

The pattern of benzodiazepine prescribing among general practitioners in Slovenia

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ABSTRACT

Background: Among the psychotropic drugs prescribed in medicine, benzodiazepines are most frequent. In spite of their excellent anxiolytic effect, their side effects have been identified for decades: cognitive deficit, drug dependence and even home injuries (such as hip fracture), particularly in the elderly. It has been estimated that 70% of all prescriptions are issued by general practitioners. Routinely collected data gives little insight in doctors' decision making. Several factors determine drug prescribing, such as current guidelines, the health insurance limitations, price of drugs, lack of time in consultation, individual style of prescribing doctor, doctor-patient relationship etc.

Aim: The aim of the study was to provide an overview on psychotropic drugs prescribing in Slovene general practice.

Methodology: A representative sample consisted of 42 general practitioners have recorded 300 consecutive consultations in their practice during regular work. The database consisting of 12.296 consultations data was analysed on drug prescribing.

Results: Among 519 patients, who received prescriptions for benzodiazepines, 511 received one and 8 received two prescriptions. Among the ones who received these prescriptions, women were more frequent ($p < 0,001$). These patients were older than the average visitor of the practice (60, 0 vs. 51, 5, $p < 0,001$) and their level of education was lower. In 438 pts (3, 5% of all), benzodiazepines were prescribed in combination with other medication and in 81 (0, 6% of all) benzodiazepines were the sole medication prescribed.

Conclusions: Data suggest that benzodiazepines are prescribed mostly to elderly female population, probably more vulnerable and prone to fractures, especially due to osteoporosis. The fact that majority of benzodiazepine prescriptions were issued in combination with other medication, raises question of drug interactions.

Further research is needed to assess the cases of inappropriate, harmful and possibly over-prescribing of psychotropic drugs in general practice. More education in this area would be needed on undergraduate and postgraduate level of medical students.

Keywords: general practitioner, prescribing of psychoactive drugs, cross-sectional study

INTRODUCTION

It has been estimated that 70 % of all prescriptions are written by general practitioners (1). Drugs prescribing is influenced by several factors: guidelines, individual style of prescribing doctor, health insurance limitations, patient expectations, motivation, price of drugs, professional education, marketing, time limitations for the consultation, doctor-patient relationship etc. (1). For adequate understanding of the complexity of drug prescribing, all the elements should be considered. These elements create a complex model of prescribing in general practice, and can be included into three main categories: the influence of medical doctrine, the relationship between doctor and patient, and the influence of economical circumstances (2).

Benzodiazepines have been widely prescribed since the 1960ies and several million people have been using them. In comparison to other psychotropic drugs, benzodiazepines are effective acute anxiolytic and hypnotic medications with a relatively agreeable safety profile. In spite of it, there are some aspects of benzodiazepine prescribing that raise concern mainly due to over prescribing and consecutive long term use, abuse and physical dependence and also improper or unnecessary prescribing. It has been proved that the use of benzodiazepines, even if administered in low, therapeutic dosage, can evoke drug dependence following a short term use (3, 4). Likewise, special attention should be devoted to the aging of general population. The researchers are concerned with the multi-morbidity of this group, and have been able to prove the connection between benzodiazepine prescribing in the group older than 65 years, and home injuries, especially hip bone fracture; as the influence of these drugs on psychomotor functioning has been proven (5,6).

The most frequent indication for benzodiazepine prescribing is anxiety disorders. Modern treatment guidelines suggest only short term use and combining benzodiazepines with antidepressants or using antidepressants only (7).

Particularly in the elderly population, chronic insomnia has been a misused indication for prescribing benzodiazepines (8).

The American Psychiatric Association guidelines for treating anxiety disorders recommend the initial treatment with antidepressants, and additional prescriptions of benzodiazepines only in case of acute anxiety, whereas long term treatment with benzodiazepines is not advised (9,10).

The misuse of benzodiazepines could be subdivided into two patterns:

- conscious misuse/abuse by the people with co morbid alcohol use, use of other drugs and psychoactive substances for the purpose of their euphoric effect,
- no intentional abuse/misuse in patients, who started taking benzodiazepines for the alleviation of anxiety symptoms and ended up misusing them, due to prolonged administration, increasing of dosage and/or continuation of taking benzodiazepines after the remission of the anxiety symptoms (11).

Benzodiazepines are rarely the only substance of abuse (9). Most frequently, they are combined with alcohol and opioids, administered during methadone therapy for the »boost« of euphoric effect, for relief of withdrawal symptoms between doses of opioids, alcohol or cocaine, they are also used as »the drug of choice« for alleviating the

withdrawal symptoms during the treatment of substance abuse (most frequently used are diazepam, lorazepam and alprazolam) (11-14).

