

Dispensing errors in hospital pharmacies: A prospective study in Yemen

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Abstract

Aims

The aim of this study was to describe the dispensing errors that occurred during the dispensing process in selected hospital pharmacies in Sana'a, Yemen; and to describe their types and causes.

Methodology

A prospective study was carried out in selected hospital pharmacies in Yemen over 40 days using a validated tool.

Results

A total of 9000 dispensed prescriptions were evaluated for the dispensing errors and 2.13 % dispensing errors were identified. Wrong dosage form (134/192); wrong strength (24/192); wrong drug (18/192); wrong quantity, wrong instructions written and drug available in the pharmacy but not given were (6/192) and dispense the expired drugs (3/192) were the reported dispensing errors in this study. Poor handwriting, similar drug names, similar drug packaging, fatigue, heavy work, workforce issues, and poor communication were the most common reported causes of dispensing errors.

Conclusion

The prevalence of dispensing errors in this study was 2.13%. Pharmacists can play an important role in the improving the safety of medicines. Study of the dispensing errors incidence in national wide, it's types and causes of dispensing errors are very important and highly recommended. Study the impact of different interventions to improve dispensing quality, reducing and preventing dispensing errors are strongly recommended.

Introduction

Good dispensing practice is very important part of medications cycle, which require dispense the prescribed medications, over the counter medications (OTC), herbal medicines and nutraceuticals to the patients/customers with good pharmaceutical care services besides the dispensing practice [1,2]. Medication errors are common in all health care settings and associated with more morbidity and mortality, not achieving the desired outcomes of treatment [2]. There are many definitions of dispensing errors such as: "A discrepancy between the prescriber's interpretable written order and the filled prescription including written modifications made by the pharmacist pursuant to contact with the prescriber or in compliance with pharmacy policy." [3] or "Errors that occur when distributing or selling prescription to patient's or patient's agents." [4] or "Discrepancy between the prescriber's written order and the filled prescription." [5] or "Error caught by a pharmacist observer after verification by the pharmacist."

[6]. The types of dispensing errors reported in the literature are wrong drug dispensed; wrong strength dispensed; wrong form dispensed; wrong quantity dispensed; failure to supply drug; labelling error; wrong drug name on label; wrong strength on label; wrong directions & warnings on label; wrong quantity on label; wrong patient name on label and completely wrong label. [7-21]. The literature reported the following causes of dispensing errors: similar drug names; similar packaging; staffing levels; poor handwriting; interruptions & distractions; design of dispensary; staff inexperience; ambiguous directions; failure to check; lack of procedures; job dissatisfaction; poor communication; computer software; noise; proximity of drugs on shelves; no breaks; failure to follow standard operating procedures; hunger; fatigue; stress; lack of training; lack of concentration; lighting; lone worker; complex prescription and lack of knowledge. [2,15, 22].

There are many studies about the medication errors in the Arab world, however [19-25], there is little known about the dispensing errors in the hospital settings in Yemen, and perhaps in the region, therefore, the aim of this study was to describe the dispensing errors that occurred during the dispensing process in selected hospital pharmacies in the capital Sana'a, Yemen; and to describe their types and causes.

Methods

Study design and setting

A prospective study was carried out in hospital pharmacies in the capital Sana'a, Yemen over 40 days in February and March 2019.

Data collection procedure

Data were collected over 40 days in February and March 2019. A standardized data collection form was adapted from the previous studies [19,20], furthermore, four lecturers with experience in medication errors validate it. Final data collection form was containing the following: date and time of dispensing errors; who made the dispensing error; who found the dispensing error; how the dispensing errors were discovered; type of dispensing errors; cause of dispensing error and other details. Invitation was sent to 20 hospital pharmacies managers, however, only nine hospital affiliated pharmacies managers were given consent to participate in the study. Dispensing errors that were detected during or after the dispensing process were recorded by the pharmacy dispensers using the data collection form. Detecting and reporting of dispensing errors, types and causes of dispensing errors were explained to the participated pharmacy dispensers before starting the study through workshops, educational materials and training.

Dispensing error in this study was defined as "Errors that occur when distributing or selling prescription to patient's or patient's agents". [4]

Statistical analysis

The data were descriptively analyzed using Statistical Package for the Social Sciences® (IBM SPSS) version 21 for Windows.

Ethical Approval

The study was performed following the ethical protocols outlined in the World Medical Association Declaration of Helsinki guideline [26]. This study was approved from University of Science and Technology, Yemen. Consent was obtained from the hospital/hospital pharmacies managers.

Results

Prescriptions were dispensed and checked in all nine hospital affiliated pharmacies. Total of 9000 dispensed prescriptions were evaluated for the dispensing errors, however, only 192 (2.13 %) dispensing errors were identified and reported in this study. Table 1 shows the types of dispensing errors.

Table 1. Type of dispensing errors

Types of errors	N (%)
Wrong drug	18 (0.19)
Wrong strength	24 (0.25)
Wrong dosage form	134 (1.43)
Wrong quantity	6 (0.06)
Drug available in the pharmacy but not given	6 (0.06)
Expired drug taken	3 (0.03)
Wrong instructions written	6 (0.06)

Factors most reported as contributing to dispensing errors in this study were poor handwriting, similar drug names, similar drug packaging, fatigue, heavy work, workforce issues, and poor communication. All errors were done by the pharmacy dispensers and discovered and corrected by the pharmacists at the final check.

Discussion

The prevalence of dispensing errors in this study was 2.13%, which is different from what reported in India (17%), previous study in Yemen (0.80%) and Pakistan (3.6%) [2,27-28]. Despite the available of

studies about the medication's errors in many developing countries, there is little studies focusing on about the dispensing errors [28]. Different in the studies design, sample size, study site are reasons could make the comparison unapplicable. The findings of this study found that the wrong dosage form was the most common dispensing error type (134/192), then wrong strength 24/192; wrong drug (18/192); wrong quantity, wrong instructions written and drug available in the pharmacy but not given were (6/192). Finally, the least common dispensing error reported in this study was expired drug taken (3/192), which were like the previous studies in the developing countries [2,27-28]. Factors most reported as contributing to dispensing errors in this study were poor handwriting, similar drug names, similar drug packaging and poor communication, which were like the previous studies in the developing countries [2,27-31]. The findings of this study shows that the dispensing errors were discovered and corrected by the pharmacists, which is consistent to the impact of pharmacists in the prevention and minimizing the medication errors.

Conclusion

The prevalence of dispensing errors in this study was 2.13%. Pharmacists can play an important role in the improving the safety of medicines. Study of the dispensing errors incidence in national wide, it is types and causes of dispensing errors are very important and highly recommended. Study the impact of different interventions to improve dispensing quality, reducing and preventing dispensing errors are strongly recommended.

Declarations

Conflict of interest

There is no conflict of interest.

Data availability

The authors declare that [the/all other] data supporting the findings of this study are available within the paper.

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To pharmacists.

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