

Errors of Omission in Outpatient Prescriptions in Jordan

Safaa Al Awawdeh, Ahmad Naddaf, Abuirmeileh, Amjad

Faculty of Pharmacy, Isra University Jordan, Airport Road, Amman, Jordan.

ABSTRACT

Introduction: Prescription errors are one of the most common forms of medical errors that can occur at any point during drug therapy. This includes prescribing, transcribing, dispensing, administering, and monitoring. Errors of omission in prescriptions involves the absence or incomplete specification of dosage form or strength, dose or dosage regimen and quantity or duration of drug to be supplied. Illegibility of prescriptions and prescriptions that violate legal requirements are also considered errors of omission.

Objectives: The aim of this study was to analyze the prescription errors in a Jordanian community pharmacy setting in order to detect the most frequent errors of omission that expose people to potential risks of medication errors.

Methods: An audit retrospective study was conducted for screening prescriptions. 800 prescriptions were randomly selected as a study sample. The duration of this study was 8 months and in collaboration with one of largest chain pharmacies in Jordan. Data collection was carried out using a checklist form and later analyzed using Graphpad prism software version 5.0.

Results: Results show that the percentage of errors of omission in prescription writing related to transcriber's and patient information were high where errors related to prescriber's name reached 17%, prescriber's signature 11.5%, patient name 12%, patient age 62%, patient sex 97.25%, prescription Date 16.5%, illegibility 2.75% and incomplete prescriptions 59.75%. The percentage of errors related to drug's information errors included missing dosage form 54.75%, missing unit of strength 26.25%, missing frequency 8.5%, missing duration of treatment 96.75%, unauthorized abbreviation 5%, illegible prescriptions 25.75% and incomplete prescriptions 68.25%.

Conclusion: The reviewed prescriptions suffered serious deficiencies and improper writing. The findings clearly indicate that there were significant errors of omission in the chosen pharmacy setting which reflects negative quality of health care.

Keywords: Prescription, Omission, Errors, Jordan.

1. INTRODUCTION

Patient safety occupies an increasingly important place among the quality objectives of health care systems. A drug prescription is often the endpoint of a patient visit to a medical practitioner. The essence of good prescription writing is to ensure that the pharmacist knows exactly

which drug formulation and dosage to dispense, and the patient has explicit written instructions for self-administration of the prescribed drug⁽¹⁾. A prescription is a legal document that carries regulations to ensure safe use and must comply with governmental regulations that should be written legibly, accurately and comprehensively⁽²⁾. Within the last decade, medication errors were an unfortunate reality in most healthcare institutions. Approximately 30% of problems occurring during hospitalization are related to medication errors,

* Safaabdalhamed@iu.edu.jo

Received on 25/2/2017 and Accepted for Publication on 16/9/2017.

resulting in increased morbidity and mortality rates and causes a significant economic burden^(3, 4, 5).

According to a report from the National Academies of Science's Institute of Medicine (IOM), preventable medication mistakes injure more than 1.5 million Americans annually. Many such errors resulted from unclear abbreviations and dosage indications and illegible writing on some of the 3.2 billion prescriptions written in the U.S. every year⁽⁶⁾.

Prescribing physicians as well as those involved in the execution of the prescription are legally responsible for prescription they handle. Although the prescription format may vary slightly from one country to another, most countries agree on the core elements that should be included in the prescription order. These are prescriber's name, address, telephone number and signature; patient's name, address, age and weight; prescription date; drug name (preferably generic), formulation, strength, dose, frequency of administration, quantity prescribed, reason for prescribing and instructions for use⁽⁷⁾. In Jordan, most of these requirements are recommended and are available in local regulations and are applied to both insurance and non-insurance prescriptions.

Insurance prescriptions are usually designed to the convenience and interest of insurance companies. They usually bear the name of the insurance company and the contracted company. The prescribers information include the prescriber's name, nature of the visit, primary visit or revision visit, symptoms date, nature of the case (chronic or, emergency, pregnancy), visit date, stamp and signature of the prescriber. The patient information includes: the patient name, insurance number, date of birth, date and identity card number. The drugs information usually includes the pharmacy name, the insurance accredited pharmacy number, medicine name, dosage, the physician's stamp and signature, number of the insurance approval for dispensing, date and the pharmacy stamp.

