Prescription patterns of drugs used for peptic ulcer disease in primary health care in Albania during 2004-2014: International comparisons

Laerta Kakariqi[1], Sonila Vito[2]

[1]Department of Biomedical and Experimental Subjects, Faculty of Medicine, University of Medicine, Tirana Albania;
[2]Pharmacy Department, Albanian University, Tirana, Albania.

Corresponding author: Laerta Kakariqi
Address: Rr. Dibres, No. 371, Tirana, Albania;
E-mail: laertakakariqi@yahoo.com

Abstract

Aim: To evaluate the out-of-hospital anti-ulcer drugs use in Albania (national level) during 2004-2014 along with international comparisons on drugs use.
Methods: All data were collected from the Albanian Health Insurance Institute (HII) and analyzed reflecting the ambulatory and outpatient use for the period 2004-2014. The data about the consumption of drugs were expressed as a number of Defined Daily Dose (DDDs) /1000 inhabitants/day. For all the period under study 2004-2014, data of import and domestic production of drugs were collected and analyzed, which represent the real consumption of drugs in Albania. These data were subsequently included in a comparative analysis with the utilization data according to the HII.
Results: The most prescribed drug was ranitidine: 0.97 – 0.25 DDD/1000 inhabitants/day, while the consumption of omeprazole is 0.18 -0.19 DDD/1000 inhabitants/day respectively 2004-2014. The reimbursement scheme provides a quite poor coverage of necessary alternatives of the proton pump inhibitors that are used for the treatment of the ulcerous disease. The reimbursement scheme offers only omeprazole. However, the consumption of omeprazole under the scheme is in much lower levels compared to the real data of omeprazole consumption coming from import figures. On the other hand, a consistent part of the sales of omeprazole is out-of-pocket expenditure.
Conclusion: There exists a significant decrease in anti-ulcer drugs use from HII covering, while there is a significant increase in their use from out-of-pocket expenditure during 2004-2014. The total consumption of these drugs is very low in comparison with the developed countries in Europe.

Keywords: anti ulcer drugs, DDD/1000 inhabitants/day, drug utilization.

Introduction

An "ulcer" is an open sore. The word "peptic" means that the cause of the problem is due to acid. Peptic ulceration commonly involves the stomach, duodenum, and lower oesophagus. The most important symptoms that ulcers cause are related to bleeding. The two most important causes of ulcers are infection with *Helicobacter pylori* and a group of medications known as NSAIDs.

Healing can be promoted by general measures, stopping smoking and taking antacids and by antisecretory drug treatment, but relapse is common when treatment ceases. Nearly all peptic ulcers will be treated with a proton pump inhibitor (PPI). PPIs are powerful acid blocking drugs that can be taken as a pill or given in an IV. Sometimes duodenal ulcers (not gastric ulcers) will be treated with H2 blockers. H2 blockers are another type of acid reducing medication.

Our study tries to evaluate the level of access to and benefit of the ulcerous patients from the drug reimbursement scheme. It does also evaluate the level of coverage by the scheme of the necessary alternatives for the treatment of peptic ulcer disease during 2004-2014 in Albania.

Methods

The data were obtained from the Health Insurance Institute (HII) (1). All data were collected and analyzed reflecting the ambulatory and outpatient use for the period 2004-2014. The analysis included the total number of prescriptions, and quantities of drugs. The data about the population were obtained from the Institute of Statistics (INSTAT) (2). The data about the consumption of drugs were expressed as a number of Defined Daily Dose (DDDs)/1000 inhabitants/day. All drugs were classified by groups of Anatomic Therapeutic Chemical Classification (ATC).

Data on the levels of morbidity

From the database of HII there were extracted the general number of patients reported for each diagnose, for each year. Following, there were calculated the respective levels of annual morbidity (based on the respective code-diagnoses) for 1000 inhabitants.

