Drug administration errors in internal medicine ward patients: a direct observation approach

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Abstract

Background: Drug administration errors (DAEs) are one of the most common and significant types of medication errors among the health care institutions. Therefore, this study aimed to investigate the prevalence, types and severity of DAEs among hospitalized patients. Also, the study evaluated the nurses' behavior related to DAE reporting practice, and the factors contributing to the underreporting of errors by them.
Methods: This study was divided into two main phases. The first phase was a cross-sectional prospective study conducted to identify DAEs, using a direct and disguised observational method in which included the preparation and administration of each medication dose. A structured checklist was used to collect prescribing information and to identify DAEs. Finally, the severity of the detected DAEs was classified according to the NCCMERP index for categorization of medication errors. This phase was conducted over three months' duration (October to December 2020) at the internal medicine ward of a tertiary teaching hospital in Jordan.
The second phase was a survey-based cross-sectional study conducted during February 2021. It involved a convenience sample of nurses working at the same hospital. Nurses were invited to voluntarily participate in the study and to fill an online questionnaire uploaded on an electronic data collection platform. The questionnaire assessed nurses' DAE-reporting practice, their perceptions toward factors contributing to DAEs, factors associated with under-reporting of DAEs, and nurses' perceptions towards DAE preventive measures.
Results: Regarding the first phase, 1,012 administration processes (total opportunities for errors TOE) were observed and 910 DAEs were identified with a medication error rate (MER) of 89.7%. Among the 910 errors, adherence errors were the most frequent type (n = 364, 35.9%) followed by incorrect drug preparation (n = 247, 24.4%). None of the DAEs caused serious harm to patients or contributed to prolonged hospitalization. Antimicrobial drugs (n = 210, 22.6%) was the most common drug class associated with DAEs, followed by the cardiovascular drugs (n = 157, 17.2%). Results showed that the occurrence of DAEs was significantly higher in non-intravenous medications compared to intravenous ones (P-value < 0.001).
In the second phase of the study, a total of 150 nurses responded to the electronic questionnaire, with 54.0% of them (n = 81) were males and the majority had a bachelor's degree in nursing (n = 138, 92.0%). Regarding DAE reporting practice, 78.0% of them (n = 117) indicated that they always/often report DAEs even if it is not possible to improve the patient's health status subsequent to that error. Regarding the factors contributing to DAEs, the results showed that insufficient staffing was the most common reason contributing to DAE occurrence reported by the nurses (n= 114, 94.0%). Personal fear from nursing administration was the primary cause of the under-reporting of DAEs (n = 98, 65.3%). On the

other hand, 94.0% of nurses (n = 141) agreed/strongly agreed that following the ‘six rights’ of safe medication administration is an effective way to prevent DAEs. VII

Conclusions: This study revealed a high MER, although all the identified errors did not cause any patients' harm or prolonged hospitalization. Also, results indicated a positive reporting attitudes towards DAEs. Nursing administration concerns were considered the main reason associated with the under-reporting of DAEs. Continuing education about the importance of DAE reporting as well as maintaining effective and realistic rules in a non-punitive environment are of potential benefits to prevent repetition of errors, and thus, increase patients' safety.
Keywords: Drug administration errors, nurses, perception, error reporting, medication safety, Jordan