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ORIGINAL ARTICLE

Monitoring Medication Errors in Personalised Dispensing Using the Sentinel Surveillance System Method☆,☆☆

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Quality control;
Drug-related problems (DRPs);
Unit dose drug dispensing system;
Medication error;
Safety

Abstract
Objective: To assess the efficacy of a new quality control strategy based on daily randomised sampling and monitoring of a sentinel surveillance system (SSS) medication cart, in order to identify medication errors and their origin at different levels of the process.
Method: Prospective quality control study with one-year follow-up. An SSS medication cart was randomly selected once a week and double-checked before dispensing medication. Medication errors were recorded before the cart was taken to the relevant hospital ward. Information concerning complaints after receiving medication and 24-h monitoring was also noted. Type and origin of error data were assessed by a unit dose quality control group, which proposed relevant improvement measures.
Results: Thirty-four SSS carts were assessed, including 5130 medication lines and 9952 dispensed doses, corresponding to 753 patients. Ninety erroneous lines (1.8%) and 142 mistaken doses (1.4%) were identified at the pharmacy department. The most frequent error was dose duplication (38%) and its main cause was inappropriate management and forgetfulness (69%). Fifty medication complaints (6.6% of patients) were mainly due to new treatment at admission (52%), and 41 (0.8% of all medication lines), did not completely match the prescription (0.6% lines) as recorded by the pharmacy department. Thirty-seven (4.9% of patients) medication complaints due to changes at admission and 32 matching errors (0.6% medication lines) were recorded. The main cause also was inappropriate management and forgetfulness (24%). The simultaneous recording of incidences due to complaints and new medication coincided in 33.3%. In addition, 433 (4.3%) of dispensed doses were returned to the pharmacy department. After the unit dose quality control group conducted their feedback analysis, 64 improvement measures for pharmacy department nurses, 37 for pharmacists, and 24 for the hospital ward were introduced.

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Conclusions: The SSS programme has proven to be useful as a quality control strategy to identify unit dose distribution system errors at initial, intermediate and final stages of the process, improving the involvement of the pharmacy department and ward nurses.

PALABRAS CLAVE
Dosis unitaria;
Control de calidad;
Error de medicación;
Problemas relacionados con los medicamentos;
Sistema de dispensación de medicación en dosis unitarias (SDMDU);
Seguridad

Monitorización de errores de medicación en dispensación individualizada mediante el método del carro centinela

Resumen
Objetivo: Analizar la eficacia de una nueva estrategia de control de calidad basada en el muestreo aleatorio y seguimiento de carros de dispensación de dosis unitaria (carro centinela) para identificar los errores en las distintas fases del proceso de dispensación y sus causas.
Método: Estudio prospectivo para valoración de eficacia de un control de calidad en la identificación de errores de dispensación durante un periodo de 12 meses. Una vez por semana fue aleatoriamente seleccionado un carro de medicación denominado «carro centinela» y doblemente revisado antes de la dispensación. Se registraron los errores de medicación en la revisión, antes de ser conducido a la unidad de hospitalización así como las reclamaciones tras su recepción y monitorización durante las 24 h siguientes. Un grupo de calidad de dosis unitarias instaurado al efecto analizó el tipo y origen de los errores y propuso las correspondientes acciones de mejora.
Resultados: Se analizaron 34 carros centinela que incluyeron 5.130 líneas de medicación, y 9.952 dosis dispensadas correspondientes a 753 pacientes. Se identificaron 90 (1,8%) líneas con error de tratamiento y 142 (1,4%) dosis erróneas en la preparación en el servicio de farmacia. El error más frecuente fue la duplicidad de dosis (38%) y el fallo de memoria o atención la causa que más lo generó (69%). Cincuenta medicaciones (6,6% de pacientes) reclamadas debido principalmente al inicio de nuevos tratamientos por ingreso (52%) y 41 (0,8% del total de líneas) discrepancias respecto a la prescripción fueron registradas en el Servicio de Farmacia. En la unidad de hospitalización se registraron 37 (4,9% de pacientes) medicaciones reclamadas en su mayoría por nuevo ingreso (43,2%) y 32 (0,6% de líneas) por discrepancias con la prescripción original, cuya causa más frecuente fue fallo de memoria o falta de atención (24%). El grado de coincidencia en el registro simultáneo de incidencias por reclamaciones y demanda de nueva medicación fue del 33,3%. Además se devolvieron 433 (4,3%) dosis no administradas. Tras el análisis de calidad se generaron 64, 37 y 24 acciones de mejora dirigidas al equipo de enfermería de farmacia, farmacéuticos y Unidad de Hospitalización, respectivamente.
Conclusiones: El programa del carro centinela ha demostrado su eficacia en la identificación de errores de dispensación de dosis unitarias mediante un control de calidad instaurado al principio, durante y al final del proceso, facilitando una mayor implicación de los profesionales relacionados con el mismo.

Introduction

A quality policy with clear strategies is needed in the hospital environment, to be able to guarantee patient security, monitoring each of the links in the pharmacotherapeutic chain: prescription, validation, preparation, dispensing, administration and follow-up.

The incidence of medication errors and their causes have been analysed in previous studies by various authors,[1–4] as well as our own research group.[5] In 2004, Jornet el al.[6] analysed the whole process during a specific time period. They asked healthcare professionals to voluntarily report errors to the hospitalisation units (HU). However, most of the studies that we have reviewed are observational and analyse only some aspects of the process, mainly prescription and administration. Vincent et al.[7] conducted a meta-analysis, which included 6 papers on prescription errors and 10 on administration errors. They observed that while the incidence of prescription errors has continued to be stable over time, the number of administration errors has increased. However, it is difficult to make a comparison between studies as different scenarios and methods have been used.[8,9] Furthermore, the hospital pharmacy medication preparation process is one of the three medication error risk factors, alongside health professionals' lack of pharmacological knowledge and errors made by nurses in patient documentation.[10]

It is not surprising that complaints are made for discrepancies between the medication prescribed and dispensed, and that medication is requested out of dispensing hours, because the work circuit and pharmacy department's (PD) performance is of low quality. It is normal for this type of incidence to be quantitatively registered by our PD[11,12] staff, and to a lesser extent, by HU staff. However, qualitative analysis, i.e. evaluation of the cause of such incidences is not common. With this aim, in 2007, our Unit Dose Functional Unit established a procedure to improve the circuit,