

Prescribing error reporting and pharmacist oriented prevention program in emergency department

Poster number :

GRP079

Niayesh Mohebbi, Kheirollah Gholami, Mohamadreza Javadi

Clinical Pharmacy Department, Faculty of Pharmacy, Tehran University of Medical Sciences



Introduction

The process of medication use is a continuum of activities involving multiple health care professionals and multiple steps (i.e., prescribing, transcribing, dispensing, administering, and monitoring), thereby creating multiple opportunities for error. Errors are especially likely to occur at the prescribing stage for many reasons, such as a prescriber's inadequate knowledge of medications, nonadherence to policies and procedures, memory lapses, nomenclature-related confusion, miscalculation and errors in unit expression, faulty patient identity checks, illegible handwriting, faulty ordering forms, and inadequate or incorrect patient information. According to the hazardous condition of emergency department, pharmacist interventions protect the vulnerable patients from numerous adverse drug events. In addition newly established emergency medicine residency program in an educational hospital resulted in many serious medication errors reports.

Purpose

The purpose of this study was to compare the number and type of ordering medication errors reported before and after the involvement of a clinical pharmacist.

to (7.5%) 448 errors in 5993 antibiotic orders ($P<0.01$).

Method

Retrospective monitoring of orders in the emergency unit from October 14, 2010 to January 14, 2011 began on January 2011. The clinical pharmacy resident, pharmacy faculty preceptor on service, pharmaceutical care unit team, and director of pharmacy were integral parts of this project. The number of medication errors determined by reviewing medical records. Subsequently, educational sessions of prescribing training and common errors review for emergency medicine residents weekly initiated by clinical pharmacist. The number of ordering medication errors recorded for another four months period after clinical pharmacy resident intervention was calculated and compared, with the previous results by statistical analyses.

Results

Within 5320 prescription (22346 medication orders) enrolled the study in retrospective 4 months period monitoring; we found (22.1%) 4941 ordering errors. After pharmacist involvement the rate diminished significantly to (5.6%) 1276 errors in 5602 prescriptions (22743 medication orders) ($P<0.01$). Inappropriate drug choice (23%), improper dose(21%), inaccurate dosing interval(19%), drug interactions(16%), misdiagnosis(14%), choosing wrong dosage form(4%), and improper route of administration (3%) were the reason of the errors before pharmacist involvement. The most frequent errors after pharmacist assistant were inappropriate drug choice (20%), and drug interactions (18.5%). The rate of other kind of ordering errors reported in this order: misdiagnosis (18%), improper dose (18%), inaccurate dosing interval (15.5%), choosing wrong dosage form (6%), and improper route of administration (4%). Inaccurate dosing interval decreased more than other prescribing errors with pharmacist intervention. Medication errors were the most frequent with the antibiotics. Within 5837 orders enrolled the study in retrospective 4 months period monitoring; we found (35%) 2043 ordering errors. After pharmacist involvement the rate diminished significantly to (7.5%) 448 errors in 5993 antibiotic orders ($P<0.01$).

Discussion

This study suggests that that education of emergency medicine residents by clinical pharmacist about accurate medication prescribing can prevent antibiotic ordering errors from reaching and harming patients. This study sheds light on the value of the monitoring of physician orders by a clinical pharmacist in the emergency department, which has resulted in of patient safety. According to this study the rate of medication prescribing errors was 22.1%. This finding is a relatively high frequency compared to the results of other studies. Conversely, there were higher frequencies of prescribing errors in this study than those voluntarily reported in Pennsylvania, US; a study in London; one in Japan; and a study of in Rabat. The difference could be due to differences in definitions of errors, methods used to detect errors, and availability of facilities for patient care. However, the higher frequency of errors in the emergency department even after excluding errors related with illegible hand writing, lack of authentication, and dosage form might be related to lack of sufficiently trained staff, absence of a pharmacist in the health care team, and lack of required medical facilities. In this study, the most common types of medication prescribing errors were inappropriate drug choice (23%), improper dose (21%), and inaccurate dosing interval (19%), respectively. These errors were lower than in a study from London, probably due to newly established residency program in our study. Frequencies of wrong dose and indication were higher than findings in a study from London while they were lower than those from Pennsylvania in the US. This study demonstrates that a medical error-recording system offers valuable insights into medical errors associated with antibiotics and other drugs. Monitoring errors provide data about how the errors occur and how to prevent them.

Conclusions

The results show that antibiotic ordering errors reduction was notable after pharmacist intervention in emergency. Monitoring of orders and education of the physicians seems to be a substantial pharmacist role in hospitals which lead to patient safety and rational drug use.

Acknowledgements

The authors are indebted to the emergency medicine attendance, residents, and staff of the emergency ward of Shariati hospital for their enthusiastic support. This study was funded by pharmaceutical care unit of Shariati hospital, Tehran University of Medical Sciences and and Research Center for Rational Use of Drugs (RCRUD).

Table 1. Categories and Percent of Errors Recorded before and after clinical pharmacist intervention

Transition Period	No. Errors						
	Inappropriate drug choice	improper dose	inaccurate dosing interval	drug interactions	misdiagnosis	choosing wrong dosage form	improper route of administration
Pre-intervention	23%	21%	19%	16%	14%	4%	3%
Post-intervention	20%	18%	15.5%	18.5%	18%	6%	4%