

The challenge of medication errors in the emergency department setting



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Dear Editor,

Medication errors (MEs) are considered as the most common medical errors causing major challenges which can threaten the health system. If proper actions are taken into account they can be reduced. MEs threaten patients' safety and may increase the length of hospital stay, lead to unexpected complications, mortality and additional costs (1,2). In 2017, the World Health Organization (WHO) launched 'Medication without Harm' to reduce severe avoidable medication-related damage by 50%, globally in the next 5 years (3). Emergency departments (EDs) are stressful care environments characterized by high speed performance, a large number of patients, unpredictability, high workload, availability of various medications and oral instructions, making EDs more prone to MEs. In addition, the critical nature of many emergency patients may lead to MEs. Therefore, EDs need to be seriously considered to reduce MEs and increase patients' safety. A review of literature on MEs in EDs provides us with important background knowledge which is helpful in future planning. In this regard, it is of great significance to know about the most common stages of error in pharmacotherapy, the most common types of ME and the most common causes of MEs in the emergency department practice setting.

Stages of the MEs in EDs

There are five consecutive stages in the pharmacotherapy: 1) prescribing, 2) transcribing, 3) dispensing, 4) administration, and 5) monitoring. Errors may occur in each stage. A review of literature on MEs in EDs (three

national and two international studies) shows that the administration and prescribing are the most common stages of error. In the administration and prescribing stages, the error usually occurs by the nurse and by the physician, respectively (4-8). Thus, these two stages should be considered as the main purpose of the future studies and planning. Also, in planning nurses should be given more attention.

Types of MEs in EDs

More than 20 types of MEs may occur (Table 1). A review of literature on MEs in EDs (five national and five international studies) shows that the most common types of MEs in EDs include drug omission error, wrong dose and strong infusion rate (4,5,8-15). Therefore, focusing, planning and training clinicians on these three types of MEs may greatly reduce the amount of MEs in EDs.

Causes of the MEs in EDs (in Iran)

A review of four national studies reveals that, according to the perspective of clinicians, the most common causes of MEs in EDs include nursing shortage (fatigue) and poor medication knowledge (5,9,14,16). Hence, MEs in EDs can be greatly prevented by planning to reduce these two causes. Strategies for employing experienced nurses in EDs, establishing ways for contacting a clinical pharmacist, holding regular retraining courses, improving nurses' pharmacological knowledge during undergraduate courses, as well as conducting interventional studies to reduce MEs in EDs can be helpful.

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Table 1. Types of medication errors

Wrong dose	Wrong diluent
Wrong drug	Given medication of 2 doses at one time
Wrong patient	Wrong date
Wrong administration technique	Wrong documentation
Drug omission error	Wrong route
Wrong drug	Unauthorized drug error
Wrong infusion rate	Deteriorated drug error
Extra dose	Wrong dosage-form
Wrong drug preparation	Drug-drug interaction
Wrong time	other

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Author contributions

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Ethical issues

Not applicable.

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