Psychiatria Danubina, 2011; Vol. 23, No. 2, pp 178–182 *Original paper*
© Medicinska naklada - Zagreb, Croatia

PRESCRIBING CHANGES IN ANXIOLYTICS AND ANTIDEPRESSANTS IN SLOVENIA

Vesna Švab[1,2], Maja Šubelj[3] & Gaj Vidmar[4,5]

[1]*Psychiatric Hospital Ormož, Ormož, Slovenia*
[2]*Department of Psychiatry, Faculty of Medicine, University of Ljubljana, Ljubljana, Slovenia*
[3]*National Institute of Public Health, Ljubljana, Slovenia*
[4]*University Rehabilitation Institute, Republic of Slovenia, Ljubljana, Slovenia*
[5]*Institute for Biostatistics and Medical Informatics, Faculty of Medicine, University of Ljubljana, Ljubljana, Slovenia*

received: 1.9.2010; revised: 2.5.2011; accepted: 30.5.2011

SUMMARY

Background: *The ratio of anxiolytics to antidepressants is an indicator of the quality of treatment of depression and anxiety in primary care. The objective of the study was to investigate the prescription of anxiolytics and antidepressants among Slovenian family physicians, including patient demographics and possible time-trends.*

Subjects and methods: An e*xploratory survey and register-based analysis of anxiolytic and antidepressant prescriptions in 2005 and 2008 was performed. Drugs included in the study were classified according to an Anatomical-Therapeutic-Chemical (ATC) drug classification system, and ATC data were used to calculate defined daily doses (DDD) per 1,000 practice population per day. Descriptive analysis of anxiolytic/antidepressant ratio by patients' age, gender and region of residency was performed.*

Results: *Total amount of prescribed antidepressant drugs increased by 45% during the observed 3-year period, while total prescribing of anxiolytics decreased by 14%, leading to the anxiolytics/antidepressants ratio diminishing from 1 to about 0.5. The highest reduction in the ratio was observed in the northeast region, characterised by high social deprivation and one of the highest suicide rates in Europe. The highest prescribing of anxiolytics and antidepressants was observed in the central region around the capital Ljubljana.*

Conclusions: *The reduction of anxiolytic prescribing and increase in antidepressant prescribing indicates improvement in prescribing practice of Slovenian family physicians. There are big variations in prescribing among different Slovenian regions, which are attributable to the number of psychiatrists and access to psychiatric treatment.*

Key words: *family physicians - drug prescriptions - anxiolytics - antidepressants - ATC/DDD methodology*

* * * * *

INTRODUCTION

The ratio of anxiolytics to antidepressants has been described as a quality indicator regarding treatment of depression (which is in most cases combined with anxiety), as well as of anxiety disorders (Ciuna et al. 2004). The underlying premise is that antidepressants control anxiety without addiction side effects (Furst & Kocmur 2003).

Over the past five years, the quality of psychopharmacological treatment has been in the focus of postgraduate education of family physicians in Slovenia, including guidelines for treatment of depression and anxiety with antidepressant rather than anxiolytic medication. Lectures and educational sessions were organized by pharmaceutical companies and professional bodies, and close networks among psychiatrists, family physicians and medical nurses for early detection of psychiatric disorders and quality treatment are being established (Mesec Rodi et al. 2010). In addition, the regional Medical Officer of Health has intensified the process of identifying physicians having patients with a large turnover of addictive medicines prescriptions.

In order to examine the effects of these educational initiatives, we analysed the changes in psychopharmacological treatment of depression and anxiety within family practice in the three-year period from the time of the major implementation of the initiatives. The prescription of anxiolytics and antidepressants among Slovenian family physicians was assessed, as well as the utilization of anxiolytics and antidepressants with regard to age, gender and region of residence of the patient population.

SUBJECTS AND METHODS

The World Health Organization Anatomical-Therapeutic-Chemical classification system (ATC)/Defined Daily Doses (DDD) methodology was used to examine changes between the years 2005 and 2008 (Bergman 2006). The data were obtained from the national database of all prescriptions, which is maintained by the Slovenian Institute of Public Health. Prescription indications for drugs were not identified through data collection.

