harm to the patient and requires frequent monitoring.

Category F : Error has happened that may have caused the patient's momentary injury or resulted in it, necessitating the patient's initial or extended hospitalisation.

Category G : Error has happened that has contributed to or resulted in permanent patient harm.

Category H : An error has happened that requires thorough investigation necessary to sustain life.

Category I : Error has happened that may have contributed to or lead to patient's death.¹³

Materials & Methods:

The current cross-sectional study was carried out in the tertiary care hospital over the period of 4 months, from 1st May 2022 to 31st August 2022. Data was collected by Clinical Pharmacist, who are highly trained to spot all categories of medication related errors.

Each and every patient's medication chart as well as admission chart was thoroughly analyzed, evaluated and reviewed to figure out any kind of suspected administration error as well as medication error.

Staff nurse who was allocated to patient has been accompanied by clinical pharmacist to carry out direct observation. No question was asked to patient or intervened. Only Patient medication card was taken into consideration. All the prescriptions that were studied for the data has been hand written. To find out Medicine administration Error patient's were followed up till discharge and to find out the possible interaction errors IBM Drug Interaction checker software (Version 4.1.2) and Drugs.com (Version 2.12.14) Interaction checker software has been used.

Direct observation was used to carry out a cross-sectional research. In SPSS V20 and Excel V10, a descriptive study of the frequency and kind of administration errors was done. To determine the median difference in error rates between the last four months' worth of error reports, the descriptive analysis was used.

Exclusion Criteria:

- 1) Patients in paediatrics, as well as women who were pregnant or nursing were not included in the research.
- 2) Daycare patients who were hospitalized to the ICU were also excluded from this research.

Result:

In this study a total of 1000 patients were assessed from May 2022 - August 2022. Among them 625 were male patient and 375 female patients. The method of administering pharmaceuticals to patients is a crucial one since it has a direct bearing on patients' adverse drug reactions or sub-

therapeutic outcomes. We have taken every documentation into consideration and got the result in percentage which shows delay in administration of drug as 9.33%, wrong drug when not checked properly and has been administered is considered wrong drug as 2.96% in this study, Improper documentation by nursing staff as 7.22% has been found in this study, Failure to identify drug interaction & contraindication as 8.45% has been found in this study and the rest other such as omission error, Wrong dose/quantity/strength, administration after discontinuation, wrong patient has been not been observed in this study.

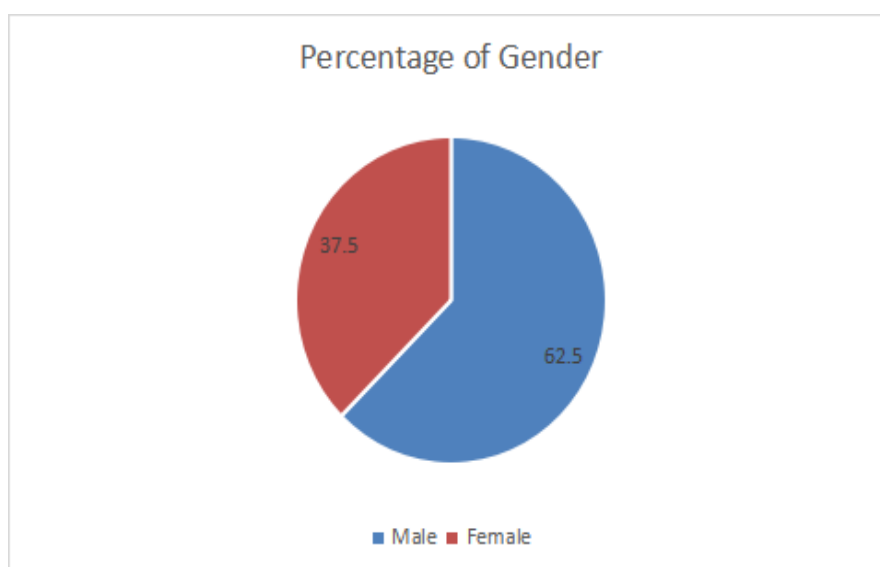


Figure 1: Percentage of Gender of In-Patient

Table 1 : Various Types of Medication Administration Errors

Sl. No.	Types of Errors	Percentage of Errors (%)
01	Delay in administration (Wrong Time)	9.33
02	Omission Error	0
03	Wrong Dose/Quantity/Strength	0
04	Wrong Drug	2.96
05	Improper documentation by nursing staff	7.22
06	Administration after discontinuation	0
07	Wrong Patient	0
08	Failure to identify drug interaction & Contradiction	8.45