Non-insurance prescriptions are designed to the convenience of the outpatient clinics, being governmental

or private hospital, or private outpatient polyclinic or private physician clinic. Usually those regular prescriptions include within the prescriber's information's an imprint of the prescriber's name, telephone number, address and registration number. Within the patients information they usually include: the patient name, age or date of birth, sex, weight, allergy status, patient address and prescription date. The drugs information's sections contains the letters Rx followed by an empty writing space and lastly the physician stamp and signature.

Medication errors are a serious public health problem and have received a great deal of attention in recent years. Continuance quality assurance for preventing of errors of omission in prescription requires ongoing data collection. An audit retrospective study was conducted in a community pharmacy setting in Jordan to detect and evaluate the main errors of omission in prescriptions in order to improve the patient safety from such preventable errors.

Objectives

The study aimed to evaluate the prescriptions in a Jordanian community pharmacy setting. This was done to detect the most frequent errors of omission that expose patients to potential risk of medication errors and to compare the rate of identified errors of omission in non insurance prescriptions to that of insurance prescriptions. Also, this research aimed to compare different types of errors of omission in Jordan to those reported by other international studies

Methods

Our methods were conducted to screen the essential elements of prescriptions writing in some community pharmacies settings based on the published guidelines for prescription writing^(7,8,9). The guidelines followed in Jordan are applied accordingly to the mentioned core of elements and to the convenience of the working place being governmental or insurance company or private outpatient polyclinic or clinic or physician private clinics.

The study received ethical approval from the ethics committee of Isra University. An audit retrospective study was conducted in collaboration with one of the largest chain pharmacy settings located in Jordan. The owners of more than fifty pharmacies in the same chain. The study continued during a time period of eight consecutive months starting on the 1st of may 2014. Prescriptions were collected from all of the chain pharmacy branches present in Jordanian cities and then the prescriptions were coded numerically in consecutive order.

The study sample consisted of 800 prescriptions, this total was divided into two groups, one group of 400 randomly selected insurance prescription and another of 400 randomly selected non insurance prescriptions. These prescriptions were checked for completeness using a

checklist form.

Data was collected and assessed from prescriptions errors using a checklist of errors adapted from previous studies^(8,9,13). And the data was later analyzed using Graphpad prism software version 5.0.

Results

From the 800 prescriptions that were studied, it was clear that errors of omission were prevalent in their majority. When studying the errors of omission in relation to drug information; it was evident that omission of diagnosis (indication), dosage form, route of administration, unit of strength, duration of treatment and quantity of medication were the most common types of omissions (figure 1, A).

