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Original article

Accuracy in the medication history and reconciliation errors in the emergency department☆

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ABSTRACT

Background and objective: To assess the accuracy of pharmaceutical anamnesis obtained at the Emergency Department (ED) of a tertiary referral hospital and to determine the prevalence of medication reconciliation errors (RE).
Materials and methods: This was a single-center, prospective, interventional study. The home medication list obtained by a pharmacist was compared with the one recorded by a doctor to identify inaccuracies. Subsequently, the home medication list was compared with the active prescription at the ED. All unexplained discrepancies were checked with the doctor in charge to evaluate if a RE has occurred. A univariate analysis was performed to identify factors associated with RE.
Results: The pharmacist identified a higher number of drugs than doctors (6.89 versus 5.70; $p < 0.05$). Only 39% of the drugs obtained by doctors were properly written down in the patient's record. The main cause of discrepancy was omission of information regarding the name of the drug (39%) or its dosage (33%). One hundred and fifty-seven RE were identified and they affected 85 patients (43%), mainly related to information omission (62%). Age and polymedication were identified as main risk factors of RE. The presence of a caregiver or relative in the ED was judged to be a protective factor. No relationship was found between inaccuracies in the registries and RE.
Conclusions: The process of obtaining a proper pharmaceutical anamnesis still needs improvement. The pharmacist may play a role in the process of obtaining a good quality anamnesis and increase patient safety by detecting RE. Better information systems are needed to avoid this type of incidents.

Adecuación de la historia farmacoterapéutica y errores de conciliación en un servicio de urgencias

Palabras clave:
Conciliación
Historia farmacoterapéutica
Seguridad del paciente
Error de medicación
Discrepancias
Urgencias

RESUMEN

Fundamento y objetivo: Evaluar la calidad de la historia farmacoterapéutica registrada en un servicio de urgencias hospitalario (SUH) de un hospital de tercer nivel. Determinar la prevalencia de errores de conciliación (EC).
Material y método: Estudio unicéntrico, prospectivo y de intervención. Se comparó la lista de medicación habitual obtenida por un farmacéutico frente a la registrada por el médico para identificar discrepancias. Posteriormente, se comparó la medicación habitual con la prescripción activa (SUH). Todas las discrepancias no justificadas se comentaron con el médico para determinar si se trataba de un EC. Se realizó un análisis univariante para identificar factores asociados con la aparición de EC.

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Resultados: El farmacéutico identificó un mayor número de fármacos habituales por paciente respecto al médico (6,89 frente a 5,70; p < 0,05). Únicamente el 39% de los fármacos identificados por el médico se registraron correctamente en la historia clínica. La principal causa de discrepancia fue la omisión de información a nivel de fármaco (39%) o de posología (33%). Se detectaron 157 EC que afectaron a 85 pacientes (43%), mayoritariamente por omisión (62%). Los principales factores asociados a EC fueron la edad y la polimedicación. La presencia de un cuidador/familiar responsable de la medicación fue un factor protector. No se encontró asociación entre discrepancias en el registro y EC.
Conclusiones: La recogida de la historia farmacoterapéutica es un proceso susceptible de mejora. El farmacéutico puede ayudar a obtener una anamnesis de calidad e incrementar la seguridad del paciente interceptando EC. Es necesario mejorar los sistemas de información para evitar este tipo de incidentes.

Introduction

Currently, medication errors (MEs) are a known cause of morbidity and mortality in healthcare[1,2] and it is estimated that almost 40% of adverse events (AEs) detected in Spanish hospitals may be related to the use of drugs.[3] The study of ME over the last 2 decades has allowed identifying the care transition as one of the most risky points for these events. Thus, we know that up to 60% MEs occur during the admission process, inter-level transfers and at discharge.[4]

Admission, either programmed or through the emergency department, is critical, as it has been detected that discrepancies are frequent between chronic home medication and hospital prescriptions. These discrepancies when they are involuntary and are not justified by clinical requirements can lead to negative consequences on the patient (affecting both efficacy and safety) and constitute the so-called reconciliation errors (REs).[5]

