

POSSIBLE DRUG AND FOOD INTERACTIONS IN PATIENTS TREATED IN SOME CLINICS OF TIRANA

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Abstract

Drug–food interactions constitute, the potential mechanisms leading to often preventable events and health damage. The purpose of this study is evaluating the profile of potential drug-food interactions in patients treated in first aid centers and clinics of Tirana.

200 medical files were examined. Selected medical files were investigated during the time patients were admitted in medical centers. Their prescriptions were analyzed in, gender, year of birth, and drugs prescribed for chronic diseases, were recorded. An analysis of potential drug-food interactions, of medications taken with certain types of foods was attempted. Calculation of sums, frequencies and ratios were calculated using Microsoft Excel and StatPlus 2009.

All the patients included in the study, experienced at least one interaction. Identified drug-food interaction, most were of moderate and minor severity. Most frequently involved in potential drug-food interaction were antidepressants (24.5%), Antihypertensive drugs (22.4%), and anticoagulants (14.3%).

The presence of drug –food interactions is a permanent risk in the treatment of chronic diseases. The possibility of interactions was higher in patients taking medication for chronic diseases such as depression, hypertension, blood clots etc. concurrently with medications for the infectious disease that caused the treatment. The high frequency of interactions should be a concern for Albanian physicians, health care professionals and patients.

Utilization of computer programs, pharmacotherapy, monitoring of patients, further divulgation and awareness preventing harmful or clinically important drug-food interactions as well pharmacists and dietologists in the multidisciplinary team are some manners of contributing to treatment and consulting of chronic patients. In context of the evolving role of pharmacists and dietologists, they should become an important factor in preventing and managing drug-food interactions, especially in patients treated for chronic diseases.

Keywords: *drug-food interactions, chronic diseases.*

INTRODUCTION

Very often, drugs and foods may interact with medications normally taken, that result in serious side effects. When drugs and certain foods are taken at the same time, they can interact in such a way that decrease the effectiveness of the ingested drug or reduce the absorption of food nutrients (Welling, 1984).

The problem of DFIs may deserve extra attention. Drug-food interactions can happen with both prescription and over-the-counter medication, including antacids, vitamins and iron supplements. The impact of drug-food interactions depend on a variety of intervening factors such as dosage of the drug, the person's age, size and state of health . (Kappas *et al.*, 1978, Melander, 1978). The time foods and the medications are taken also play an important role, it is clear that food-drug interactions are very complex, of varying nature and our knowledge regarding food-drug interactions are not sufficient. Therefore, it seems necessary to investigate these types of interactions (Bagheri. H. 2000).

The objective of the present work was to study and update our knowledge as well as providing awareness regarding food-drug interactions. (Lieber CS 1994).

MATERIALS AND METHODS

Four different clinics in Tirana, over a 2-month period (October - November 2012), 200 medical files examined, selected medical files (178) investigated during the treatment period, prescriptions analyzed once a week, gender, year of birth of patients, and drugs prescribed were used for the purpose of this study.

Mean age of the participants was 45.5 +/- 18.4 years (range 0.5-86), 44.4% of those being female. Analysis of potential drug-food interactions (pDFIs), calculation of sums, frequencies and ratios were calculated using Microsoft Excel and Stat Plus 2009.

In the first phase, 200 medical files were examined, outpatient prescriptions from various clinics were randomly selected, recorded and the patients were also interviewed on the spot to get relevant information and try to make them confide about the purpose of the study and also to provide awareness regarding the food-drug interactions (Wagner, 1977, Melander, 1978)

In the second phase of the study, prescriptions were checked and those prescriptions that contained same active ingredient prescribed for major infections but with different brand names were searched. One such prescription was selected for further evaluation while the remaining prescriptions were removed. This was done to avoid duplication of drugs. (Welling, 1977, Melander, 1978)

In the third and final phase of the present study, a thorough literature survey was carried out using relevant search engines for any food-drug interaction of the selected drugs from the prescriptions orders and finally conclusions were drawn. (Koch-Weser, 1974, Melander, 1978)

Table 1

Some examples of drug-food interactions that accelerate the absorption of drugs

Drug	Mechanism	Counseling
Carbamazepine	Increased bile production, enhanced dissolution and absorption	No recommendations given by the physician
Dicumerol	Increased bile flow, delayed gastric emptying permits dissolution and absorption	Take with food
Griseofulvin	Drug is lipid soluble, enhanced absorption with high- fat foods.	Take with high- fat foods
Propranolol	Food may reduce first-pass extraction and metabolism.	Take with food

