

Frequency and types of food-drug interactions in Cardiac Care Units

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ABSTRACT

Introduction: In the discussion on drug interactions, mainly drug-drug interactions comes to mind. While, in this regard the role of food-drug interaction is one of the important issues. This study aimed to determine the frequency and type of food –drug interactions in the cardiac care units was conducted.

Materials and Methods: This study is a descriptive cross-sectional study, in which the frequency and types of food-drug interactions were analyzed in CCU patients at Urmia teaching hospitals Iran, in 2015. For two months from the beginning of November to the end of December, medicines and nutritional status of hospitalized patients in CCUs at Urmia university hospitals were recorded in the researcher- made questionnaire in the morning, afternoon and night shifts. The collected data were analyzed by using Spss software (version 15) and descriptive statistics.

Results: The final analysis of 220 completed forms, 192 cases of food-drug interactions during two months of monitoring were noted.

Conclusion: The occurrence of food-drug interaction in hospitalized patients in cardiac care units are frequent. This can be due to a lack of awareness of health personnel towards the food-drug interactions.

KEY WORDS: Drug, food-drug interactions, cardiac care unit

1. INTRODUCTION

Interaction is a situation in which a substance changes the effect of used drugs such as increasing or decreasing the effect of the drug or producing a new effect for the drug (Moradi, 2016). In a study conducted in the United States, it was found that 7 percent of drug side-effects were attributed to the drug interactions (Phillips, 2001; Rafat, 2015).

Drug interactions impose huge costs on the economy (Rasolabadi, 2015). Kwan, study is one of several studies that attempted to measure the economic outcomes for preventing drug interactions. In their study, it is estimated that the 1% decrease in the clinically important drug interactions, could reduce by 29250 dollars in indirect costs, annually (Kwan, 1979). In the discussion on drug interactions, mainly drug-drug interactions comes to mind. While, in this regard the role of food-drug interaction is one of the important issues (Trovato, 1991). By contrast, the nutritional status of the patient can increase or decrease the effects of drugs (Gandhi, 2003; Ghaffari, 2015). Studies have shown food sources of vitamin K such as spinach and broccoli are due to antagonistic effects with the drug warfarin and in the case of integrated use, are need to increase the dose of warfarin to achieve a therapeutic effect (Violi, 2016; Yamamoto, 2016; Ghaffari, 2015).

High-risk patients in terms of food, drug interactions, patients who are taking three or more drugs and more days in the hospital. In the meantime, hospitalized patients in intensive care unit receive more than drugs compared to patients in other units (Harrington and Gonzales, 2004). So the probability of drug interactions such as food-drug interaction in these patients may be higher than other patients (Anderson and Fox, 2012). Also the results of study by Lima and, 1 in 2009 showed that patients hospitalized in intensive care units, especially in patients with cardiovascular disease are at high risk of occurrence of drug interactions (Lima and Cassiani, 2009; Jahangiri, 2016). Therefore, this study aimed to determine the frequency and type of food –drug interactions in the cardiac care units was conducted.

2. MATERIALS AND METHODS

This study is a descriptive cross-sectional study, in which the frequency and types of food-drug interactions were analyzed in CCU patients at Urmia teaching hospitals Iran, in 2015. After approve the Research Council and approval Ethic for two months from the beginning of November to the end of December, medicines and nutritional status of hospitalized patients in CCUs at Urmia university hospitals (Seyed Al-Shohada and Taleghani hospital) were recorded in the researcher- made questionnaire by two observers in the morning, afternoon and night shifts. All collected data from researcher- made questionnaire examined by four researchers and FDIs was specified. At the end, again all data were examined in order to review and final approval by a clinical pharmacist. The collected data were analyzed by using Spss software (version 15) and descriptive statistics.

3. RESULTS

The final analysis of 220 completed forms, 192 cases of food-drug interactions during two months of monitoring were noted. According to the table.1, the most FDI were realized with Captopril pill, Metoral tablet, Heparin (injection). The most common time for FDI from consumption of Metoral tablets were in the morning and with cheese but about Captopril pills were observed in the evening with consumption of orange and bananas.

Table.1. The prevalence & type of FDI in CCU patients

Drug	Food	No.	Total	Total FDI
Captopril	Fish	10	57	192
	Banana	19		
	Orange	19		
	Vegetable soup	9		
Heparin	Chicken	19	41	
	Lettuce salad	12		
	Cucumbers	10		
Aldacetone	Orange juice	1	1	
Acetaminophen	Banana	3	6	
	Salad	3		
Metoral	Banana	23	51	
	Cheese	28		
Carvedilol	Orange juice	9	9	
Aspirin	Tea	17	17	
Atorvastatin	Orange juice	2	2	
Warfarin	Chicken	2	2	
Losartan	Chicken	1	1	
Osvix	Milk	3	3	
Enoxaparin	Orange juice	2	2	

DISCUSSION

Based on the results of the study, the most food-drug interactions was respectively with drugs captopril, Metoral and the heparin. Captopril is an angiotensin-converting-enzyme inhibitor (ACE inhibitor) and increase serum potassium value by reduction the activity of the renin-angiotensin-aldosterone (Molnar, 2014). So, monitor the potassium level is required in patients who receive Captopril. Our results show that this important issue has been overlooked for patients who received captopril why so fish, banana, orange and vegetable soup are potassium rich foods.

Metoral is a drug from beta-blockers group and it can also increase serum potassium. When taking these drugs, diet containing potassium must be avoided, such as bananas, fruit juice, avocado, tomatoes, potatoes, roast chicken and meat. Also the consumption of some foods which been contain sodium- such as cheese- must be avoided with taking Metoral, because they will reduce Metoral's effect in the body (Jáuregui-Garrido and Jauregui-Lobera, 2012). Also, heparin is an anticoagulant drug. The consumption of foods that are high in vitamin K cause thicken blood and increase clotting ability, so increases the need for heparin (Bushra, 2011).

4. CONCLUSION

Based on the results of this study, food-drug interaction in hospitalized patients in cardiac care units are much. The occurrence of adverse drug reactions can also be prevented by holding educational courses for nurses and others in the health care team and sensitize them.

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