Abstract

Charles Univesity in Prague, Faculty of Pharmacy in Hradec Králové

Department: Department of Social and Clinical Pharmacy

Author: Klára Kubíková

Thesis supervisor: doc. PharmDr. Josef Malý, Ph.D.

Consultant: Mgr. Ondřej Tesař

Thesis Title: Analysis of drug administration by nurses in health facility XVII.

Introduction and aims: Correct drug administration by nurses is an important part of providing safe pharmacotherapy during hospitalization. The aim was to analyse data of medication administration by nurses that were collected during three observation periods in the South-bohemian hospital and to compare in detail results between the first and the third year of the study.

Methods: An observational-interventional study was conducted from 2020 to 2023. Data were obtained by passive direct observation by multidisciplinary team consisting of a pharmacist and a nurse in a South-bohemian hospital at the surgical, internal, and long-term care departments. The type and frequency of errors during medication administration by nurse were studied. Patient characteristics (sex, age, medication), nurse characteristics (age, highest level of education, length of professional experience), errors associated with patient identification, hand hygiene, and errors related to deviations from the prescription (e.g. drug interchange, incorrect dose, incorrect strength, incorrect dosage form, etc.) were recorded. For the oral medications, food and drink timing, disruption of the drug form, and tools used were recorded as well. Summaries of product characteristics and available information sources from the Faculty of Pharmacy in Hradec Králové were used for data evaluation. Changes between the first and the third year of observation were analysed using relative risk, a 95% confidence interval and Fisher´s exact test (p <0,05). The remaining data were described using descriptive statistics.

Results: In total, 6031 drug administrations were observed to 286 patients (median of age: 75 years, 51,4 % men) by 43 nurses (median of age: 27 years, 93 % women). During the first and third year of observation 1,2 medication error and 1,4 medication error per one administration were recorded, respectively. Medication errors that decreased significantly after the intervention period (at the third year) included absence of patient identification (26,6 %), drugs left unsupervised (0,8 %), unhygienic manipulation of drugs (0,8 %) and failure to check the drug intake (0,4 %). However, there was no successful reduction in errors related to hand hygiene, unwarranted generic substitution, or incorrect timing of medication in relation to food.

Conclusion: Although some types of medication errors were decreased after interventions, it is necessary to repeat certain interventions to achieve better long-term results. In addition, implementation of new technologies and the involvement of the management is necessary.

Key words: medication error, drug administration, nurse, health facility