Table 2

Some examples of drug-food interactions that delay the absorption of drugs

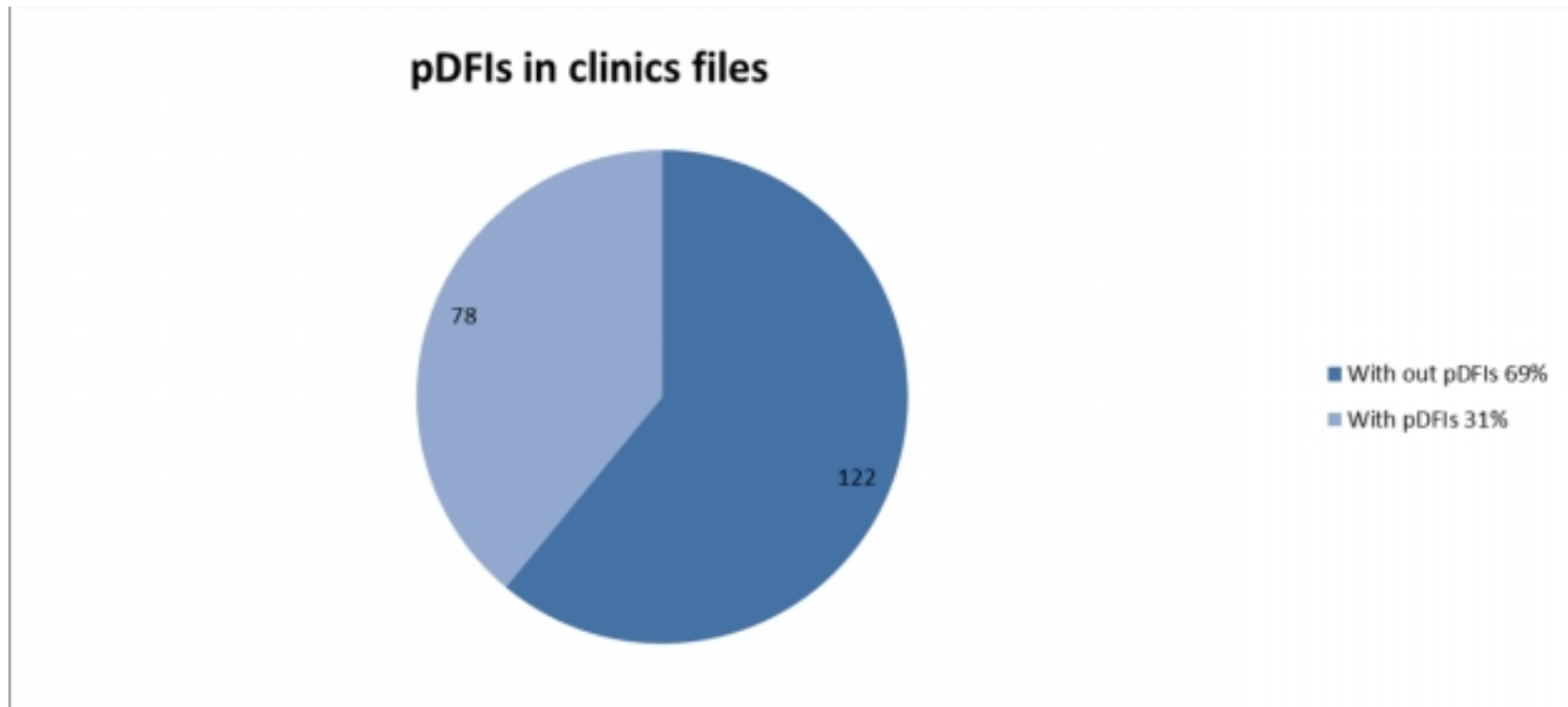
Drug	Mechanism	Counseling
Digoxin	High-fiber, high-pectin foods bind drug	Take drug same time with relation to food, avoid taking with high-fiber foods.
Levodopa	Drug competes with amino acids for absorption transport	Avoid taking drug with high-protein foods.
Methyldopa	Competitive absorption	Avoid taking with high - protein foods.
Nafcillin	Mechanism unknown.	Take on empty stomach.

Table 3**Examples of specific counseling on some drug-food interaction**

Drugs	Effects and Precautions
Antibiotics	Take on an empty stomach to speed absorption of the drugs.
Cephalosporins, Penicillin, Erythromycin	Don't take with fruit juice or wine, which decrease the drug's effectiveness.
Anticonvulsants ,Dilantin, phenobarbital	Increase the risk of anemia and nerve problems due to deficiency of folate and other B vitamins.
Antidepressants Fluoxetine	Reduce appetite and can lead to excessive weight loss
Lithium	A low-salt diet increases the risk of lithium toxicity; excessive salt reduces the drug's efficacy
Tricyclics	Many foods, especially legumes, meat, fish and foods high in Vitamin C, reduce absorption of the drugs.
Cholesterol Lowering Drugs Cholestyramine	Increases the excretion of folate and fat soluble vitamins.
Gemfibrozil	Avoid fatty foods, which decrease the drug's efficacy in lowering cholesterol.
Heartburn and Medications Antacids Ulcer	Interfere with the absorption of many minerals; for maximum benefit, take medication one hour after eating

RESULTS

Graphic 1.