A representative sample of 160 family physicians (representing 10% of the respective population) was

selected by means of stratified random sampling. The sample was well-matched to their total population in terms of regional representation, age distribution, gender ratio and percentage of public and private practitioners. The study did not include physicians who worked part time, who were absent from work for over 3 months during the studied year, and/or those who were retired or worked at emergency departments. In order to ensure the physicians' collaboration, a letter explaining the aims and procedures of the survey was attached. A coding system was used to facilitate follow-up with two reminders in order to increase response rate, while keeping the family physician's identity confidential. Informed consent was obtained by 100 family physicians, yielding a 62.5% response rate. The sample did not differ from the non-respondents regarding gender and regional structure ($p = 1.00$ and 0.66 from Fisher's exact test, respectively), while the statistically significant difference regarding mean age was practically negligible (respondents: mean = 49, range = 31-68 years; non-respondents: mean = 46, range = 30-65 years; $p = 0.04$ from t-test). Further analyses were performed on the respondent sample because the non-respondents did not consent to the use of their data from the Slovenian Institute of Public Health prescription database.

Data on the prescribed medications were obtained for the year 2005 and 2008. In total, 121,638 prescriptions for anxiolytic and antidepressant drugs were analysed, 52,935 from 2005 and 68,703 from 2008, respectively. Data on the size and number of packages were obtained for each individual drug. Drugs were coded according to the ATC classification system. The number of DDD and DDD per 1000 practice population per day (DDD/1000/day) were calculated for anxiolytics and antidepressants using ATC indexes for 2005 and 2008. The required population data were obtained as publicly available from the Statistical Office of the Republic of Slovenia. Comparisons of the two calculated quantities regarding age, gender and region of residency of the patient population were performed within and between the two studied years. The anxiolytic/antidepressant ratio was calculated as a criterion of prescribing quality (Ciuna et al. 2004).

Ethical approval for the study was obtained from the Research Ethics Board of the University of Ljubljana.

RESULTS

The total amount of prescribed antidepressant drugs in Slovenia increased by 45% during the observed 3-year period, while total prescribing of anxiolytics decreased by 14%, leading to the anxiolytics/anti-depressant ratio reduction from 0.95 to 0.57.