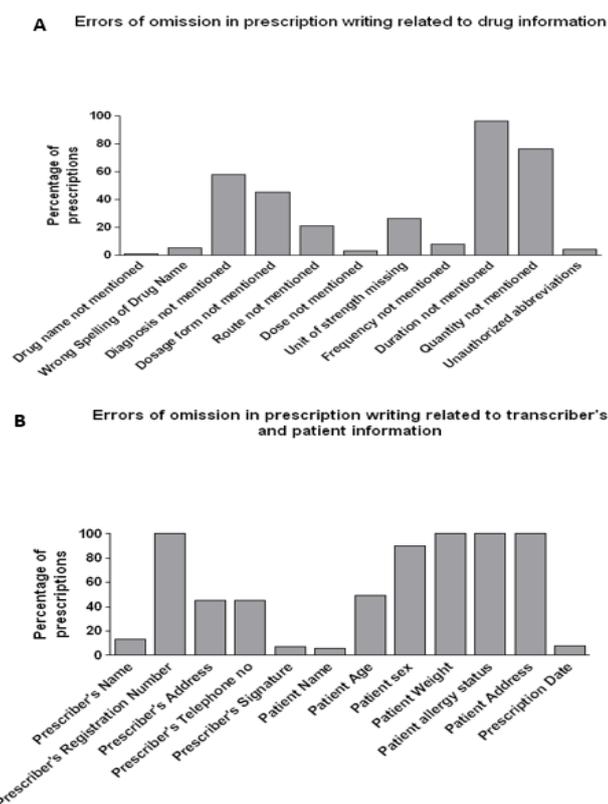


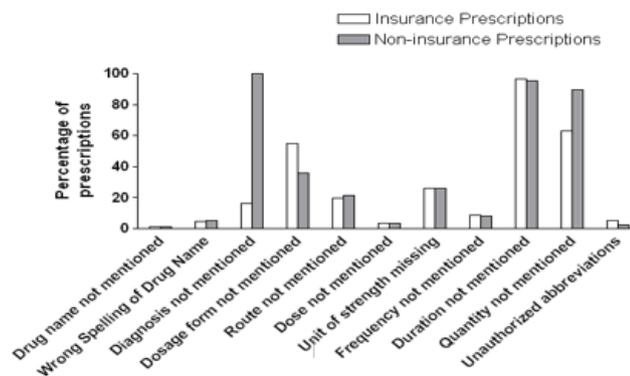
Figure 1: (A) Figure illustrates the percentage of specific errors of omission in prescriptions in relation to drug information. (B) Figure illustrates the percentage of specific errors of omission in prescriptions in relation to transcriber and patient information

Also, when studying the errors of omission in relation to transcriber and patient information; it was clear that omission in prescriber's registration number, address, and telephone number were the most common missing information regarding the prescriber. Furthermore, in regards to omission of patient information; patient age, sex, weight, allergy status, and address were the most frequent omission in prescriptions (figure 1, B).

When comparing insurance prescriptions with non-insurance prescriptions in terms of the specific error of

omission related to drug information, it was clearly evident that the diagnosis was omitted in 100% of non-insurance prescriptions while only in 17% of insurance prescriptions. Also, omission of the quantity of medication to be dispensed was more prevalent in non-insurance prescriptions (90%) in comparison with insurance prescriptions (64%). Conversely, insurance type prescriptions suffered greater error of omissions (56%) in relation to dosage form when compared to non-insurance prescriptions 37% (figure 2, A).

A Errors of omission in prescription writing related to drug information



B Errors of omission in prescription writing related to transcriber and patient information

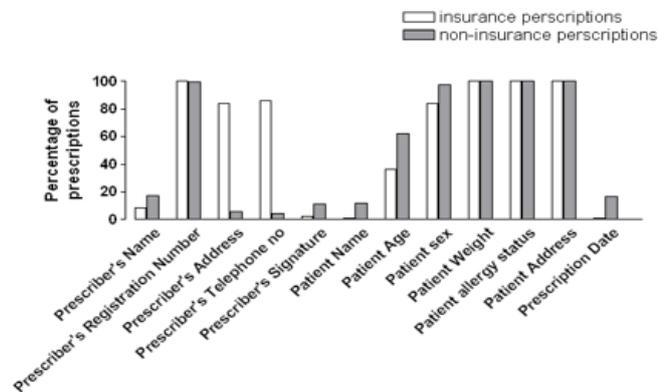


Figure 2: (A) Figure illustrates the percentage of specific errors of omission in prescriptions in relation to drug information. Here a further comparison shows the influence of the type of prescription (insurance vs. non-insurance) on the specific omission error. (B) Figure illustrates the percentage of specific errors of omission in prescriptions in relation to transcriber and patient information. Here a further comparison shows the influence of the type of prescription (insurance vs. non-insurance) on the specific omission error

When comparing insurance prescriptions with non-insurance prescriptions in terms of the specific error of omission related to transcriber, it was apparent that omission of prescriber's name and signature were more prevalent in non-insurance prescriptions while prescriber's address and telephone number were much more commonly omitted in insurance prescriptions (figure 2, B). On the other hand, and in relation to omission of patient information, the omission of patient name, age and sex were more apparent in non-insurance type prescriptions. Omission of prescription date was also more common in non-insurance medications (figure 2, B).