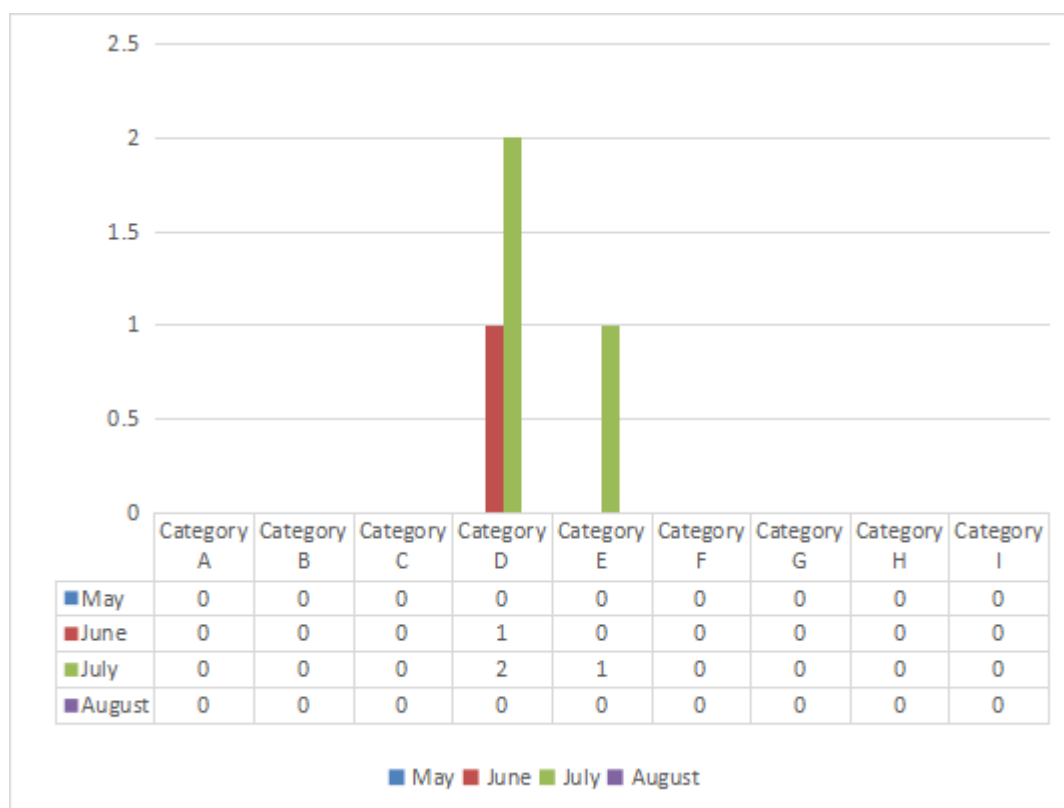


Figure 2: Graphical Representation for Categorisation of Medication Administration Errors (MAEs).

Discussion:-

Medicine Administration Errors assessment and monitoring are an important part for health-care workers in all hospitals. In south East Asian Countries there is a huge gap in monitoring of MAEs.⁹ These MAEs may have the potential to inflict people immediate or lasting damage. Keeping all of this in mind, the purpose of this study was to determine the nature and frequency of MAEs in tertiary care institutions.^{10,11}

The total number and kinds of prevalent MAEs discovered correlate with earlier studies indicating that gaps in carelessness are global concerns. Wrong rate of infusion, omission mistakes, and wrong dose/quantity/strength delivery of medicine/drug, etc. have all been recorded in research, demonstrating that IV fluid administration is connected with worldwide incorrect rates.¹² Inaccurate fluid administration has been linked with following reasons –

1. Poor communication (Verbal or over phone, misheard)
2. Mislabelling of IV fluid.
3. Lack of knowledge regarding dosing etc.

Other factors which leads to MAEs are

1. Hectic and busy schedule
2. Less man power
3. Urge to finish work as early as possible
4. Forgot to cross check medication orders.¹⁴

WHO introduced the "Medication without Damage" protocol in March 2017, which is a worldwide patient safety campaign aimed at reducing severe, preventable harm connected to drugs in all countries by 50% over the next five years. MAEs in patients are extremely important in determining the success of the medication treatment process since they are directly associated to adverse drug events or sub-therapeutic outcomes in patients.^{15,16}

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associated to adverse drug events or sub-therapeutic outcomes in patients.¹⁷

Conclusion: -

In the end, it is obvious that identifying and treating MAEs early on will enhance treatment results and lower the likelihood of negative side effects for patients. Along with improving hospital-patient relations and goodwill, this will also contribute to lower healthcare costs and better resource management, including human resources. Additionally, it tends to raise the standard of the healthcare system and the professional use of pharmaceuticals in a responsible manner. In this study it has been observed that Delay in administration, Wrong drug administration and failure to intercept drug interaction and contradiction has been observed in tertiary care hospital which need to be improvised and proper guidelines should be followed so that in future further such incident may not repeat and provide safety and efficacy to the patient.

List of Abbreviations:-

MAE - Medical Administration Error

ME - Medication Error

NCCMERP - National Coordinating Council for Medication Error Reporting and Prevention

IV- Intravenous

Conflict of Interest: None declared

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