

THE EVALUATION OF RATIONAL USE OF SOME DRUGS IN ALBANIA

MIRELA MIRACI^{1*}, ENTELA HALOCI², BENUARDA TOTO³

¹Department of Professional Chemistry and Pharmacognosy, Faculty of Pharmacy, Tirane, Albania. ²Department of Pharmacy, Aldent University, Tirane, Albania. ³Department of Hospital Pharmacy, University Hospital Centre, Tirane, Albania.
Email: mirela_miraci@hotmail.com

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ABSTRACT

Objective: The irrational use of medicines is a major problem worldwide. The irrational antibiotics are one of the causes of mortality and morbidity around the world and the increasing of antimicrobial resistance too. The objective is to study the consumption of some reimbursement drugs, the study of consumption of main antibiotics in a few pharmacies in Tirana, Albania and at the same time, to study the knowledge of the random antibiotic use of patients in Tirana.

Methods: Part I. There are five pharmacies randomly selected in Tirana, which are part this study. They accepted us to have access to a considerable number (2910) of reimbursement prescriptions, consumed in a total of 5 months. The medical prescriptions were analyzed for: (1) The average total number of drugs prescribed; (2) The percentage of drug prescribed with the right generic name; (3) The percentage of antibiotics prescribed; (4) The percentage of injectable pharmaceutical forms prescribed; (5) The average cost of every reimbursement prescription. Part II. There are taken into consideration ten pharmacies located in the city of Tirana. The consumption and the knowledge of the patients about antibiotics were analyzed. The data are collected for a single month (May 2014). We took into consideration the entries of antibiotics and antimicrobials subtracting the present stock of these drugs.

Results: As we see from the results in there are 91.6% of reimbursement prescription prescribed in accordance with low Albanian Drug Regulation. The average number of drugs prescription is about 2 which means we have not overprescribed of drugs in reimbursement ones. The average of the percentage of injectable forms is 3.18, which is not very high too. Azithromycin has the highest consume, followed by amoxicillin, and the chloramphenicol has the lowest one. A high number of patients interviewed (in total 148 or 59.2%) are answered that they take antibiotics only with a medical prescription, and there were not a significant difference between female and males.

Conclusions: The findings of this study suggest that the drugs given in reimbursement prescription are generally in accordance with diagnosis and rational prescription. Further investigation is needed to analyze non-reimbursement prescription which do not have the some monitoring system which means that may have more problems that reimbursement ones. The authorities must have under control the enforcement of regulation low for drug purchasing process. On the other hand, we should sensibilize all the age groups to avoid self-medication especially with antibiotics which cause the resistance problems. The doctors should be careful not to prescribe the drugs by trade name respecting the proper protocols.

Keywords: Rational use, Reimbursement drugs, Antibiotic

INTRODUCTION

Medically inappropriate, ineffective and economically inefficient use of pharmaceuticals is commonly observed in healthcare systems throughout the world. However, various forms of inappropriate prescribing often remain unnoticed by those who are involved in health sector decision making or delivery of health services.

Most physicians would vouch for having observed this in their day-to-day practice, and there is no dearth of hard evidence to reinforce this impression. Even a cursory survey of the available literature throws up a wealth of data which is strikingly uniform across nations: The problem is undoubtedly a global one [1-6]. There is a reason to believe that the situation is no different in-service in many hospitals worldwide [7,8].

The Conference of Experts on the Rational Use of Drugs, convened by the World Health Organization in 1985, in Nairobi defined rational use as follows.

Rational use of drugs requires that patients receive medicines appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and their community.

The definition implies that rational use of drugs, especially rational prescribing, should meet certain criteria as follows:

- Appropriate indication: The decision to prescribe drug(s) is entirely based on medical rationale, and the drug therapy is an effective and safe treatment
- Appropriate drug: The selection of drugs is based on efficacy, safety, suitability, and cost considerations
- Appropriate patient: No contraindications exist, the likelihood of adverse reactions is minimal, and the drug is acceptable to the patient
- Appropriate patient information: Patients are provided with relevant, accurate, important and clear information regarding their conditions and the medication(s) that are prescribed
- Appropriate evaluation: The anticipated and unexpected effects of medications are appropriately monitored and interpreted [9-16].

WHO estimates that more than half of all medicines are prescribed, dispensed or sold inappropriately and that half of all patients fail to take them correctly. The overuse, underuse or misuse of medicines results in wastage of scarce resources and widespread health hazards.

