



Frequency of the Medication Errors and Characteristics in the Emergency Department of a Tertiary Care Hospital Islamabad, Pakistan

Dr. Khalid Shahzad^{1*}, Dr. Muhammad Irshad Khan², Dr. Shoukat Ali², Dr. Fahad Mushtaq², Dr. Abdul Samad³

¹MBBS FCPS, Internal Medicine, Abeer Saeed Memorial Hospital, Chakdara, Dir Lower, Pakistan.

²MBBS FCPS, Consultant General Medicine, Pakistan Atomic Energy Commission General Hospital Islamabad, Pakistan.

³MBBS, Emergency Department, Abeer Saeed Memorial Hospital, Chakdara, Dir Lower, Pakistan.

*Corresponding Author

Dr. Khalid Shahzad

MBBS FCPS, Internal Medicine, Abeer Saeed Memorial Hospital, Chakdara, Dir Lower, Pakistan.

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Abstract: -

Background: Medication error (ME) is any preventable event in the treatment process that may lead to inappropriate medication use or cause harm to the patient.¹ Emergency Department (ED) is usually the most frequently visited department of an hospital and more medication error prone.^{7,9} The frequency of medication errors varies from 4%-39% in different Emergency department settings.^{10,11}

Material and Methods: It's a prospective cross-sectional observational study, done in the emergency hospital of a tertiary care hospital, Islamabad during two months duration. A total of 928 patients were evaluated, to see the medication errors while administering the prescribed drugs. Prescribed drugs were evaluated with the help of healthcare providers. Data was put and analyzed in SPSS 16.

Results: Among 928 patients 535 (57.6%) were males and remaining 393 (42.4%) were females. 66 (7.1%) out of 928 patients had some kind of medication error. Among 66 patients, 10(15.2%) were given medications incorrectly (identity error), 40 (60.6%) had dose medication error, 8 (12.1%) patients were given incorrect dosage form, 7 (10.6%) patients were given through incorrect dosage route and only 1 patient had frequency medication error.

Conclusion: The frequency of medication errors was 7.1%, Majority of errors were due to improper dose formation and administration, than wrong patients, dosage form and dosage route. Although, studied patients didn't have adverse effects of these errors.

Keywords: Medication errors, Emergency Department, Tertiary Care Hospital, Dosage form, Dosage Administration.



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Introduction:

Medication error (ME) is any preventable event in the treatment process that may lead to inappropriate medication use or cause harm to the patient.¹ Such errors occurs while prescribing or administering the medications occurring in up to 7% and 82% in some studies, respectively.^{2,3} It's a global issue and effect the outcomes of disease treatment causing increase in risk of morbidity and mortality.^{4,5} In the USA alone, medication errors affects more than 1.5 million peoples.⁶ Emergency Department (ED) is usually the first and most frequently visited department of an hospital

dealing with the mostly critical patients and sometimes with life-threatening diseases.⁷

Emergency department healthcare provider often work in small and challenging environment, where there are lack of resources sometimes, physical stressors are compounded by unpredictable nature of emergency department.⁸ Sudden unpredictable events make emergency department more medication error prone, nearly 3% of undesirable incident occur in this department.⁹ The frequency of medication errors varies from 4%-39% in different ED settings.^{10,11}

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Rationale of the Study:

To find out the frequency of medication errors while administering the prescribed drugs and their characteristics in the emergency department of a tertiary care hospital Islamabad.

Material and Methods:

Study design, population and sample: It's a prospective cross-sectional observational study, done in the emergency hospital of a tertiary care hospital, Islamabad. The duration of study was two months from 1st April to 31st May 2022. A total of 928 patients were evaluated, to see the medication errors while administering the prescribed drugs.

Data collection tools and Analysis:

A preforma containing different variables including medication administering errors was made, cluster sampling technique was used. Prescribed drugs were evaluated with the help of healthcare providers during alternate shifts (8-2pm and 2-8pm). Data was put and analyzed in SPSS 16.

Results:

A total of 928 patients were evaluated, over a period of 2 months, in the emergency department of tertiary care hospital in Islamabad.

Table 1:

Age	Gender	Medication Errors
n:928	Males: 535 (57.6%)	Present: 66
Min. 1year	Females: 393 (42.4%)	Absent: 862
Max: 84 years		
Mean: 44 ,6 (SD 22.94)		

Patients were in the range of 1-84 years, with the mean of 44.6 years (St. Dev.: 22.94). About 535 (57.6%) were males and remaining 393 (42.4%) were females. 66 (7.1%) out of 928 patients had some kind of medication error.

Table 2: Types of error

	Frequency	Percent	Valid Percent	Error Percent	Cumulative Percent
No Error	862	92.89	92.89	0.00	92.89
Incorrect Medication (wrong patient)	10	1.07	1.07	15.2	93.96
Dose	40	4.31	4.31	60.6	98.27
Dosage form	8	0.86	0.86	12.1	99.13
Route	7	0.76	0.76	10.6	99.89
Frequency	1	1.5	0.11	1.5	100.0
Total	66	100.0	100.0	100	100

Among 66 patients, 10(15.2%) were given medications incorrectly (identity error), 40 (60.6%) had dose (its formation, dosage and administration) medication error, 8 (12.1%) patients were given incorrect dosage form (injectable, tablets, Capsule, suspensions), 7 (10.6%) patients were given through incorrect dosage route and only 1 patient had frequency medication error.