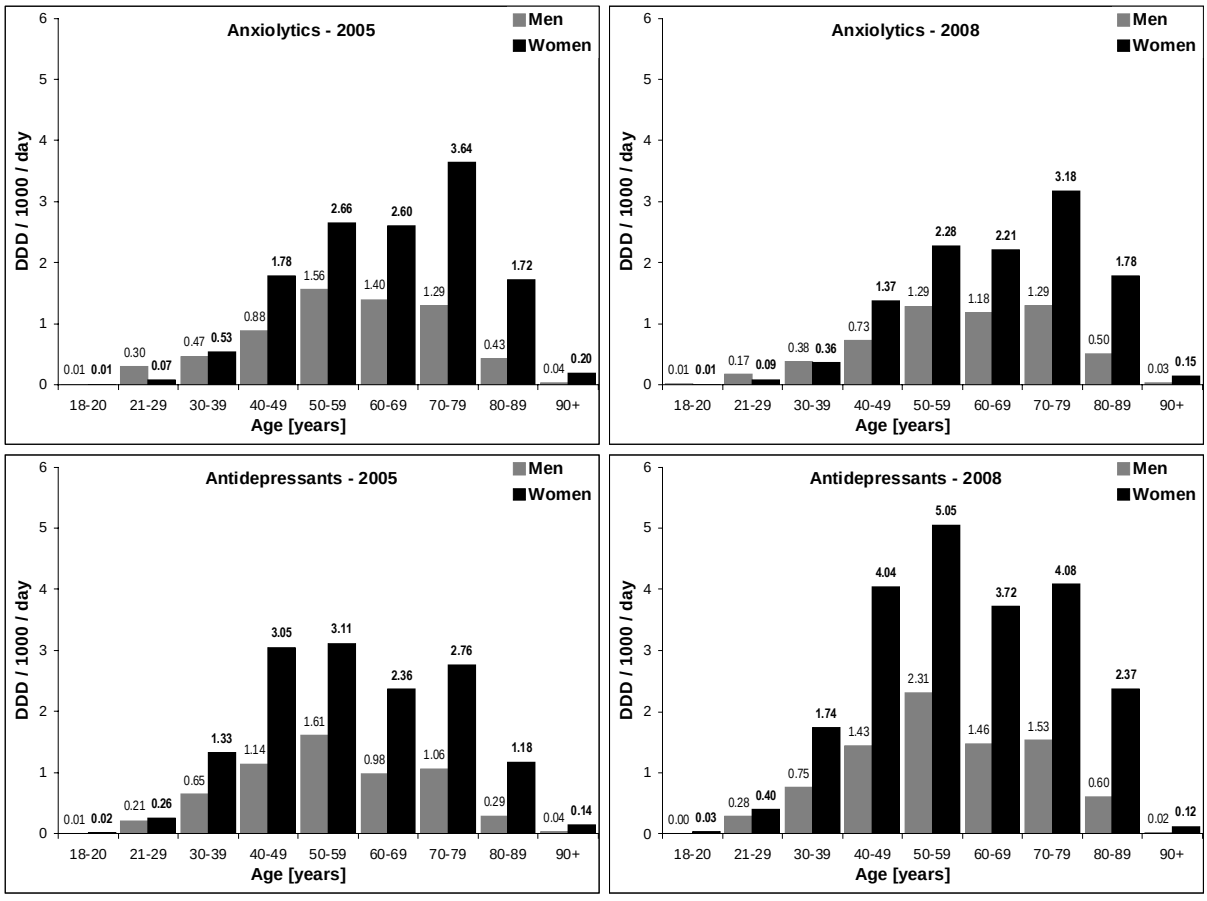

Figure 1. Prescribed anxiolytics and antidepressants by patient gender and age in the two studied years

Analysis of the gathered prescription data by gender and age is presented in Figure 1. In both studied years, women have been prescribed antidepressants much more often than men. Anxiolytics were more often prescribed to old age patients. The modal age of women who were prescribed anxiolytics was 75 years and 55 years of men in both studied years.

There were large differences between regions, as presented in Figure 2. Prescribing of anxiolytics and antidepressants is the most frequent in the central region, i.e., the one including and around the capital Ljubljana, and it is about 5 to 6 times larger than in the coastal region of Koper. In general, the prescribed amounts of antidepressants and anxiolytics are the largest in the three regions of the three largest cities and their respective surroundings (Ljubljana, Maribor and Celje). The biggest drop of anxiolytics/antidepressant ratio has been observed in the region of Ravne na Koroškem and the smallest one in the region of Murska Sobota.