Data on real consumption (import and domestic production)

For all the period under study 2004-2014 there were collected and analyzed data from the import and domestic production of the drugs (3), which represent the real consumption of drugs in the country. It was noted that the increase in consumption from one year to another were small, e.g. the consumption from 2011 to 2014 (i.e. 4 years) was increased by only 2.57%. Consequently, in order to obtain an updated study, there were chosen the data of import and domestic consumption only for the last three years, 2012, 2013, 2014, and those were involved in a comparative analysis with the equivalent consumption data according to HII. In order to minimize the effect of variations consumption-inventory balances from one year to another, it was calculated and put to analysis the annual average value of the three chosen years (on one hand that of the import and domestic consumption, and on the other hand that of HII).

Presentation of the results and statistical elaboration

The database of HII was modified in Microsoft Office Excel 2007, whereas the statistical elaboration of the obtained results was conducted with the statistical package StatsDirect (version 2.7.2.). A descriptive statistics was used to report all data on drugs consumption and the results obtained were displayed in tabular form as well as through the histogram method.

Average annual values of consumption in the country level and for each district were used as a basis to generate the overviews and the graphics that illustrate the trends of consumption for each class of drugs during the 10-years period 2004-2014. The linear regression model was used to evaluate the trends of consumption of drugs relative to the time. A value

of $p \leq 0.05$ was considered as significant.
In order to asses if there exists a correlation statistically significant between the level of consumption of drugs and the level of morbidity, it was applied the Spearman correlation (with a significance level of ≤ 0.05).

Results

The anti-ulcer agents included in the reimbursement list during these years were cimetidine, ranitidine and omeprazole. The most prescribed drug was ranitidine: 0.97-0.25 DDD/1000 inhabitants/day. At last comes cimetidine: 0.07-0.00 DDD/1000 inhabitants/day, while the consumption of omeprazole is 0.18-0.19 DDD/1000 inhabitants/day, respectively for 2004-2014.
The data of ulcerous morbidity show that there exists a statistically significant correlation between this morbidity and the trend in consumption of anti-ulcer drugs (p=0.0048) (Figure 1).

Figure 1. Consumption of anti-ulcer drugs in the national level (DDD/1000/inhabitants/day, 2004-2014) versus ulcerous morbidity (number of cases/1000/inhabitants)

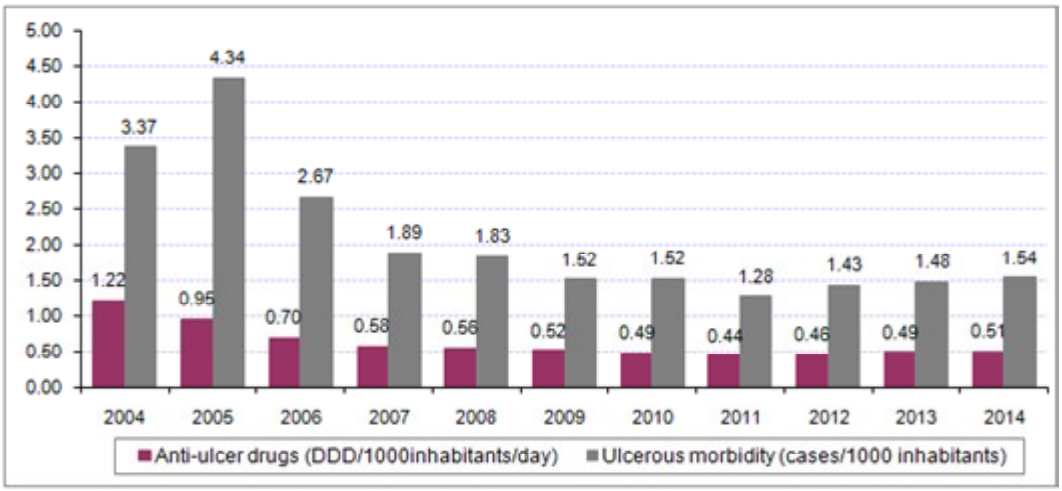
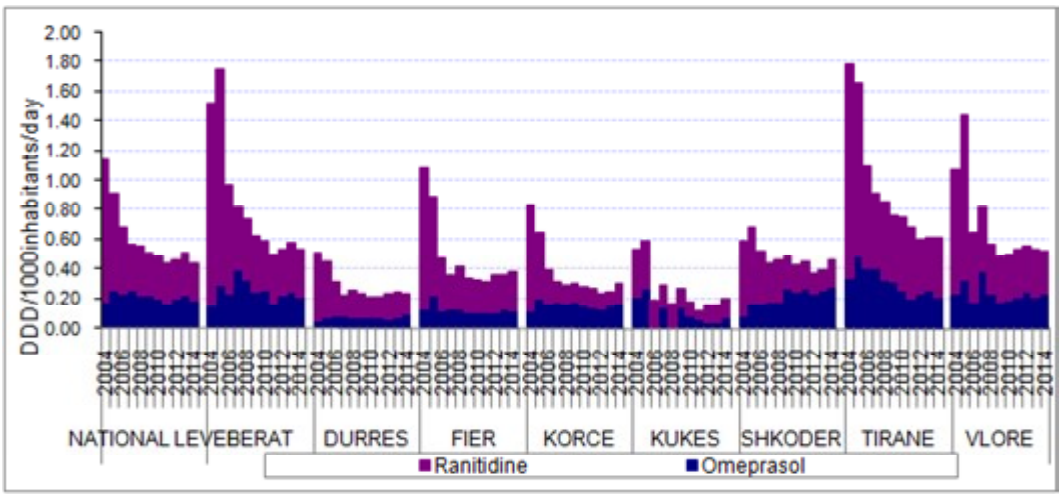


