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Letter to the Editor

Pharmacoeconomic Aspects of Treating Hemorrhoidal Disease-Cost of Illness Study Based on Data from Balkan Country with Recent History of Social and Economic Transition

Bojana Božović [1], Matija Radoičić [1], Slobodan Janković [2,3], Jelena Anđelković [4], *Marina Kostić [2]

1. *Department of Pharmacy, Faculty of Medical Sciences, University of Kragujevac, Kragujevac, Serbia*
2. *Department of Pharmacology and toxicology, Faculty of Medical Sciences, University of Kragujevac, Kragujevac, Serbia*
3. *Department of Clinical Pharmacology, University Clinical Centre Kragujevac, Kragujevac, Serbia*
4. *Veterinary Department, Medicines and Medical Devices Agency of Serbia, Belgrade, Serbia*

***Corresponding Author:** Email: marrina2006kg@yahoo.com

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Dear Editor-in-Chief

The recent pharmacoeconomic literature estimated that the economic burden of gastrointestinal diseases with chronic course is substantial (1,2) .The aim of this study was to evaluate total costs of treating haemorrhoidal disease in primary health care in Central Serbia. We have performed a pilot retrospective cost of illness study with bottom-up design from societal perspective with total sample size of 39 patients with haemorrhoidal disease (Ethical Approval Number 01-5099/2), 23 men and 16 women, aged 21 to 79 yr, who were treated in primary health care in Central Serbia from Apr 2016 to Apr 2017. All patients voluntarily completed the questionnaire in order to provide pharmacoeconomic and demographic data. The questionnaire was prepared using the available literature on haemorrhoidal disease (1-4).

Clinical data obtained by interviewing patients are presented in Table 1.

Table 1: Clinical characteristics of patient with haemorrhoidal disease

Variable , per year per patient	*Mean (min-max)*
Duration of haemorrhoidal disease (months)	23.43 (12-120)
The number of visits to general practice	2.82 (1–11)
The number of visits to surgeon	0.46 (0-3)
The number of visits to gastroenterologist	0.07 (1-3)
Total blood count (per year per patient)	0.26 (0-1)
The number of fecal occult blood tests	0.36 (0-1)
The number of coproculture tests	0.03 (0-1)
The number of abdominal ultrasound exams	0.61 (0-3)
The number of colonoscopies	0.49 (0-3)
The number of digital rectal examinations	0.08 (0-1)

The values of these medical services translated in direct, indirect and total costs are presented in Table 2. All values are expressed as mean ± SD with range (minimal-maximal value). For identifying the relationship between total costs and other variables, we have performed multiple regression analysis.

Table 2: The structure and total outpatient costs of treating haemorrhoidal disease per patient per year

Variable	*Costs (RSD)*	*Costs (EUR)*
Clinical examinations financed by NHIF	1,139.46 ± 817.16 (259.49-3,422.33)	9.60 ± 6.89 (2.19-28.85)
Diagnostic procedures financed by NHIF	3,645.68 ± 4,584.49 (0.00-19,760.00)	30.73 ± 38.65 (0-166.58)
Total direct costs	4,785.14 ± 4,925.53 (259.49-21,812.37)	40.11 ± 41.75 (2.18-183.886)
Pharmacotherapy costs paid by patients	9,188.62 ± 5,227.31 (583.97 -12,000.00)	77.46 ± 44.07 (4.92-101.16)
Costs of medical devices for personal hygiene	2,021.79 ± 3,541.50 (0 – 12,000.00)	17.04 ± 29.85 (0-101.16)
Costs due to special nutrition	5,373.59 ± 7,185.93 (2,500.00 -27,600.00)	45,30±60,58 (21.07- 232.67)
Costs due to transportation	308.46 ± 844.64 (0-3,600.00)	2.60 ± 7.12 0 – 30.35
Costs due to lost wages	1,314.55 ± 4,259.73 (0.00 -24,413.00)	11.08 ± 35.91 (0-205.81)
Costs due to diagnostic procedures in private medical practice	153.85 ± 960.77 (0-6,000.00)	1.30 – 8.1 (0- 50.60)
Total indirect costs	18,360.08 ± 13,297.66 (1,083.97-55,064.43)	154.78 ± 112.10 (9.14-464.21)
Total costs	23,145.23 ± 15,795.90 (1,699.90-63,333.43)	195.12±133.16 (14.33- 533.92)

The results of multiple regression analysis indicated that patient encounters in primary health care institutions account for total directs costs increase of 34.9% (R = 0.591; F (5,39)=3.453; $P<$ 0.05). On the other hand, surgical consultations result in the increase of the total cost of local treatments of 19.8% (R = 0.445; F (5,39) =1.583; $P<$ 0.05).

The portion of indirect costs was almost four times higher; indicating that financial role of patients in treating haemorrhoidal disease is relevant. The costs of pharmacotherapy comprised almost 50% of total indirect costs. This kind of allocation is anticipated, since medicinal products used for treatment of haemorrhoidal disease in the Republic of Serbia are, in most cases, completely financed by patients. We can expected that this portion of indirect costs has a greater impact than we observed, since negative correlation between compliance of patients and using adequate health care services is present if those services are financed only by patients. A possible reason for estimated lower total costs of treating haemorrhoidal disease in our study in comparison to results obtained in similar studies might be the fact that patients in our survey did not report surgical procedures. On the other hand, these differences could arise from specific social and economic background of the Republic of Serbia, where prices of medical services are significantly lower than in other countries of European Union, while prices of medicinal products are simi-

lar. This kind of discrepancy in valuing medical services translates into significant differences, not only in total costs of haemorrhoidal disease, but also in economic burden of other diseases, especially those with chronic course (5). Treating haemorrhoidal disease in primary health care setting, with consulting surgery specialist and with prescribing medicinal products for local treatment, generated more costs without definite solution of the medical problem.

Measuring economic burden of chronic disease as haemorrhoidal, using societal perspective is important within health systems of higher-middle-income countries with the recent history of social and economic transition. Furthermore, this kind of study is useful technique for pharmacists and other health professionals as a first step in conducting other pharmacoeconomic studies, like cost effectiveness analysis, and it can be used for better allocation and prioritization of health care budget in countries with recent history of social and economic transition.

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Conflict of interest

The authors declare that there is no conflict of interests.

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