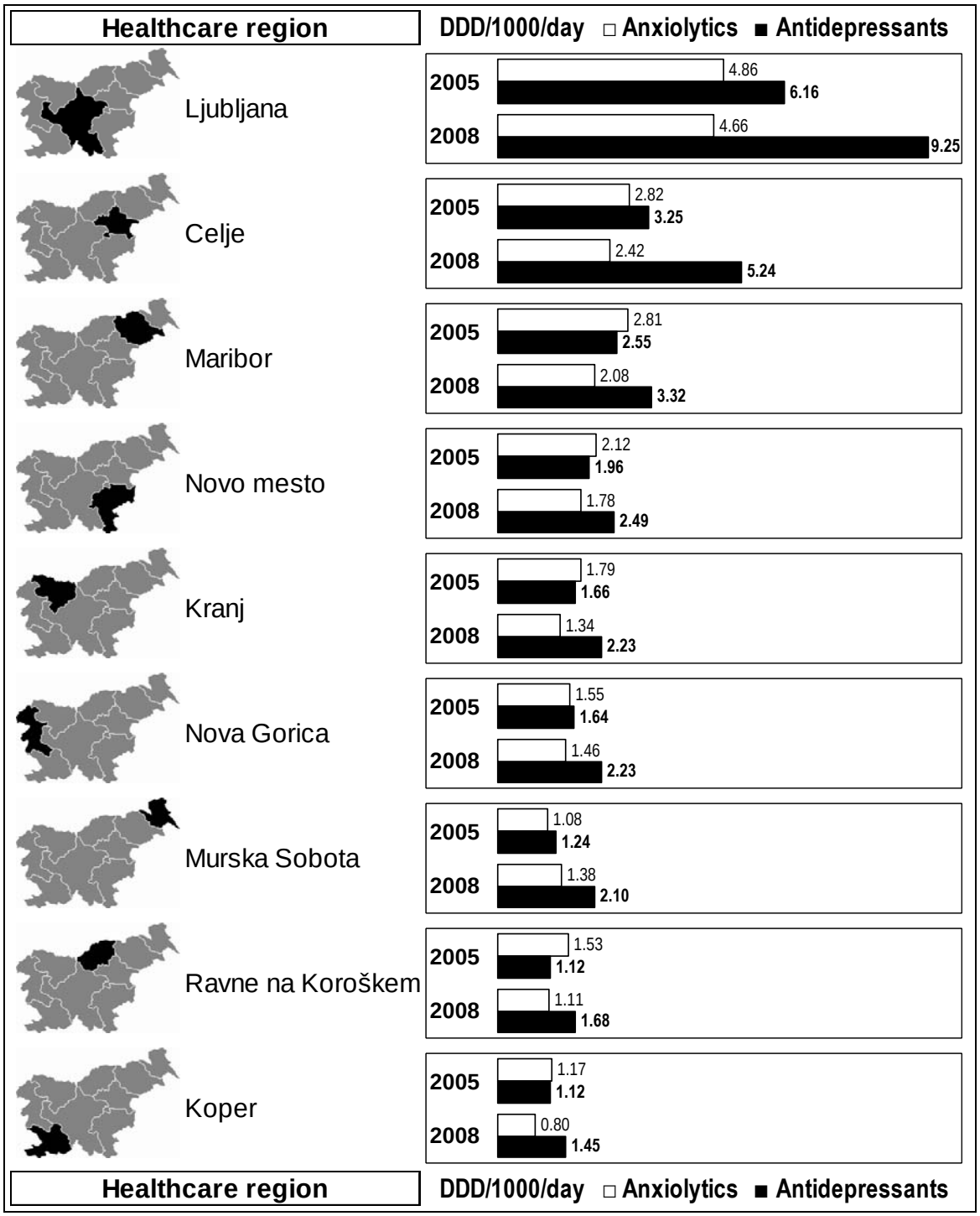

Figure 2. Prescribed anxiolytics and antidepressants in Slovenia by healthcare region (listed in decreasing order of prescribed amount) in the two studied years

DISCUSSION

The reduction of anxiolytic prescribing and increase in antidepressant prescribing indicates a significant improvement in psychopharmaceutical prescribing practice of Slovenian family physicians, whereby antidepressants as etiological therapy should prevail (Ciuna et al. 2004). A 40% decline of ratio among anxiolytics and antidepressants in the 3-year observation period is an indication of improvement of physicians' professional skills in treatment of anxiety and depression, the two being the most common mental disorders in general practice in Slovenia. The ratio is about 0.6, which is similar to Scandinavian countries, i.e., 0.7 in Finland, 0.4 in Denmark and Norway, and 0.3 in Sweden (Stimac et al. 2009).

Women are more often diagnosed with depression and anxiety and also more often prescribed psychopharmacological treatment than men. This result can be partly explained by higher prevalence of these mental disorders among women (Amarasinghe 2004), while the other part is explainable by women's better help-seeking and better verbalization of emotional problems (Van der Heyden et al. 2009).