As it usually happens in the case of MEs, the causes of REs are multifactorial.[5] However, one major problem is the difficulty to obtain the list of the patient's home medication. Currently there is no gold standard, and various factors such as the lack of unified records in health care, lack of access to medical records, the use of different health systems (private health care, alternative medicine, etc.) or ignorance from the patient about treatment, greatly hinder the process. An incomplete initial anamnesis makes it difficult for the diagnostic orientation of patient's symptomatology and may cause potential prescription errors during hospitalization.[6]

Several studies on the quality of drug anamnesis estimate the percentage of histories with discrepancies range from 27 to 83%, depending on the type of drug.[7] In the field of hospital emergency departments (EDs), it is estimated that 80–95% of patients may be affected by some discrepancies in their drug histories.[8–10]

Despite the growing number of studies in this field, many of them have some limitations such as improper differentiation between the concepts of discrepancy in medical history and RE, not verifying the medication list with the patient or not confirming with the attending physician the discrepancies detected. In these cases, it is difficult to understand the clinical relevance of the findings.

The purpose of this study is to obtain a qualitative and quantitative description of both processes (recording home medication and reconciliation) at the ED, and how the presence of a clinical pharmacist can help detect and minimize such errors. In addition, factors associated with the occurrence of REs were assessed.

Materials and methods

Single-center, prospective interventional study, 4 month-duration (November 2011–March 2012) in the observation area of the emergency department of a tertiary care university hospital assisting about 90,000 visitors a year. In accordance with the ED operation, the medication history is obtained by the doctor and can take place in 3 moments: the first contact with the physician (first visit), after an initial assessment (after-visit area) or in the observation area. This history should be recorded in the patient's medical records.

Adult patients aged over 18 were admitted to the observation area (room for up to 28 patients, where mainly, but not only, patients in the level III are referred to according to the Andorran Triage Model [ATM][11]). They were assisted by ED physicians, and were able to respond to interview questions (or a family member or caregiver who could perform this function) and agreed to participate in the study. All patients who could not be interviewed because of language barriers or physical status (e.g., disoriented or sedated patient) were excluded. Also, all cases in which the detected discrepancies could not be verified by the physician in charge were excluded from the RE analysis.

Patients were recruited from Monday to Friday at 8.00 am by a random selection. The frequency of patients with medication history errors was expected to be 85%.[7,10] To obtain a 5% accuracy in estimating the ratio by a 95% bilateral CI, and with a 5% loss, it was calculated that 206 patients needed to be included.

The pharmacist interviewed all patients included, using a standardized form in order to obtain the home medication list. Home medication was defined as the medication a patient takes regularly at home, including OTC drugs, herbal products and alternative medicine. Whenever possible, the interview was based on a preliminary list of medications constructed from every source of information available (medical history, prescriptions, medication lists or boxes provided by the patient, discharge reports, etc.). Subsequently, this reference list was compared to: (1) the patient's medical history previously recorded in the computer system (evaluation of the medication history quality), and (2) the medication prescribed during their stay in the ED (evaluation of reconciliation).

For evaluating reconciliation, the consensus methodology provided by the Sociedad Española de Farmacia Hospitalaria or SEFH (Spanish Society of Hospital Pharmacy)[12] was followed. The therapy prescribed for acute problem was always considered as justified discrepancy. If any discrepancy not justified by the new clinical situation was detected, this was discussed with the attending physician to determine if it was a RE.

Outcome variables were: (1) percentage of discrepancies between medication recorded by the physician in the medical history and the list obtained by the pharmacist, and (2) percentage of RE. Discrepancy was defined as omission of, or difference between, the drugs, dosage or route of administration. REs were all unjustified discrepancies between the patient's home medication and the prescribed medication in the ED, which after being discussed with the attending physician was modified or readjusted.[12,13] For the RE classification, recommendations of the SEFH consensus document were followed.[12]

As additional variables, data concerning the patient, the reason for consultation and the reconciliation process were recorded: sex, age, level of triage according to ATM, polypharmacy (≥5 drugs regularly), person in charge of medication (patient,