Discussion

Prescribing faults and prescription errors are major problems among medication errors. They occur both in general practice and in hospital, and although they are rarely fatal they can affect patients' safety and quality of healthcare. Our observations showed that prescriptions were deficient. Where they were missing the registration number of prescriber and patient address, weight or allergies. Interestingly, the most commonly omitted part of the prescription was the practitioner's diagnosis. Our results are comparable to a study which reported that 34.0% of prescription was missing the diagnosis⁽¹⁰⁾.

The clinical diagnosis on a prescription provides important information without which there would be an increase in the risk of an error if the indication for a certain medication is not stated. For example 'Epilepsy' as a clinical diagnosis is an inadequate indication for an AED. Only the word 'epilepsy' with no reference to the epilepsy syndrome or seizure type would make it very difficult to confirm the most appropriate choice of AED. Clearly, it is the clinician's responsibility to prescribe the most appropriate AED, but it might be reasonable to have the choice of drug confirmed by a clinical pharmacist⁽¹¹⁾.

The omission of the strength or dosage form may not pose any problem if the drug prescribed is available in

single strength or dosage form. However, with the rapid advances in drug development, many drugs are increasingly available in various strengths and dosage forms and hence this type of error of omission may pose some problems. Our result agrees more with the study by who reported that 36.4 % of drug prescribed did not have the dosage forms written on the prescriptions⁽¹²⁾.

As shown in figure 1, the most common prescription error of omissions was duration of therapy and quantity of drug prescribed. Drugs prescribed without indication of total quantity to be supplied involved analgesics and antipyretics as well as antacids and ulcer-healing agents. Although many of these drugs may be given on "as required" basis, the prescriber is still the best judge of the total quantity to be supplied based on the patient's medical requirement. Even for dermatological, eye, ear, mouth or nasal preparations, an indication of the amount to be supplied is still necessary⁽¹²⁾. A study by Ansari M et al reported that 18.9 % of prescription were missing the dose information and 59.9% were with missing the duration information⁽¹³⁾.

The most common errors of omission in relation to transcriber were prescriber's registration number, address and telephone number. Anderson from Copenhagen University Hospital reported that among the most frequent errors of omission in prescriptions was inadequate identification of the physician⁽¹⁴⁾. Also Mayer et al mentioned that 96% of respondents believed that failure to print the prescriber name was one of the main problems⁽¹⁵⁾. In many countries the registration number is essential core element according to the published guidelines that may be needed to revise against unauthorized prescriber's or unauthorized prescriptions.

As shown in figure 2, Patient age, sex, weight, allergy status, and address were the most frequent omission in prescriptions in regards to omission of patient information. Inclusion of age is a legal requirement in the case of prescription-only medicines for children under 12 years.

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Where children, particularly neonates, differ from adults in their response to drugs⁽¹⁶⁾.

The absence of the patient's age would not normally prevent the dispensing of the prescription as it could be easily resolved with the patient or the holder of the prescription if required. Whereas, the absence patient address from prescriptions is a serious deficiency when problems in the prescription are discovered and the patient needs to be contacted immediately to correct the problem. This is even more serious when the name of the patient is also omitted. The patient address is an important issue that should be included in the prescription according to WHO⁽⁷⁾. Also patient's weight is important information because it is often used to calculate the appropriate medication dose. Body-weight may be used to calculate doses expressed in mg/kg. Although some time young children may require a higher dose per kg than adults because of their higher metabolic rates⁽¹⁷⁾.

Gender is another piece of information that may have impact on the medication. For example, some medications react faster or better with women than men. A study by Makonneu reported that 50% of prescriptions did not contain the sex and age of the patients⁽¹⁸⁾.

Poor handwriting is a serious problem that might lead to dispensing the wrong medication to the patient with serious or even fatal results⁽¹⁹⁾. Bates et al reported that

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important information and medication administration details were frequently omitted from prescriptions and that 27% of individual. Prescriptions had potential to cause prescription errors because of illegibility.⁽²⁰⁾

Conclusion

Based on this study, the prescriptions suffered from serious deficiencies and many of the prescriptions were not properly written. The errors of omission compromises the quality of care provided, and there is need to emphasize the legibility of prescription, correct spelling of drugs, and all other information of a prescription concerned with patient, prescriber and drugs to minimize occurrence of medication errors.