Slovenia is a country where the use of benzodiazepines is monitored at national level. Until now, there has been no systematic study that would look at rational benzodiazepine prescribing at national level, although some articles about the quality of prescribing have been published from 2003 to 2006 (15-17).

The aim of the study was to provide an overview of benzodiazepine prescribing on a representative sample of general practitioners.

METHODOLOGY

Out of 50 general practitioners, chosen at random from the register of Slovene Association of General/Family Practitioners and invited into the study, 42 (which is 6% of all general practitioners) responded (84% response). They were asked to register 300 consecutive consultations in their practice or on house calls during the regular office hours. A special form was developed for the purpose of the study. The used methodology was based on collaboration with the MATRA project, the partner was Slovene Ministry of Health. The time for every visit was estimated with 30 seconds accuracy tolerance. At the end of every working day, a form was filled, specifying the character and number of consultations on the respectable day.

The time of study was limited to 6 months between to 6 months, between Oct.1, 2003 and March 31, 2003. In that time, 12296 consultations were registered.

Beside the consultations in the GP's office and house visits, contacts with the primary care without clinical /physical examination of the patient were also registered, such as issuing a prescription, a sick-leave certificate, a referral or filling out a form were also registered. Emergency interventions outside the practitioner's office were also registered, if they occurred within the regular office hours.

The questionnaire consisted of the basic data about the patient (gender, age, education). It identified the consultation concerning the presence of the patient, the purpose of the visit, the character of consultation. The information about the diagnostic procedures, referrals, therapeutic measures, including drug prescribing, was also collected.

At the end of the study every participating practitioner filled out a form with the basic data about his practice: the number of registered patients, the location of the practice, the mode of employment of the practitioner (self-employed, working at a state-sponsored clinic etc.), the education of the practitioner (specialist exam, MSci, MPh etc).

During the analysis 2, 4% (304) of questionnaires had to be excluded as incomplete. The diagnoses were classified according to the international ICOC system, while the medication was classified in accordance with ATC system. The data was entered by the Department of computer science and informatics, University of Ljubljana, and analysed with the SPSS statistics package, version 11. The border of $p < 0,05$ was designated as statistically significant.

The study was approved by the Committee for Medical Ethics of the Republic of Slovenia.

RESULTS

1. The description of the sample

Data of about 12296 consultations in 42 general practices was collected in the course of the study. Among the visitors, 45,2% male and 54,8% female were recorded, in average they were 51,7 years old (from 0 to 97 years, SD 19,0 years). 41% had elementary school only, 11,3% had academic education (college graduation or higher), the rest had professional education or high school graduation.

2. Character, duration and purpose of the consultation/visit

72,3% of all consultations consisted in presence of the patient included physical examination, whereas in 27,7% the patient was not physically present (consultation via telephone, relatives etc.). 47% of all visits were due to acute health problems and 30,5% were those of chronic disease.

3. The average burden of doctors and the duration of consultations

The doctors had on average 1789 patients on their list (from 862 to 3186, SD 436 patients).

On average, the participating doctors had 45,6 consultations daily (SD 9,98), on average there was 31,03 consultations including physical examination (SD 7,24) and 14,54 consultations without physical examination (SD 6,95).

The average time of consultation was 7,08 minutes (from 0,50 min. to 150 minutes, SD 6,28 minute). Counting only consultations in physical presence of the patient, the average time was 8,50 min (SD 3,36); other consultations (over the telephone, with relatives of the patient etc.) lasted on average 3,38 minutes (SD 3,36).

4. Drug prescribing

Drug prescription was the most frequent therapeutic measure. Patients received at least one prescription in 58,1% of all consultations. Among those, who received prescriptions, the average number of prescriptions was 1,95 (from 1 to 9, SD 1,342).

5. Benzodiazepine prescribing

Benzodiazepines were prescribed to 519 patients (4,2% of all). Out of these patients, 511 patients received one and 8 patients received two prescriptions for benzodiazepines.

In the group who received benzodiazepines, women were more frequent ($p < 0,001$).