The most concerning result of our research was the persistence of high anxiolytic prescribing in old age groups. The modal age for prescribing anxiolytics was 55 years for men and 75 years for women, which means that anxiolytics are mainly prescribed to the older population in general practices in Slovenia. One reason for this is the problem of discontinuation of anxiolytic treatment in the elderly population already addicted to these drugs, although the drugs tend to have little anxiolytic effect after prolonged periods of use (Pimlott et al. 2003). One of the problems is also the high workload of Slovenian family physicians, which further impedes the possibilities for thorough consultation with patients and subsequently for treatment choice (Subelj et al. 2009). A further reason for relatively high anxiolytic prescribing among the elderly population might be the objective constraints and subjective prejudice of family physicians against treating addiction in old-age patients.

However, information on patient diagnosis or on severity of symptoms would be needed to determine whether the present results reflect gender and age influence on medical care, i.e., over-prescription of antidepressant medication to old-age females and/or under-prescription to males (Vrublevska et al. 2008).

There are large variations in prescribing among different Slovenian regions, which are at least partly attributable to the number of physicians and access to psychiatric treatment (Mesec Rodi et al. 2010). The highest rate of utilization of anxiolytics and antidepressants was observed in the central region around the capital Ljubljana, which has the highest number of family physicians and psychiatric facilities. Lower prescribing was observed in peripheral regions and can be connected with low number of psychiatrists (their number in low-prescribing areas is 5-fold lower than in high-prescribing ones) and family physicians, which leads to lower recognition and treatment of mental disorders and under-prescription of psychiatric medication (Lecrubier 2007). However, several other factors may influence these differences, such as high unemployment rate among the urban population that may be followed by higher rate of depression; less medical-help-seeking attitude among the rural population, and possible over-prescription in the Ljubljana region (due to so-called medicalisation of every-day life).

The highest absolute and relative decline of the anxiolytic to antidepressant ratio was observed in the region of Ravne na Koroškem (relative by 52%, absolute by 0.71), followed in relative terms by the regions of Celje and Koper (reduction by 47% and 46%, respectively) and in absolute terms by the regions of Koper and Kranj (reduction by 0.49 and 0.48, respectively). The ratio decreased the least in the region of Murska Sobota, where the initially third lowest ratio of 0.87 in 2005 decreased only to 0.66 (i.e., by 25%), which was the third highest ratio in 2008.

The main reasons why practitioners in the region of Ravne na Koroškem took the guidelines' message about treatment of anxiety and depression the most seriously probably lies in the high initial ratio, which was by far the highest among all regions in 2005 (1.37, the next largest one being 1.10). On the other hand, the observed time-course of the anxiolytic to antidepressant ratio in the region of Murska Sobota (i.e., Pomurje) is worrying because it is a region with high alcohol consumption and very high alcohol-related morbidity and mortality (Kovše 2009), as well as having one of the highest suicide rates in Europe (Mesec Rodi et al. 2010). Furthermore, the number of physicians and outpatient psychiatric services per capita is low, and social problems are pronounced because it was the earliest and hardest hit by the late-2000's economic crisis among Slovenian regions (Skledar 2010, 2011).

Appropriate interventions to address such problems should complement continuous education of family physicians (Rojnić Kuzman et al. 2010) with improving their time constraints and expanding the mental health services in the region, thus improving access to counselling and support. It should be noted that the international suicide prevention strategy has not been implemented in Slovenia in recent years due to financial, political and human resource constraints (WHO Regional Office for Europe: Suicide Prevention in Europe 2002). Since the economic crisis further worsened social deprivation, unemployment and poverty, further research is needed to monitor changes in prescribing trends in the forthcoming years.

Regarding the limitations of our study beside those already mentioned, the relatively short period of follow-up of prescribing patterns should be mentioned, even though the reduction in the anxiolytics/antidepressants

ratio suggests that the change in prescription habits was achieved. Other long-term changes, use of excessive medication doses, duration of therapy and use of different benzodiazepine derivatives were also not examined due to the limitations of the data source.