Discussion:

During two months, a total of 928 patients were prescribed medications in the emergency department of tertiary care hospital, Islamabad. Age of the patient varies from 1-84 years, usually all age groups present to emergency department in acute illnesses.

Among them 535 were males, 393 were females, same results was found in other studies as male gender is more prone to external environment hazards like road traffic accidents, quarrels etc^{7,9}. On analyzing data, 66 patients out of 928 had some kind of medication errors, making the frequency of 7.1%. This frequency is relatively small, as compared to other studies done in emergency hospital of a tertiary care hospital.^{2,3,10,11} It shows effective management in the emergency department and well trained staff and healthcare providers in the studied hospital, making the medication errors while disposing the prescribed drugs to this low level.

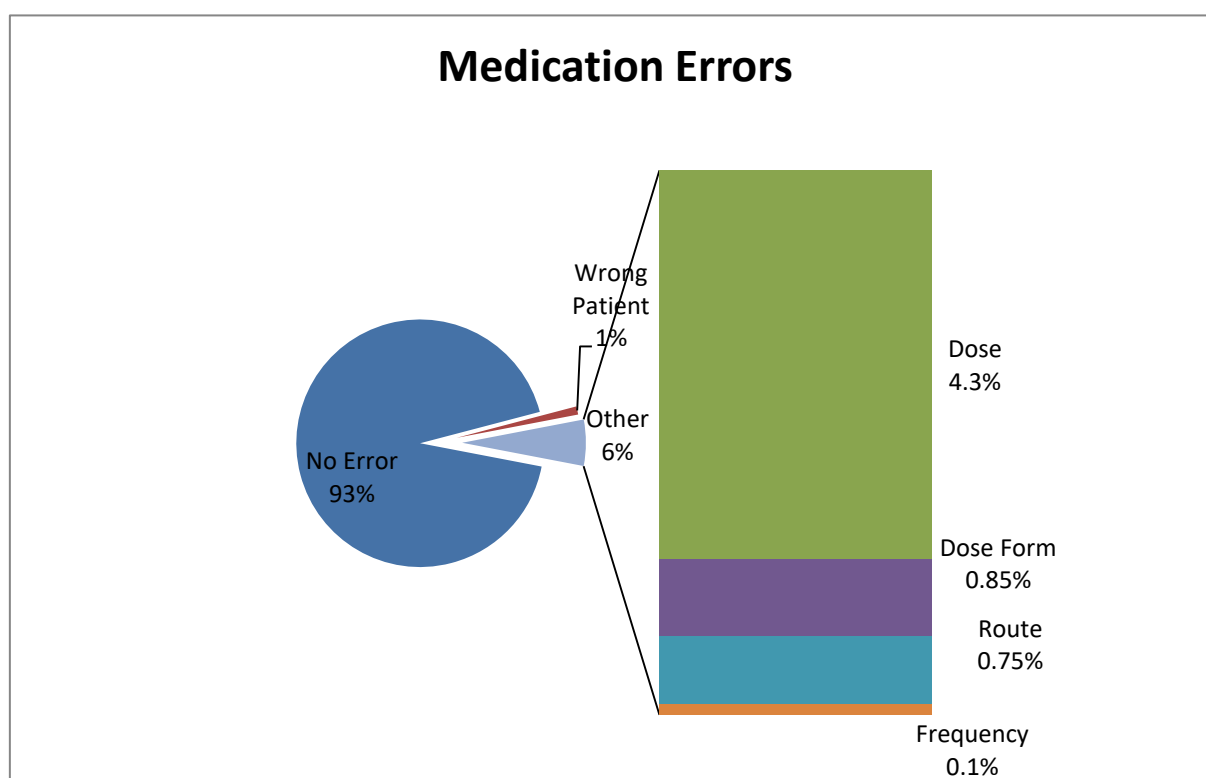


Fig. 1: Medication Errors.

Among the medication errors, 10 patients were given medications incorrectly; medications were administered to wrong patients thus Making the 15.2% of errors due to identity failure. Although none of the patients had adverse effect of this error, but it can cause harm to patient in some cases and increase the stay of patient during the hospital.⁵ Proper identity system should be installes, patients should be given tags to obsolete the wrong patient error.⁶ About 40(60.6%) patients had dose errors. Such errors usually caused by wrong interpretation of the prescribed drugs by doctors and nurses, poor handwriting and faulty preparation skills and knowledge of nurses.^{12, 13} These errors can be further decreased by doing workshops regarding preperation and disposing skills, installing the digital prescription system in the emergency departments or by using premade prescription stamps of acute emergencies. About 8 patients were given incorrect prescribed dosage form and 7 patients had dosage route error.

Conclusion:

The frequency of medication errors was 7.1%, relatively low, making a good impact on the emergency department services of hospital. Majority of errors were due to improper dose formation and administration, than wrong patients, dosage form and dosage route. Although, studied patients didn't have adverse effects of these errors, further policies should be made to minimize the medication errors especially wrong patient and improper dosage, to prevent uneventful harm to the health of patients.

Strength and limitations:

1. It was a first study of its kind in the tertiary hospital of Islamabad.

2. It gives an outlook to the basic medication errors in the Emergency department.
3. It was difficult to find local data regarding frequency and characteristics of medication errors, to compare it within the region.

Conflict of interest

No conflict of interest with any institution/organization

Source of Funding

No funding from any Institution or Organization

Availability of data and materials

The datasets used and/or analyzed during the current case report are available from the corresponding author upon reasonable request.

Declaration

Ethics approval and consent to participate

Not applicable.

Consent for publication

Not applicable.

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Not applicable

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