Figure 2. Comparative consumption of anti-ulcer drugs at the national level and in several country regions (DDD/1000 inhabitants/day)



The annual average value of anti-ulcer drugs consumption (PPI) and the annual average value of consumption of each PPI alternative, as a consumption from import (real actual consumption)

versus the consumption reported by HII (DDD/1000 inhabitants/day), are presented in Figures 3 and 4 respectively.

Figure 3. Annual average value of anti-ulcer drugs consumption (PPI): Consumption from import (real consumption) versus consumption from HII

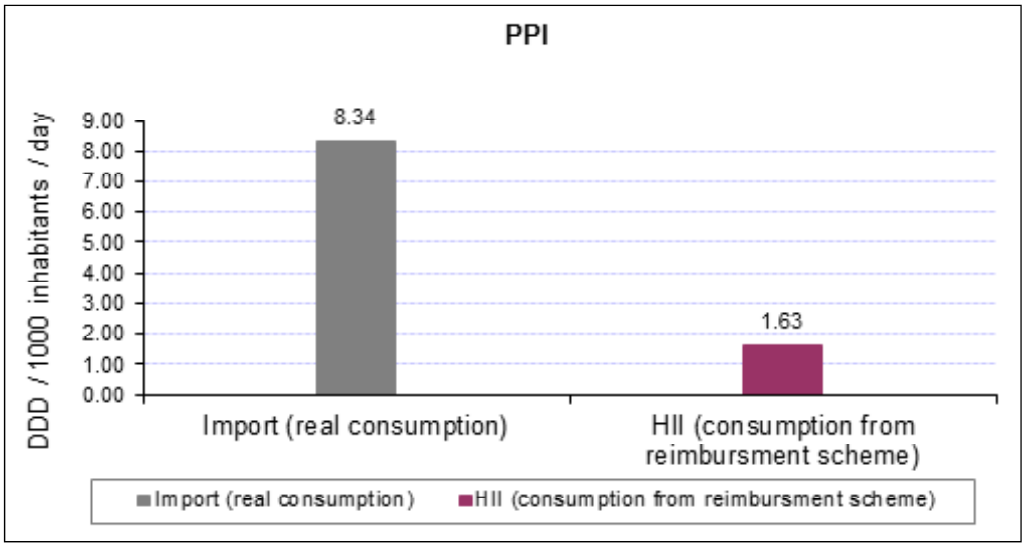
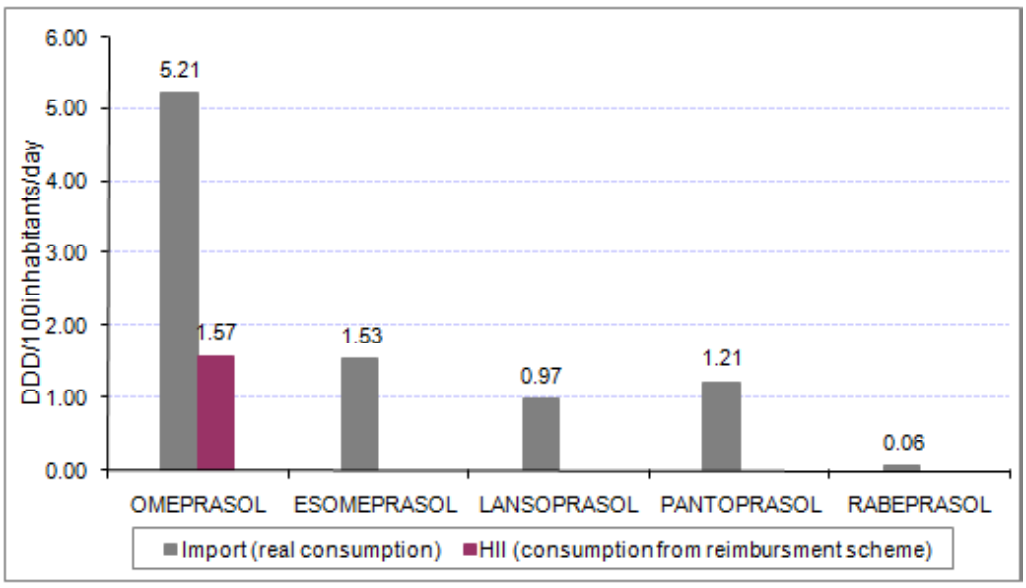