Recommendation

The results of the present study show a low compliance rate to the legal and procedural requirements in prescription writing. This indicates a need for pharmacy and medical educators to further emphasize the importance of writing clear and complete prescriptions. It also calls for the implementation of educational and monitoring programs to bring more awareness to all concerned health care team so as to reduce the rate of noncompliance and hence minimize the occurrence of prescribing errors. Also, Regulation and legislation of the prescription writing process and the quality assurance studies are needed to improve the patient safety in Jordan.

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أخطاء إغفال المعلومات من الوصفات الطبية في الأردن

صفاء العدوان، أحمد النداف، أمجد أبو رميله

كلية الصيدلة، جامعة الإسراء، عمان، الأردن.

ملخص

المقدمة: أخطاء الوصفات الطبية هي واحدة من أكثر أشكال الأخطاء الطبية شيوعاً والتي يمكن أن تحدث في أي وقت خلال مراحل العلاج الدوائي. حيث تبدأ هذه المراحل بكتابتك الوصفة الطبية من الطبيب (وصف الدواء)، قراءة الصيدلي للوصفة الطبية، صرف الدواء للمريض، إعطاء المريض الدواء ومتابعة الدواء العلاجي.

وتشمل أخطاء إغفال المعلومات في الوصفة الطبية عدم وجود أو عدم اكتمال مواصفات الجرعة أو التركيز، الشكل الصيدلاني للدواء، نظام تناول الجرعة العلاجية، الكمية الواجب صرفها للمريض ومدة العلاج. كما يعد عدم قدرة الصيدلي على قراءة الوصفات أحد أخطاء الوصفة الطبية وخرقاً للمتطلبات القانونية الواجب توافرها في الوصفة الطبية.

هدف الدراسة: هدفت الدراسة الى تحليل أخطاء الوصفات الطبية في صيدليات المجتمع الأردني من أجل الكشف عن أخطاء الأغفال والحذف الأكثر شيوعاً والتي قد تعرض الناس لخطر الأخطاء الطبية.

الطريقة: أجريت دراسة استيعابية لمراجعة الوصفات الطبية وفحصها من خلال اختيار 800 وصفة طبية عشوائياً كعينة للدراسة، كانت مدة الدراسة 8 أشهر وبالتعاون مع واحدة من أكبر السلاسل الصيدلانية في الأردن ومن ثم تم جمع البيانات باستخدام نموذج صمم لغاية الدراسة، وتم تحليل البيانات احصائياً باستخدام (Graphpad prism software version 5).

النتائج: أظهرت النتائج أن النسبة المئوية لأخطاء الإغفال في كتابة الوصفات الطبية المتعلقة بالطبيب والمريض كانت أعلى في الوصفات الطبية غير التأمينية من تلك الخاصة بوصفات التأمين على مستوى ثمانية أنواع من الأخطاء مثل (اسم الطبيب 17% وتوقيع الطبيب 11.5%، عمر المريض 62%، جنس المريض 97.25%، تاريخ الوصفة الطبية 16.5%، وصفات مبهمه 2.75% ووصفات غير مكتملة 59.75%)، من جهة أخرى كانت النسبة المئوية من الأخطاء المتعلقة بالمعلومات الدواء أعلى في وصفات التأمين من ذلك من وصفات غير التأمين على مستوى سبعة أنواع من الأخطاء مثل (شكل الجرعة 54.75%، قوة الدواء 26.25%، عدد مرات اعطاء الدواء 8.5%، ومدة أخذ الدواء 96.75%، اختصار غير مصرح بها 5%، وصفات غير مقروء 25.75% والوصفات غير المكتملة 68.25%).

الخلاصة: إن الوصفات التي تمت مراجعتها تعاني من نواقص خطيرة وكتابة غير جيدة. وتشير النتائج بوضوح إلى وجود أخطاء الإغفال في الوصفات الطبية في الصيدليات التي اختيرت والذي يعكس نوعية سلبية في الرعاية الصحية.

الكلمات الدالة: الوصفات الطبية، إغفال الأخطاء، الأردن.

تاريخ استلام البحث 2017/2/25 وتاريخ قبوله للنشر 2017/9/16.