CONCLUSION

The practice of prescribing antidepressants and anxiolytics seems to be substantially improving in Slovenia in the last few years. The problem remains in the treatment of elderly females with anxiolytics and in under-treatment of the whole population in remote and underprivileged areas.

REFERENCES

1. *Amarasinghe AW: WHO's world health report 2003: time to ease the mental health burden. BMJ 2004; 328(7434):288.*
2. *Bergman U: The history of the drug utilization research group in Europe. Pharmacoepidemiol Drug Saf 2006; 15:95-98.*
3. *Ciuna A, Andretta M, Corbari L, Levi D, Mirandola M, Sorio A & Barbui C: Are we going to increase the use of antidepressants up to that of benzodiazepines? Eur J Clin Pharmacol 2004; 60:629-634.*
4. *Fürst J & Kocmur M: Use of psychiatric drugs in Slovenia in comparison to Scandinavian countries. Pharmaco-epidemiol Drug Saf 2003; 12:399-403.*
5. *Kovše K. Poraba alkohola in kazalci škodljive rabe alkohola v Sloveniji v letu 2007. Ljubljana: Inštitut za varovanje zdravja RS, 2009.*
6. *Lecrubier Y: Widespread underrecognition and undertreatment of anxiety and mood disorders: results from 3 European studies. J Clin Psychiatry 2007; 68:36-41.*
7. *Mesec Rodi R, Roškar S & Marušič A: Suicide victims' last contact with the primary care physician: report from Slovenia. Int J Soc Psychiatry 2010; 56:280-287.*
8. *Pimlott NJ, Hux JE, Wilson LM, Kahan M, Li C & Rosser WW: Educating physicians to reduce benzodiazepine use by elderly patients: a randomized controlled trial. CMAJ 2003; 168:835-839.*
9. *Rojnić Kuzman M, Bolanča M & Rojnić Palavra I: General practice meeting the needs for psychiatric care in Croatia. Psychiatr Danub 2010; 22:57-63.*
10. *Skledar Š. EIRO Annual Review – 2008. Ljubljana: Institute of Macroeconomic Analysis and Development; 2010.*
11. *Skledar Š. Slovenia: EIRO Annual Review – 2009. Ljubljana: Institute of Macroeconomic Analysis and Development; 2011.*
12. *Štimac D, Vukušić I, Čulig J, Šostar Z & Bucalić M: Outpatient utilization of psychopharmaceuticals: comparison between Croatia and Scandinavian countries (2001-2003). Coll Antropol 2009; 33:237-243.*
13. *Šubelj M, Vidmar G & Švab V: Prescribing of benzodiazepines among Slovenian family physicians. Zdrav Var 2009; 48:162-169.*
14. *Van der Heyden JH, Gisle L, Hesse E, Demarest S, Drieskens S & Tafforeau J: Gender differences in the use of anxiolytics and antidepressants: a population based study. Pharmacoepidemiol Drug Saf 2009; 18:1101-1110.*
15. *Vrublevska K, Rukmane J, Burmistrs R, Sipols J & Muceniece R: Dispensing of psychotropic drugs to adults in community pharmacies in Latvia. Pharm World Sci 2008; 30:934-939.*
16. *WHO Regional Office for Europe: Suicide Prevention in Europe: The WHO European monitoring survey on national suicide prevention programmes and strategies, 2002.*

Acknowledgements
We thank all the physicians who participated in the study.

Conflict of interest
There was no conflict of interest in this study.

Funding
The study was partially funded by the University Psychiatric Hospital Ljubljana, Slovenia.

Correspondence:
Assist. Prof. Gaj Vidmar, PhD
University Rehabilitation Institute, Republic of Slovenia
Linhartova 51, SI-1000 Ljubljana, Slovenia
E-mail: gaj.vidmar@ir-rs.si, gaj.vidmar@mf.uni-lj.si