Many different factors affect the irrational use of drugs. The major forces can be categorized as those deriving from patients, prescribers, the industry influences, regulation, drug information and misinformation, and combinations of these factors. Rational drug prescription is defined as the use of least number of drugs to obtain the best possible effect in shortest duration and at a reasonable cost.

The drugs prescribed in each prescription were carefully noted, and following parameters were used to assess the rationality of the prescriptions [17].

1. Patients: Drug misinformation, misleading beliefs, patient demands/expectations, Self-medication, overuse of injections and antibiotics
2. Prescribers: Lack of education and training, inappropriate role models, lack of objective drug information, generalization of limited experience, misleading beliefs about drugs efficacy. The high number of drugs prescribed in a single medical prescription
3. Drug regulation: Nonessential drugs available, informal prescribers, lack of regulation enforcement
4. Industry: Promotional activities, misleading claims, the prescription of drugs by a trade name.

METHODS

This study is divided into three parts which consist of:

1. The study of consumption of some reimbursement drugs in a few pharmacies in Tirana
2. The study of consumption of main antibiotics in a few pharmacies in Tirana
3. The study of knowledge of the random antibiotic use of patients in Tirana.

The study of consumption of some reimbursement drugs in a few pharmacies in Tirana

There are five drugstores randomly selected in Tirana, which are part this study. They have given access to a considerable number (2910) of reimbursement prescriptions, consumed in a total of 5 months, in which are analyzed some data and criteria they should have. The statistical methods used are based on SPSS Statistical Software Package. The data and criteria studied in every reimbursement prescription are as follows:

- a. The average total number of drugs prescribed
- b. The percentage of drug prescribed with the right generic name
- c. The percentage of antibiotics prescribed
- d. The percentage of injectable pharmaceutical forms
- e. The average cost of every reimbursement prescription
- f. The most frequent diagnosis.

The study of consumption of main antibiotics in a few pharmacies in Tirana

As a result of continuous use of antibiotics the estimated resistance is increasing day by day and it also costs 9000 million pounds per year in Europe [11,12]. Due to this reason if an antibiotic become ineffective the morbidity rate increases and leads to premature mortality [13-15]. The irrational use of antibiotics is practicing in both developed and underdeveloped countries. The use of antibiotics for a short period is also an irrational practice that is done in most countries [18-20]. At present, antibiotics are the widely used class of drugs all over the world [21,22] and in Albania too.

In Albania the antibiotics are rarely described in the reimbursement prescriptions, meanwhile we cannot analyze the consumption of the antibiotics with no reimbursement prescriptions because these prescriptions are not kept for long time from the pharmacy and many times these antibiotics, unfortunately, are taken without prescriptions. In this situation, we have analyzed the consumption of antibiotics through the total respective entries from the suppliers to the pharmacy. There are taken into consideration ten pharmacies located in the city of Tirana. Pharmacies are randomly selected and labeled with numbers (1-10). The data are analyzed for a single month (May 2014). We took into consideration the entries of antibiotics and antimicrobials subtracting the present stock of these drugs.

A questionnaire-based survey to determine the level of patients knowledge about the rational antibiotic uses

Irrational use of antibiotics may include a polypharmacy, overuse of antibiotics, to prescribe in accordance with clinical guidelines. It is a

global problem of wrong use of drugs; Some countries are taking action to make control on this situation. In Albania, this problem increases because of self-medication (use of antibiotics without a prescription). The data are collected from the patients frequenting the ten pharmacies that are part of this study in Tirana. The questionnaire: Based surveys were randomly taken, and anonymous criteria were applied in a period of 30 days and in a total of 250 patients (female and male) ages 18-67 years old.

A questionnaire: Based form contents two questions

1. How do you take the antibiotics in pharmacies?
2. Do the antibiotics are the proper medication to fight the viral infections? (flu)

RESULTS

Results of the first part of the study

About 2910 full and partial reimbursement prescriptions are taken into consideration. All data collected are presented in Table 1.

The data are analyzed by SPSS statistical software and the results are reported in Table 2.

It resulted that the pharmacy nr 5 had the highest average cost per prescription and the pharmacy nr 3 the lowest one respectively 3846.05 lekë and 1657.31 lekë.