Figure 4. Annual average value of consumption of each PPI alternative: Consumption from import (real consumption) versus consumption from HII



Discussion

Figure 1 presents the consumption of anti-ulcer drugs (DDD/1000 inhabitants/day) versus ulcerous morbidity (cases/1000 inhabitants). There can be noted a visible discrepancy between the consumption of anti-ulcer drugs and ulcerous morbidity, indicating that only a minor part of the patients with

ulcerous disease actually benefit from the reimbursement scheme.

On the other hand, the trend of the ulcerous morbidity itself undergoes refraction, with the peak of increase in 2005, followed by a decrease in next years. Such decrease in the morbidity could partially reflect the healed cases, but this would be limited only to the years 2005-2008. In subsequent years, 2009-2014, the data on the morbidity show only a small increase.

Figure 2 shows that the consumption of anti-ulcer drugs varies visibly between the regions. Figure 3 presents a comparative consumption on the national level as well as in different regions, and clearly indicates an explicit variation in quantities consumed for each molecule. A common finding is that there is consumed a lot more ranitidine rather than omeprazole, while from the pharmacological perspective, PPI are superior compared to antiH_2 in the cure of ulcerous morbidity (4). Only during the last years (2008-2014), there can be noted a shift in consumption, with decrease antiH_2 receptors drugs and an increase of PPI, which is reasonable considering that PPI have the highest efficacy in the reduction of gastric hyperacidity.

The inhibition of hydrochloric acid secretion from PPI, although with a slow commencement of action, is more powerful and sustainable compared to H2 antagonists: they can be given once a day (4) considering the prolonged inhibition of the acid production. As a result, the cure of peptic esophagitis and of ulcerous disease with PPI is superior compared to with other anti-ulcer drugs.

The evident differences in the consumption of these drugs amongst different regions are difficult to explain with any significant changes in the ulcerous morbidity. This expressed lack of uniformity raises questions as to why this morbidity is so poorly cured e.g. in Kukës, Shkodër, Korçë, Durrës, compared to Tirana, Berat or Vlora, while instead the gastro-intestinal symptoms consist in the most common in the daily medical practice, with a prevalence of usually over 40% for persons over 75 years-old (5,6,7).

Figures 3 and 4 put emphasis on the poor coverage by the scheme of the necessary alternatives in the cure of peptic morbidity. The reimbursements scheme offers only omeprazole. Another issue which can be raised by analyzing these graphics is why the consumption of omeprazole under the scheme is such in lower values compared to the real consumption of omeprazole. This indicates that even this alternative, although covered by the scheme, is actually taken in large scale without prescription.

