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COMMUNICATION

An account of prescription errors in tertiary care university teaching hospitals of Karachi, Pakistan

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ABSTRACT

Introduction: Prescription errors are simply defined as any error in the prescribing of medication which is preventable while it has not reached the patient yet and could lead to detrimental consequences depending upon its nature.
Methods: A prospective observational study was conducted for 3 months in which 4502 prescriptions were observed for any errors. The study was conducted in three tertiary care university teaching hospitals of Karachi, Pakistan.
Results: A total of 4502 prescriptions were observed for errors in which 3422 prescriptions (76%) contained different types of errors however 1080 prescriptions (24%) were found to be correct.
Conclusion: Medication errors were general and could be prevented through counter checking. These errors may mislead the pharmacy thus putting patient's life at risk. Consulting a pharmacist may reduce the technical errors generally made by allied health care professionals.

Keywords: Medication errors; Pakistan; tertiary health care

1. INTRODUCTION

Medication errors are simply defined as any error in the prescribing, dispensing and / or administration of medication which is preventable and could lead to detrimental consequences depending upon its nature while it has not reached the patient yet. (Medication Errors) Prescription and medication errors range from a simple virtually harmless legibility issues to deadly therapeutic alternatives and high doses. (Aronson, 2009) Pakistan is a developing country and the health care system of the country is financially starved, incapacitated to incorporate overwhelming population. The health care system is an urban based curative care model which invests all authority and responsibility in the hands of the prescribers and hence overburden prescribers pose a likelihood of committing errors. (Gera, 2003)

Studies have revealed that prescribers are liable to make errors in prescribing more than any other health care professional and a pharmacist through a number of interventions can reduce the number of medication errors thus made. (Atta Abbas, 2014) The present study was conducted in Pakistan in 3 tertiary health care hospitals to check for prescription errors.

2. METHODS

A prospective observational study was conducted for 3 months in which 4502 prescriptions were observed for any errors. The study was conducted in three tertiary care university teaching hospitals of Karachi, Pakistan. The prescriptions were observed for any errors and then were classified and expressed in percentages *(%)* and sample number *(N)*. Prevalence was calculated and data was analyzed by SPSS v 19 (Statistical Package for Social Science version 19). The study was conducted after the ethical approval of the health care facility.

3. RESULTS

A total of 4502 prescriptions were observed for errors in which 3422 prescriptions (76%) contained different types of errors however 1080 prescriptions (24%) were found to be correct. The results are tabulated in table 1.

Table 1 Summary of observed prescriptions

S.No	Prescriptions	Sample (N)	Percentage (%)	Prevalence (%)	95% CI
1	Correct prescriptions	1080	23.9%	24.26	23.01% – 25.54%
2	Incorrect prescriptions	3422	76.1%	75.74	74.46% - 76.99%
3	**Total**	**4502**	**100%**		

The errors observed in the prescription were majorly the illegible hand writing (N = 1368, 40%), missing patient record and date of prescribing, each (N = 137, 4%), missing dose (N = 272, 8%), missing date and spelling mistakes, each (N = 205, 6%), missing infusion rate (N = 137, 4%), over dose and missing dose frequency each (N = 272, 8%), concomitant prescribing of similar generics (N = 340, 10%) and few (N = 68, 2%) combination of errors were observed.

S.No	Prescription error	Sample (N)	Percentage (%)	Cumulative (%)	Prescription interventions
1	Illegible hand writing	1368	40%	40%	Ignored and corrected by pharmacist
2	Missing patient record	137	4%	44%	Correlated with patient medical record by nurse and pharmacist
3	Missing dose	272	8%	52%	Pharmacist and physician collaboration
4	Date not mentioned	205	6%	58%	Ignored and corrected by pharmacist
5	Missing infusion rate	137	4%	62%	Pharmacist, nurse and physician collaboration
6	Over dose	272	8%	70%	Pharmacist and physician collaboration
7	Missing dose frequency	272	8%	78%	Pharmacist and physician collaboration
8	Concomitant prescribing of similar generics	340	10%	88%	Pharmacist and physician collaboration
9	Missing date of prescription	137	4%	92%	Ignored and corrected by pharmacist
10	Grammar and spelling mistakes	205	6%	98%	Ignored and corrected by pharmacist
11	Combination of errors illegible	68	2%	100%	Miscellaneous activities by pharmacists
12	**Total**	**4502**	**100%**		

4. DISCUSSION

The study was conducted in Pakistan's tertiary care university teaching hospitals and revealed majority of prescriptions (76.1%) containing medication errors and the prevalence was seen at 74.46 – 76.99 for 95% *CI.* Out of the errors, majority were the illegible hand writing (40%). The other errors included missing records of patient and dates i.e. 4% and 6% respectively. However, some lethal errors included missing infusion rate (4%), missing dose frequency (8%), overdosing (8%) and concomitant prescribing of similar drugs (10%). The pharmacist was seen as a source of rectification of all prescription errors. The results endorse the finding of studies conducted in other cities of Pakistan at different intervals on the subject and also conclude that a pharmacist can reduce the errors. (Adnan Amin, 2010) (N. Das H. Baloch, 2001) (A. Hafeez, 2004)

5. CONCLUSION

In most cases, the errors were general and could be prevented through counter checking. These errors may mislead the pharmacy services thus putting patient's life at risk. Consulting a pharmacist may reduce the technical errors generally made by allied health care professionals.

CONFLICT OF INTEREST

None

STATEMENT OF CONSENT

An ethical approval was obtained from the health care facility before conducting the study.

SUPPORTING INFORMATION

This article is based on a research project undertaken as an assessment of Clinical Pharmacy I as a part of EBI Initiative plan in 4th Professional of Doctor of Pharmacy (Pharm.D) degree at Faculty of Pharmacy, Ziauddin University, Pakistan. Nadia Jameel and Rabiya Kanwal are undergraduate students of Doctor of Pharmacy (Pharm.D) Batch 7 at Faculty of Pharmacy, Ziauddin University, Pakistan. Atta Abbas is an Advisory Board Member at Department of Pharmacy, Clifton Hospital. He is also an Assistant Professor and Academic Researcher at the Department of Pharmacy Practice, Faculty of Pharmacy, Ziauddin University, Pakistan and a member of the Royal Pharmaceutical Society of Great Britain, United Kingdom. He has authored and co-authored a number of research publications and a book. His research work has appeared in leading scientific journals of the world including Discovery Publications.

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