Medication Errors in Adults—Case #1: Warfarin

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Medication errors may occur at any point in the health care system. Obtaining a true estimate of the number of errors is difficult, but preventable medication errors are known to increase patient harm and total health care costs.¹ This series will highlight some of the most important errors and address methods to decrease the risk of them occurring.

**Drug #1: Warfarin**

A 52-year-old male taking warfarin daily for prevention of stroke with atrial fibrillation develops a skin infection and visits the local urgent care center on a weekend for evaluation and treatment. The patient receives a diagnosis of cellulitis and a prescription for Bactrim®, trimethoprim/sulfamethoxazole (TMP/SMX), to be taken twice daily. The drug is dispensed by a pharmacy near the urgent care center, not the patient’s usual pharmacy. Several days later, the patient is admitted to the hospital with an acute bleed and an elevated international normalized ratio (INR).

What is the problem in this scenario?

**Discussion**

Warfarin remains one of the most frequently prescribed medications in the United States, and it appears on the Institute for Safe Medication Practices list of high-alert medications because overanticoagulation or underanticoagulation has important consequences.² In addition, medication errors that lead to adverse drug events may be more common with warfarin because it has a large number of drug-drug and drug-food interactions and there is a need for increased INR monitoring. In the scenario above, a medication was prescribed that was known to affect the metabolism of warfarin. Studies have shown that through inhibition of CYP enzymes, TMP/SMX as well as other antibiotics and medications may significantly increase warfarin levels and the patient’s INR, therefore placing the patient at increased risk for bleeding.³ Although the risk of a significant drug-drug interaction may be minimized or avoided by choosing an antibiotic less likely to affect warfarin levels, in some cases doing so may not be possible and the only option may be increased monitoring and warfarin dosage adjustment.

Regardless, it is important that all providers be aware of the large number of drug-drug interactions with warfarin and the associated monitoring that is required. This case also highlights the importance of medication reconciliation and patient communication throughout the process. The patient in this scenario visited a health care facility, a physician, and a pharmacy that may not have been aware of his entire medical or medication history, including the use of warfarin. All providers should obtain an accurate medication history, which in this case may be based heavily on what the patient is able to relate or information gathered by calling the patient’s usual pharmacy. A patient who is receiving warfarin therapy should be informed about and comprehend the importance of his medications and disease states. He should be empowered to participate in his care and educated to inform all other health care providers that he is receiving anticoagulation therapy. The patient must understand the importance of INR monitoring, especially in the face of drug-drug and drug-food interactions, and the complications associated with nonadherence to monitoring and associated dosage changes.

A multidisciplinary and collaborative approach to treatment that involves physicians, nurses, and pharmacists may also help prevent adverse drug events and related hospitalizations while improving overall outcomes.⁴

**References**


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