EVALUATION OF PRESCRIPTION ERRORS IN TEACHING HOSPITAL

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ABSTRACT

INTRODUCTION

Prescription errors have been frequent problem in health care settings. Due to prescription error patients lose their faith towards healthcare providers. Therefore the study of prescription errors is necessary to promote rational use of medicine. The aim of the study was to assess the prescription errors found in the different wards of our institution.

MATERIAL AND METHODS

A prospective observational study was conducted from June 2022 to January 2023 in a tertiary care teaching hospital in Kathmandu. Prescriptions of 350 patients admitted to the different wards of the hospital were included in the study after obtaining ethical clearance from institutional review committee. A convenience sampling technique was used for collection of the data and the primary data were collected from the patient cardex and recorded in pre-designed proforma consisting of information about, diagnosis of disease and findings related to prescription errors. Data were entered in the MS excel and further analysis was done using IBM Statistical Package for Social Sciences (SPSS) version 21.

RESULTS

A total of 350 prescriptions belonging to patients admitted to the different wards were analyzed. Prescription errors were detected in 86 prescriptions. Errors of omission were found in 19 prescriptions and 67 prescriptions showed error of commission. Among errors of commission drug interactions were most common.

CONCLUSION

Nearly one fourth of prescriptions analyzed showed prescription error. Among them most common were errors of commission. Prevalence of drug interactions is significant and needs to be monitored more promptly in our institution.

KEYWORDS

Errors of commission, Inpatients, Medication errors, Prescriptions

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https://doi.org/10.3126/jucms.v11i03.61599

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INTRODUCTION

Appropriate use of medicines is critical to ensure the provision of better medical care to patients.[1] Prescription errors are significant sources of irrational use of medicines. Invalid prescribing is unsafe and may lead to ineffective treatment, prolongation of disease, distress to the patient and increased costs of medication.[2] The study revealed errors in 1.5% of medications ordered in hospital stays in the UK and up to 6.2% in the USA.[3] The prescription error was found to account for 70% of medication errors in teaching hospitals globally.[4]

The prescription errors are mainly of two types, errors of omission and errors of commission. Errors of omission mean prescription missing essential information, while errors of commission mean wrongly written information in the prescription.[5] Drug- Drug Interactions a common form of errors of commission are defined as a significant reduction of potency or efficacy of drugs by combining two or more drugs to patients and covers 6–30% of all adverse drug events.[6] A inpatients study at a teaching hospital in Nepal reported prevalence of 78.3% of potential drug-drug interactions.[7]

It is the need of the hour that studies related to prescription errors should be conducted on regular basis. In Nepal there have been very few researches that assess the prescription errors. The aim of this study was to evaluate the prescription errors found in our institution.

MATERIAL AND METHODS

A prospective observational study was conducted from June 2022 to January 2023 in a tertiary care teaching hospital in Kathmandu. Ethical clearance was obtained from Institutional Review Committee. A total of 350 prescriptions of the patients admitted to the different wards of the hospital were included in the study. A convenience sampling technique was used for collection of the data. The primary data were collected from the patient cardex and recorded in pre-designed proforma. The proforma consisted of information about diagnosis of disease and findings related to prescription errors. In patients who were prescribed with at least one medicine of both gender and all age group, irrespective of the diseases were included in the study. Prescriptions of those patients who left against the medical advice and those patients admitted in ICU were excluded from the study. However, hospital numbers were recorded for the proof that data were original. Prescription errors such as errors of omission and errors of commission found in the study were included in the proforma. Drug Interactions found were classified into serious, minor and monitor closely by using Medscape drug interaction checker software. Both the error of omission and error of commission made in the act of writing the prescription form were entered in MS excel and further analysis was done using IBM Statistical Package for Social Sciences (SPSS) version 21. For inferential statistics chi-square test was applied.

RESULTS

Among 350 prescriptions belonging to the patients admitted in the different wards of them 86 showed prescription errors. Errors of omission were found in 19 prescriptions and 67 prescriptions showed error of commission. In the present study most of the patients were in the age group less than 50 years.

Table 1. Association between age of the patients and types of prescription errors

Age (in years)	Errors of omission	Statistics	Errors of comission	Statistics
Less than 50	Yes-14	x^2= 60.499	Yes- 44	x^2= 47.066
	No-241	df=54	No-211	df= 54
		p=0.253		p=0.737
More than 50	Yes-5	x^2= 108.619	Yes-23	x^2= 107.901
	No- 90	df=83	No-72	df=83
		p=0.031		p=0.035

Table 1 shows that there is a significance association between the patients aged more than 50 years and error of commission (*p*-value=0.035).

