



Case Report

Medication safety and rare side effect of carbamazepine: A case report

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ABSTRACT

Introduction: Medicines are the most widely used interventions in health care, and adverse drug reactions alone are responsible for 5-10% of hospitalizations in elderly patients. Carbamazepine is an anticonvulsant drug, and skin rash is one of its rare symptoms. It requires immediate medical attention and is sometimes life-threatening.

Case Report: This case report is about a 72-year-old woman who witnessed the interaction of rivaroxaban and carbamazepine and the side effects of carbamazepine simultaneously.

Conclusion: Patient participation and patient-centered tools are needed to promote patient safety.

Introduction

Medications are the most widely utilized interventions in health care, and medication harm constitutes the greatest proportion of the total preventable harm due to unsafe care. Medication harm accounts for 50% of the overall preventable harm in medical care. According to the evidence provided by WHO, if medication errors are prevented, it is possible to avoid 42 billion dollars paid for health care worldwide (1). Polypharmacy, which means the simultaneous use of 5 or more drugs, leads to a significant increase in medicine interactions and adverse drug reactions (ADR) (2, 3). ADR alone is responsible for 5-10% of hospitalizations in elderly patients, and on the other hand, it is difficult to distinguish ADR

from previously diagnosed or new diseases (2). In 1999, the Institute of Medicine (IOM) published a report entitled "Man is fallible: create a safe health system" about the incidence of medical errors. Also, the World Health Organization started the patient safety project in 2004 (4). The third challenge of this organization was called Medicine Without Harm in 2017 and Medication Safety in 2022 (1). Therefore, evidence shows that errors can occur in any system, and changes should be made to reduce errors in the health system.

Carbamazepine is an anticonvulsant drug that works by reducing the nerve impulses that lead to seizures and nerve pain. The side effects of this drug are classified into four categories: more common, less common,



rare, and unknown. Skin rash is one of the rare symptoms of this drug. It requires immediate medical attention and is sometimes life-threatening. Also, this drug interacts with rivaroxaban and decreases the anticoagulant effect of rivaroxaban (5,6). This study aims to investigate the status of a client who experienced the rare side effects of carbamazepine and the interaction of two drugs, carbamazepine and rivaroxaban.

Case report

A 72-year-old woman with a medical history, including taking rivaroxaban due to a pacemaker, went to the dentist because of a toothache, and the dentist, without asking about the patient's medical history, prescribed carbamazepine daily to relieve her pain. The client started taking it without informing the doctor and even asking for the name of the prescribed medicine and its expected effects. After 48 hours of starting to take carbamazepine, the patient experienced skin rash, peeling, itching, loss of balance control, and confusion. Thus, she went to the emergency ward and was hospitalized for ten days. She was treated with a topical ointment made of triamcinolone, neomycin, nystatin, clotrimazole, dexpanthenol, eucerin, glycerin, and clemastine ampoule. She finally recovered. In the first days of the patient's admission to the hospital, the pharmacist noticed the drug interaction between these two drugs and reported it.

Discussion

In such incidents, searching for the causes and finding the right solution is more important instead of blaming someone. Evidence reveals that the lack of proper communication between the patient and health professionals is responsible for more than 60% of all reported medication errors and ADRs, and medication safety can be improved with effective patient participation (7). On World Patient Safety Day in 2022, the World Health Organization has emphasized three verbs for both patients and health workers to achieve medication safety: know, check, and ask (8,9). This issue raises the

importance of asking questions and communicating patient with health workers. Skin rash and peeling are the rare side effects of carbamazepine (5,10,11), which may be more likely to occur due to interaction with rivaroxaban. In the mentioned scenario, the dentist prescribed carbamazepine to relieve the client's toothache without asking questions about other health conditions, and the client herself had not informed the doctor about the medicines she was already taking. Medication harm can be prevented by using the 5 Moments for Medication Safety tool proposed by WHO for patient safety, and this tool itself can be a solution for this scenario and other similar cases.

The dentist could guide the client on what to do and whom to contact in case of possible side effects of carbamazepine. Therefore, it can be concluded that medication safety can be increased by promoting patients' participation in healthcare, and medication harm caused by drug interactions can be reduced (12,13).

Limitations

One of the limitations of this study was the lack of paraclinical evidence to reveal the interaction between rivaroxaban and carbamazepine in the patient. Based on the available evidence about the interaction of these two drugs (14-16) and the fact that taking several drugs alone can increase the possibility of ADR (17, 18), the issue of drug interaction was mentioned in this case report. Thus, it is necessary to investigate the effect of the simultaneous use of these two drugs in future studies.

Conclusion

Humans are fallible, and errors may occur in any system. However, it should be noted that errors in the health system may not be compensated (19). Considering this fact, WHO seeks to reduce errors in the health system in various ways and annually introduces challenges to patient safety. The contacts of the tools introduced in these programs are all people and not only health workers. Therefore, to reduce errors and

provide safe care, the participation of all members of the health team, including the patients themselves, is necessary.

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Conflict of interest

The authors report no actual or potential conflicts of interest.

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