During the analyses of prescriptions data's, it is noted that the most frequent diagnosis is arterial hypertension, and this is the reason why the number of this kind of prescriptions is higher than those with other diagnoses. The second most frequent diagnosis is Diabetes mellitus followed by dyslipidemia, chronic heart failure (CHF).

All the data collected are presented in Table 2 in which are cited the total amount in Leke for the total monthly antibiotics entries.

Results of the second part of the study

Table 3 presents the data collected for the most purchased antibiotic per package unit and per cost amount.

Results of the third part of the study

Results in this point show that 46.8% (both male and female) do not have the proper knowledge about the action of antibiotics. These results are close to those of European zones. In the answer "I don't know" the older patients are much more in number than the other groups.

DISCUSSION

As we can see from the results in Table 1, there are 91.6% of reimbursement prescription prescribed in accordance with Albanian Drug Regulation law which states that drugs should be prescribed only by proper generic name. Meanwhile in this law are full reimbursement all the drugs only to veteran and War invalid categories, that's why the doctor is obligated to specify both the generic and the trade name. This exception is responsive to the difference of 8.4%.

The average number of drugs/prescription is about 2 which means we have not overprescribed of drugs in reimbursement ones. The average of the percentage of injectable forms is 3.18 which is not very high too.

Meanwhile, the highest value of the average of the percentage of injectable pharmaceutical forms prescribed has the pharmacy 5, which mainly due to diabetic insulin.

On the other hand, we can conclude that the percentage of antibiotics described in reimbursement prescription is very low (1.49%) because usually the patients classified for the reimbursement drugs are patients with chronic disease which are not cured by antibiotics. In addition, the list of reimbursement drugs Albania is not very rich with the alternative of antibiotics. As the result, they are prescribed by classic prescription

Table 1: Percentage of some factors of rational use of drugs, studied in reimbursement prescriptions

The percentage of pharmaceutical forms	Pharmacy 1 (%)	Pharmacy 2 (%)	Pharmacy 3 (%)	Pharmacy 4 (%)	Pharmacy 5 (%)
The percentage of drug prescribed with the right generic name	94.45	95.55	82.66	91.27	99.10
The average of percentage of drug prescribed with the right generic name 91.60%					
The percentage of antibiotics prescribed	0.27	0.26	3.54	3.35	0.07
The average of percentage of antibiotics prescribed 1.49%					
The percentage of injectable pharmaceutical forms	2.32	1.07	3.82	3.72	4.97
The average of percentage of injectable pharmaceutical forms 3.18%					

Table 2: The number of drugs and the cost of prescriptions, studied in reimbursement prescriptions

Statistical data	Pharmacy 1	Pharmacy 2	Pharmacy 3	Pharmacy 4	Pharmacy 5	The cost of pharmacy 1	The cost of pharmacy 2	The cost of pharmacy 3	The cost of pharmacy 4	The cost of pharmacy 5
Currency 1 euro=140 Leke										
The average	1.81	1.81	1.90	1.87	1.85	2098.02	1780.51	1657.31	1733.99	3846.05
Median	2.00	2.00	2.00	2.00	2.00	792.00	762.00	650.00	788.00	792.00
The mode	1	1	1	1	1	762.00	762.00	279.00	279.00	189.00
The standard deviation	0.80	0.85	0.84	0.86	0.83	4420.10	3276.41	4169.81	3324.99	13719.25
The minimum value	1	0	1	1	1	78.00	78.00	78.00	1.00	78.00
The maximum value	4	4	3	3	4	44928.00	44928.00	38169.00	38169.00	135042.00
Total	728	741	868	1490	1570	843404.20	730011.80	755737.40	1380261.70	3265298.00
The total cost (in all pharmacies) currency 1 euro=140 Leke										6980110.1
The average number of drugs/prescription (in all pharmacies)										1.848±2

Table 3: The total monthly amount in Leke of antibiotics in each pharmacy

Pharmacies	The total monthly amount in Leke of antibiotics in each pharmacy	The average of total monthly amount in Leke of antibiotics in all pharmacies
The pharmacy 1	44735.34	37798.87
The pharmacy 2	28778.67	
The pharmacy 3	52080.03	
The pharmacy 4	111060.1	
The pharmacy 5	24102.33	
The pharmacy 6	37608.16	
The pharmacy 7	25572.82	
The pharmacy 8	21257.11	
The pharmacy 9	12939.40	
The pharmacy 10	19854.70	

without reimbursement and sometime in Albania unfortunately they are taken directly in a pharmacy without prescription which cause many problems. Pharmacy nr 3 and 4 have the highest percentage value of antibiotics prescribed.