According to HII, omeprazole is reimbursed only for ulcerous disease and gastroesophageal reflux disease certified through endoscopic examination and the duration of the treatment is 4-6 weeks. After 4-6 weeks, the patient should re-perform the endoscopy in order for the family doctor to have the right to repeat the prescription.

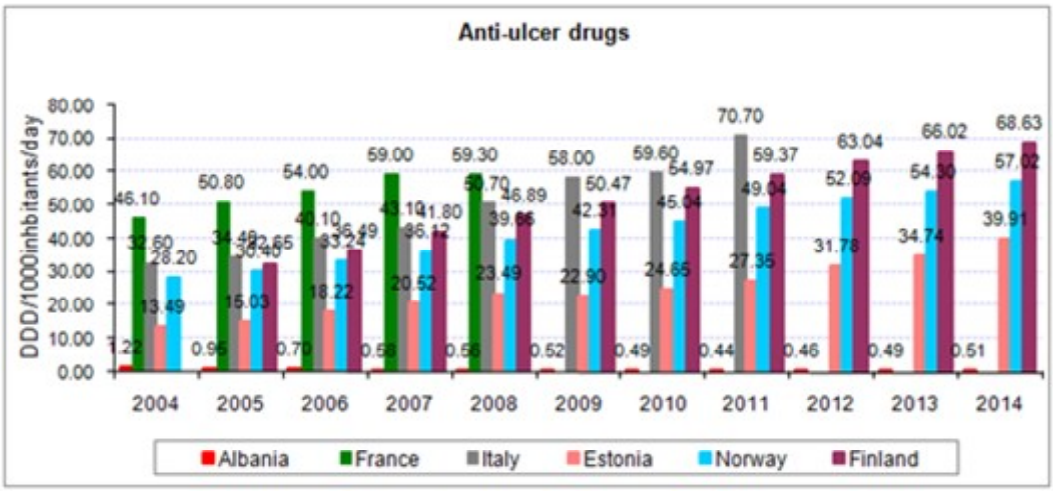
It is comprehensible that in a similar situation, the patient is almost conditioned to obtain the drug directly in the pharmacy by avoiding the consultation with the family doctor.

International comparison of consumption

As shown in Figure 5, the consumption of anti-ulcerous drugs in Albania, as compared to other countries, is very low (consumption values presented for all countries, including Albania, are the official values as referred by the respective reimbursement systems) (8-21). Consumption values which are the highest and show an increase year after year in all these countries are those of PPI. For example, in Italy, PPI during 2014-2009 is reported at 25.9-52.2 DDD/1000 inhabitants/day, whereas anti-H2 drugs at 2.8-1.8 DDD/1000 inhabitants/day (7). In 2004, in Italy (22), the consumption of omeprazole was 10 DDD/1000 inhabitants/day, whereas that of ranitidine 2.6- DDD/1000 inhabitants/day. There is a noticeable progressive growth of omeprazole consumption. In France, PPI: 39-52.1 DDD/1000 inhabitants/day, anti-H2: 2.4-1.7 DDD/1000 inhabitants/day (2004-2008) (6). A significant growth in PPI-consumption is noticed, especially in recent years. In Australia, the consumption of omeprazole indicates values of 278.9-220.8 DDD/1000 inha-

bitants/day (2002-2006); the decrease of omeprazole consumption is explained by the launch of other alternatives of the PPI class in the market and by the increase in their prescription, while the total consumption of the class grows (23).

Figure 5. International comparison in the consumption of anti-ulcer drugs class: Albania, France[8,9], Italy[10-12], Estonia[13-15], Norway[16-18], Finland [19-21]



Conclusion

There exists a significant decrease in anti-ulcer drugs use from HII covering, while there is a significant increase in their use from out-of-pocket expenditure during 2004-2014.

However the pattern of ulcerous morbidity corresponds with the pattern of anti-ulcer drugs use. The highest decrease was seen with the ranitidine use, while there is an increase in omeprazole use. The highest values of ulcerous morbidity were seen in 2005, which corresponds with the highest prescription of omeprazole in national level. The total consumption of these drugs remains very low in comparison with other European countries which probably reflect a significant part of consumption out of the reimbursement system.

Conflicts of interest: None declared.

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