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ORIGINAL ARTICLE

Medication errors in a neonatal unit: One of the main adverse events☆

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Abstract

Introduction: Neonatal units are one of the hospital areas most exposed to committing treatment errors. A medication error (ME) is defined as the avoidable incident secondary to drug misuse that causes or may cause harm to the patient.

The aim of this paper is to present the incidence of ME (including feeding) reported in our neonatal unit and its characteristics and possible causal factors. A list of the strategies implemented for prevention is presented.

Material and methods: An analysis was performed on the ME declared in a neonatal unit.

Results: A total of 511 MEs were reported over a period of seven years in the neonatal unit. The incidence in the critical care unit was 32.2 per 1000 hospital days or 20 per 100 patients, of which 0.22 per 1000 days had serious repercussions. The MEs reported were, 39.5% prescribing errors, 68.1% administration errors, 0.6% were adverse drug reactions. Around two-thirds (65.4%) were produced by drugs, with 17% being intercepted. The large majority (89.4%) had no impact on the patient, but 0.6% caused permanent damage or death. Nurses reported 65.4% of MEs. The most commonly implicated causal factor was distraction (59%). Simple corrective action (alerts), and intermediate (protocols, clinical sessions and courses) and complex actions (causal analysis, monograph) were performed.

Conclusions: It is essential to determine the current state of ME, in order to establish preventive measures and, together with teamwork and good practices, promote a climate of safety.

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PALABRAS CLAVE
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Los errores de tratamiento en una unidad neonatal, uno de los principales acontecimientos adversos

Resumen
Introducción: Las unidades neonatales son uno de los ámbitos hospitalarios más expuestos a la comisión de errores de tratamiento. El error de medicación (EM) se define como el incidente, evitable, secundario a la utilización inapropiada de medicamentos, que causa o puede causar daño al paciente.

El objetivo de este trabajo es dar a conocer la incidencia de EM (incluida la alimentación) notificados en nuestra unidad neonatal así como sus características y posibles factores causales. Así mismo se expone una relación de las estrategias llevadas a cabo para su prevención.
Material y métodos: Se analizan los EM declarados en un servicio de neonatología.
Resultados: Durante un período de 7 años, en el servicio de neonatología se han notificado 511 EM. La incidencia en la unidad de críticos fue de 32,2 por 1.000 días de hospitalización o 0,2 por paciente, de los cuales 0,22 por 1.000 días tuvieron repercusión grave; el 39,5% fueron errores de prescripción, el 68,1% de administración y el 0,6% reacciones adversas a medicamentos. El 65,4% fue producido por fármacos. Se interceptó el 17%. El 89,4% no tuvo repercusión sobre el paciente; el 0,6% causó secuelas permanentes o muerte. Los profesionales de enfermería declararon el 65,4% de los EM. El factor causal más frecuentemente implicado fue la distracción (59%). Se realizaron medidas correctoras simples (alertas), intermedias (protocolos, sesiones clínicas, cursos) y complejas (análisis causales, monografía).
Conclusiones: Es imprescindible conocer la propia realidad para poder establecer medidas preventivas y, junto al trabajo en equipo y las buenas prácticas, promover un clima de seguridad.

Introduction

Neonatal units, and especially the sections devoted to intensive care, are among the hospital settings where treatment errors are most likely to occur. Among the latter, medication errors (MEs) are part of an emergent pathology that has received increasing attention from health professionals, organisations and authorities in recent years,[1] as they constitute a serious health problem in hospitalised patients,[2] and one that is underestimated in the paediatric and neonatal populations.[3]

A ME is defined as any preventable event secondary to the misuse of a medication that may cause or lead to patient harm[4]; on the other hand, an *adverse drug event* (ADE) is defined as any harm, severe or mild, caused by the use (or lack thereof) of a drug,[5] and an adverse drug reaction as a non-preventable response to a drug which is noxious and unintended and which occurs at doses normally used in man for prophylaxis, diagnosis, or therapy of disease or for modification of physiological function.[6,7]

It is estimated that MEs occur eight times more often in neonatal intensive care units (NICUs) than in adults in hospital.[8] The drug administration protocols in the neonatal period diverge from those applied in other age groups due to the lack of dosage forms fitting the needs of neonates,[8,9] their different physiology, and the fact that they are a population of heterogeneous and changing individuals that require different regimens depending on their pathology, weight, gestational age and days of life. Treating these patients requires measuring small volumes, dividing unit doses into fractions and performing complex dilutions, and the bioavailability after such manipulations is often unknown and unpredictable and may result in the use of toxic or ineffective doses. This, compounded by the variability in the pharmacokinetic and pharmacodynamic processes of the drugs (preservatives, stabilisers, etc.),[9] the greater severity of disease, the longer length of stay and the impossibility of communicating with the patient among other factors make detecting errors more difficult. In this regard, Cotrina Luque et al. have developed a model list of high-risk drugs in the neonatal and paediatric populations, which they defined as those that may cause severe harm or even death when misused.[10]

Medication errors can occur at different points in care delivery, from the time of prescribing to the time of administration. Although prescribing, dispensing and administration are particularly important in the neonate, the causes of errors[11] often occur earlier (labelling, packaging, names). For all the above reasons, the frequency with which they occur[12,13] and their potential seriousness, the prevention of MEs must be addressed with a multidisciplinary approach.[14]

It is widely accepted that improving patient safety requires identifying and analysing errors and implementing the measures needed to prevent their reoccurrence. The aim of our study was to analyse the MEs that occurred in a department of neonatology, the medications involved, the severity of the errors and the potential for preventing them, and to describe the strategies implemented for their prevention.