As we can see Table 4 acythromycin has the highest consume, followed by amoxicillin, and the chloramphenicol has the lowest one. In the meantime, the average purchasing cost in Leke of antibiotics the studied pharmacies is 16593.6lek. Another important analyzed data is the determination of the most common pharmaceuticals form saled in these pharmacies which are tablets.

A high number of patients interviewed (in total 148 or 59.2%) are answered that they take antibiotics only with a medical prescription, and there were not a significant difference between female and males.

Table 4: The consumption of antibiotics for all pharmacies

The antibiotics	The amount in Leke expended from patient for the antibiotic	The amount consumption in each unit package
Azithromycin	71696.2	98 units
Amoxicilline	21511	41 units
Doksycylin	9932.36	25 units
Erythromycin	3012.75	3 units
Clarithromycin	10567.62	8 units
Ceftriaxone	54201.76	74 units
Cefaclor	31069.74	20 units
Amoxicillin/clavulanate potassium	38858.74	51 units
Ampicilline	1625	4 units
Cefuroxime	30468.22	18 units
Cefazoline	2692	16 units
Oxytetracycline	289.8	2 units
Bipenicilline	932.10	40 units
Benzylpenicilline	1121.74	3 units
Gentamicine	1824	8 units
Chloramphenicol	171.69	1 units
Rovamicyne	2116.40	2 units
The total	282091.1	
The average amount in Leke for these antibiotics	16593.6	

Results show that 46.8% (both male and female) do not have the proper knowledge about the action of antibiotics (Table 5-8) (Fig. 1-5).

It can seem that the study is limited only in one city, but the patients enrolled are representative of the whole country and not just of the Tirana city.

CONCLUSION

Drugs are a useful tool in the prevention of and treatment of symptoms and diseases, but if not used properly, they may be harmful and cause

Table 5: The number of package unit of different pharmaceuticals forms

Pharmacy	Pharmaceutical forms (caps+tab) (number of package unit)	Sirups (number of package unit)	Injectable pharmaceutical form (number for package unit)
Pharmacy 1	1037	1	10
Pharmacy 2	6784	4	0
Pharmacy 3	614	6	37
Pharmacy 4	1433	13	26
Pharmacy 5	479	8	20
Pharmacy 6	282	3	56
Pharmacy 7	267	6	23
Pharmacy 8	218	7	3
Pharmacy 9	180	5	23
Pharmacy 10	90	2	26
The average for pharmacy	1138	5	22
The total	11384	55	224

Table 6: The results of how the patients take the antibiotics

Gender	How do you take the antibiotics in pharmacies? (%)		
	With prescription and without prescription combined	With prescription	Without prescription
Female	31 (12.4)	73 (29.2)	24 (9.6)
Male	27 (10.8)	75 (30.0)	20 (8.0)

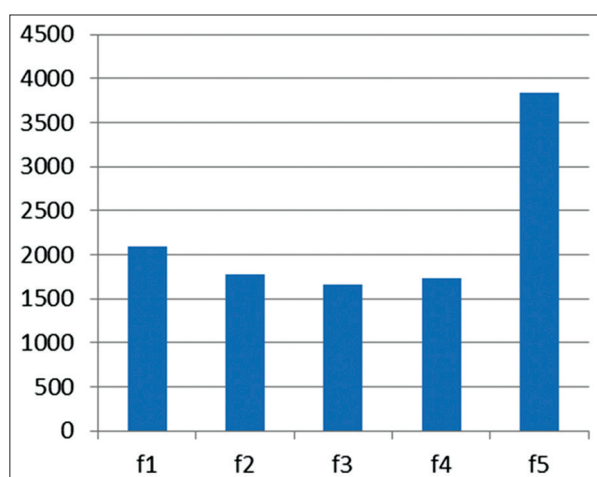


Fig. 1: The average cost of single prescription

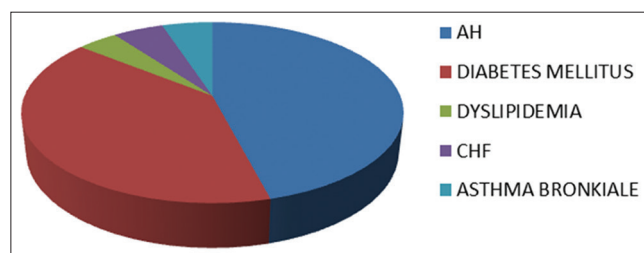


Fig. 2: The most frequent diagnoses

adverse effects or produce sub-optimal effect. The prescription should be rational and guidelines should be followed in consideration.