Table 2. Association between types of prescription errors and number of medicines prescribed

No of medicines (Per prescriptions)	Errors of ommision	Statistics	Errors of commision	Statistics
Upto 5	Yes- 9	x^2= 4.936	Yes-31	x^2= 9.54
	No-225	df=4	No-203	df=4
		p=0.294		*p*=0.049
More than 5	Yes-10	x^2= 5.759	Yes- 36	x^2=
	No-106	df=8	No- 80	df=8
		p=0.674		*p*=< 0.001

Table 2 shows that error of commission is more common in prescription containing more than 5 medicines as well there is a significant association between error of commission and the prescriptions containing more than 5 medicines (*p*-value = <0.001)

Table 3. Distribution of prescription errors among patients

Parameters for Errors of omission (Related to drugs per total medicine dispensed):- (n=19)	
Dose not mentioned	7
Frequency not mentioned	9
Dosage form not mentioned	3
Strength not mentioned	-
Errors of commission :-(n=67)	
Wrong strength or dose : 24	
Wrong drug name (not spelling):-	
Wrong Dosage form:-1	
Drug-drug Interaction: 35	
Wrong time error:-	
Therapeutic duplication:-7	

A total of 46 drug interactions where found in 35 prescription (Figure 1). Drug interaction between furosemide and hydrocortisone being most common.

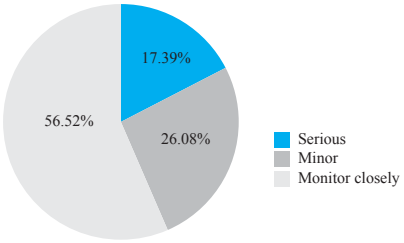

Figure 1. Types of drug interactions

DISCUSSION

Both types of prescription errors were detected in the current study. Our study showed less number of errors of omission as compared to the study conducted in Western Nepal. They had conducted their study in outpatient setting. On the other hand our study was conducted among patients admitted to different wards.[8]

The present study revealed that the risk of prescription errors increases as the number of medications per prescription increases. It is seen in the current study as 46 out of 116 prescriptions containing more than 5 medicines have more number of prescription errors. Similar results were reported by Shufiza N et al.[9]

In this study the numbers of prescription errors were seen more in the age group less than 50 years which is similar to the study conducted by Bhandari et al which showed more than 60% of the patients had prescription errors.[10] The finding of the current study is different to the study conducted in India where the prescription errors were more prevalent in the age group above 61 years of age.[11] The difference may reflect the constitution of different samples in different areas.

The present study reveal that there is significant association between error of commission and the prescriptions containing more than 5 medicines. This findings were similar to the study conducted in western Nepal which revealed a significant association between polypharmacy and prescription errors.[8]

Drug-drug interactions are a significant cause of hospital admissions and hospital visits, thereby contributing to a huge economic burden. Gathering more and more information on DDIs could help to reduce such adverse effects from DDIs.[12] The current study showed that 10% prescriptions had drug interactions which is similar to the study conducted in a tertiary care district hospital in Nepal[7] which showed 10.2% of drug interactions but is slightly more than in the study conducted in Malaysia which had 4.5% of drug interactions.[13] Further our study showed that drug interactions that needs to be monitor closely are more prevalent as almost 56.52% percent belongs to this type. The finding is similar to the study conducted in Mexico which revealed that around 60% of the drug interactions detected belonged to same category i.e. monitor closely.[14]

Single tertiary centre as study site, short duration of the study and convenience sampling method are the limitations of our study. Though it can be a reference for future study, a multi-centric study with large sample size is recommended to determine exact status of prescription errors in Nepal.

CONCLUSION

This current study showed that about one-fourth of prescriptions had prescription errors. Among them, errors of commission were the most common. Errors of commission were more in those prescriptions that had more than five drugs. In our institution drug interactions are significantly present and needs to be properly addressed by conducting clinical rounds that includes senior physicians, residents, interns, pharmacists and nursing staffs.

ACKNOWLEDGEMENT

Prof. (Dr.) Hari Govind Shrestha for proper guidance and Dr. Arun Dhungana from the department of Biochemistry of Kathmandu Medical College for necessary cooperation and guidance during different stages of manuscript preparation.

CONFLICT OF INTEREST

None

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