200 medical files examined, pDFIs results in only 78 of them, 122 others without pDFIs. (potential drug-food interactions)

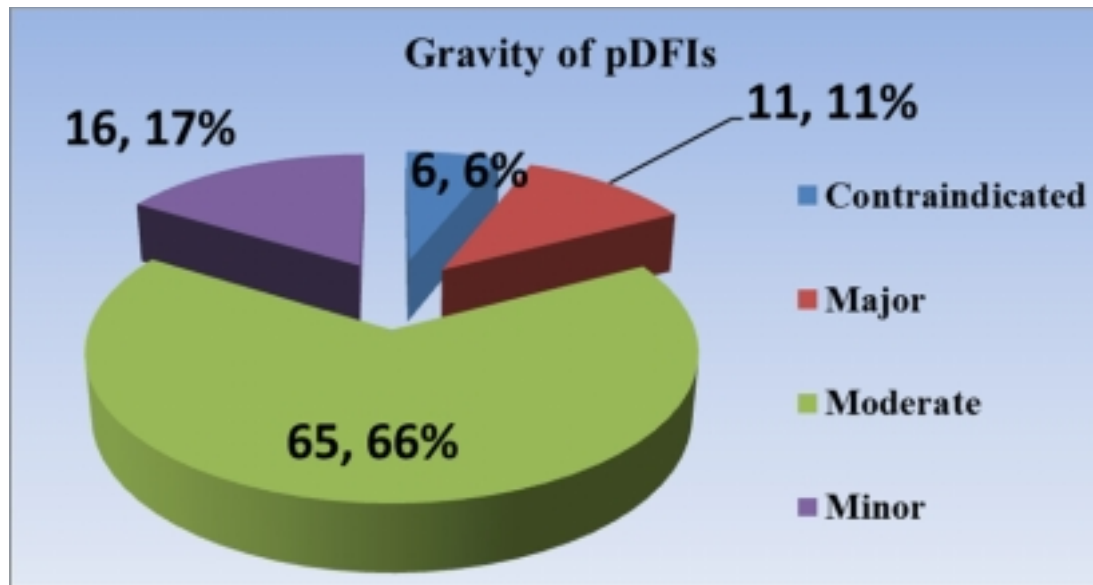
Table 4**MEDICAL FILES WITH pDFIs**

N. of file	Age	N. of drugs	N. of pDFIs	Severity	Documentation	Description of pDFI
715018	54	14	6	Moderate	Fair	Cephalosporins / fruit juice
				Moderate	Good	Tricyclics/ Beans
				Moderate	Fair	Tricyclics / Citrus Fruits
				Moderate	Excellent	Antacids/ Banana
				Major	Excellent	Lithium/ Table Salt
				Moderate	Good	Methyldopa/ Red meats

Table 5**MEDICAL FILES WITH pDFIs**

N. of file	Age	N. of drugs	N. of pDFIs	Severity	Documentation	Description of pDFI
714831	60	9	5	Moderate	Good	Digoxin / High fiber foods
				Moderate	Good	Digitalics/ Milk
				Moderate	Excellent	Antiarrhythmics / Coffee
				Moderate	Good	Pseudoephedrine / Coffee
				Moderate	Good	Gemfirozile/ Butter

Graphic 2.



Contraindicated - the drugs are contraindicated for concurrent use

Major - the interaction may be life-threatening and/or require medical intervention to minimize or prevent serious adverse effects

Moderate - the interaction may result in an exacerbation of the patient's condition and/or require an alteration of therapy

Minor - the interaction would have limited clinical effects (increase in the frequency or severity of side effects; would not require a major alteration in therapy)

Conclusions

31.46% of the patients had at least one potential Drug-Food Interaction in their medical files

This study suggests that:

The high frequency of pDFIs should be a concern for Albanian physicians, other health care professionals and patients. The presence of drug-food interactions is a permanent risk. In conclusion, the possibility of interactions is higher in patients taking medication for chronic diseases such as hypertension, diabetes etc., than with medications for the infectious disease that caused hospitalization.

Recommendations

Potentially significant drug-food interactions can often be identified and circumvented by:

Promoting education of health professionals in the area of pharmacovigilance and dietology,(including drug interactions with food), making patient-appropriate drug selections, providing counseling in cases of time-related interactions, checking a patient's entire list of medications for potentially harmful interactions with Interaction Software, considering prescribing alternative agents when appropriate, frequent consultation with other members of the health care team, such as nurses and pharmacists.

In the context of the evolving role of pharmacists, they should become an important factor in the prevention and management of drug-food interactions, especially in patients with chronic diseases.

This requires a new vision in pharmacists, especially dietologists (whose figure is not defined in Albanian Health system), towards the evidence based medicine.

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