The findings of this study suggest that the drugs given in reimbursement prescription are generally in accordance with diagnosis and rational prescription. Further investigation is needed to analyze non-reimbursement prescription which do not have the some monitoring system which means that may have more problems that reimbursement ones. The authorities must have under control the enforcement of regulation low for drug purchasing process. On the other hand, we should sensibilize all the age groups to avoid self-medication, especially with antibiotics which cause the resistance problems. The doctors

Table 7: The antibiotic therapy use according to age groups

How do you take the antibiotics in pharmacies?			
Age groups (years)	With prescription and without prescription combined (%)	With prescription (%)	Without prescription (%)
0-10	0 (0.00)	1 (0.04)	0 (0.00)
11-20	7 (02.80)	20 (08.00)	7 (02.80)
21-30	12 (04.80)	28 (11.20)	10 (04.00)
31-40	9 (03.60)	27 (10.80)	19 (07.60)
41-50	5 (02.00)	35 (14.00)	2 (00.80)
60	9 (03.60)	58 (23.20)	1 (0.04)

Table 8: Do the antibiotics are the proper medication to fight the viral infections? (flu)

Do the antibiotics are the proper medication to fight the viral infections? (flu)			
Gender	Yes	No	I don't know
Female	54 (21.6)	45 (18.0)	25 (10.0)
Male	63 (25.2)	28 (11.2)	35 (14.0)

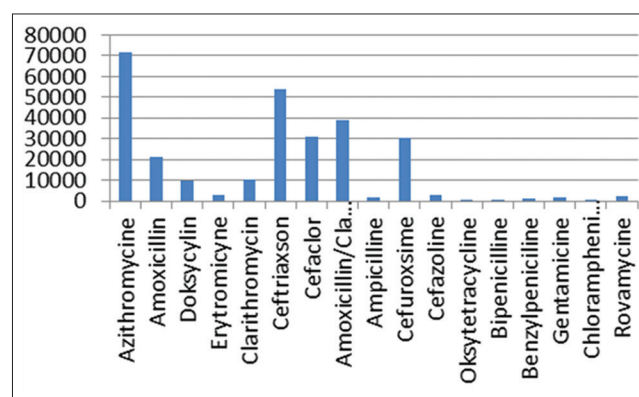


Fig. 3: The amount in Leke consumed for the drug purchasing

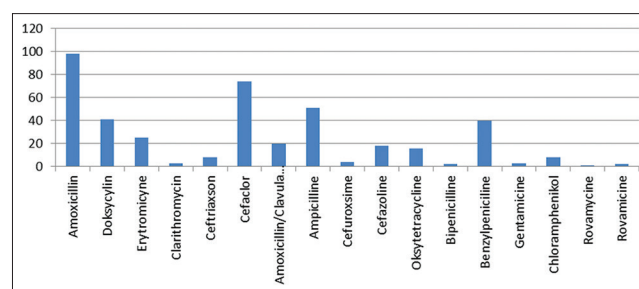


Fig. 4: The amount per package unit

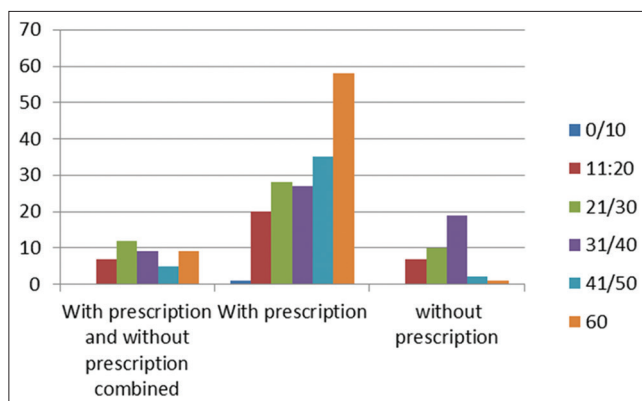


Fig.5: The antibiotic therapy use according to age groups

should be careful not to prescribe the drugs by trade name respecting the proper protocols.

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