They were significantly older than the average visitor of the practice (60,0 vs. 51,5 years, $p < 0,001$)

The level of education in the group, receiving benzodiazepines, was lower than the level of education in the observed group. In the whole group of patients observed, 53,4% had at least basic education (completed elementary school the group receiving

benzodiazepines, only 40, 8% had at least basic education and the rest of the group had lower level of education. The difference was statistically significant ($p < 0,001$) Benzodiazepines were occasionally prescribed in combination with other medication. In the benzodiazepine group, to 438 patients benzodiazepines were prescribed in combination with other medication) 3, 5% of all patients and 84, 3% of the benzodiazepine group) whereas 81 pts (0, 6% of all and 15, 7% of the benzodiazepine group) received solely the prescription for benzodiazepines.

DISCUSSION

From a pharmacologic perspective, benzodiazepines remain the most effective acute anxiolytic agents (18). In our study, it has been proved that the benzodiazepine users were older, predominantly female and less educated than the average participant. Definitely, this population is more vulnerable, prone to fractures (due to osteoporosis) and less aware of the potential side-effects of the drugs.

Our results show benzodiazepine prescription in 4, 2% of all consultations. The data observed is higher than the proportion of chronic users and lower than the percentage of occasional users (10 to 20%). Most likely, the cross – sectional study registered some chronic users and some »occasional« ones.

It has been proved that the group of patients receiving benzodiazepines in our study was significantly older than the rest of the population observed ($p < 0,001$). The concern about the elderly, who are more vulnerable and most at risk for adverse drug effects, is more than appropriate.

Potential interactions among benzodiazepines prescribed and other medication could cause a potential risk. Our results show that 84, 3% of the benzodiazepine users were also prescribed other medication. As we already showed that this group of patients was older than the overall average age in this study, multiple drugs could present a potential risk to the fragile and multi-morbid elderly. Further analysis of drug interactions in this group would be required.

The level of education in the benzodiazepine group of patients was significantly lower than in the rest of the group observed. It could signify that less educated people experience more anxiety disorders are more demanding towards the prescribing doctor of less informed and less educated as to the adverse effect of benzodiazepine therapy.

In our cross-sectional study, no inquiry has been made as to the side – effects of the therapy, neither acute no chronic. Maybe that would not only assess the side effect but also raise awareness of the potential downside of these medicines.

CONCLUSIONS

According to our results, the population receiving benzodiazepines is elderly, more vulnerable and less educated.

Further research, targeting the side effects of the drugs in this population as well as drug interactions would be needed.

Likewise, raising awareness of the potential harm done by excessive prescribing of benzodiazepines should be recommended not only in pre- and postgraduate level of medical education, but in general public as well.

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References

1. MC Govack H. The prescribing jigsaw: getting prescribing cost into perspective. In: Kochen MM. Drug education in general practice. London: The Royal College of General Practitioners 1995; 30-43.
2. Forster DP, Frost CEB. Use of regression analysis to explain the variation rates and costs between family practitioner committees. *Br J Gen Pract* 1991; 41:67-71.
3. Murphy SM, Owen RT. Withdrawal symptoms after six weeks' treatment with diazepam, *Lancet* 1989; 2:1389.
4. Hollister LE. Valium: a discussion of current issues. *Psychosomatics* 1988;18:44-58.
5. Ostrom JR, Hammarlund ER, Christiansen DB, Plein JB, Kathley AJ. Medication usage in elderly population. *Med Care* 1985; 23: 157-164.
6. Royal Collage of Psychiatrists. Benzodiazepines: misuse, benefits or dependence.
7. Rosenbaum JF. Attitudes towards benzodiazepines over the years. *J Clin Psychiatry* 2005; 66 (supl 2): 4-8
8. Hollbrook AM, Crowther R, Lotter A, Cheng C, King D. The diagnosis and management of insomnia in clinical practice: a practical evidence – based approach. *CMAJ* 2000; 162:216-8.
9. Solzman C. The APA task Force Report on benzodiazepine dependence, toxicity and abuse *Am J Psychiatry* 1991;148:151-2.
10. Stevens JC, Pollack MH. Benzodiazepines in clinical practice: Considerations of their long term use and alternative agents. *J Clin Psychiatry* 2005; 66 (supl 2): 21-7.
11. O'Brien CP. Benzodiazepine use, abuse and dependence. *J Clin Psychiatry* 2005; 66 (supl 2): 28-33.
12. Longo LP, Johnson B. Addiction: Part 1. Benzodiazepine side-effects, abuse risk and alternatives. *Am Fam Physician* 2000; 61:2121 – 8.
13. Roache JD, Meisch RA. Findings from self administration research on the addiction potential of benzodiazepine. *Psychiatric Ann* 199.
14. Parron TV. Prescription drug abuse. A question of balance. *Med Clin North Am* 1997; 81:967-78.

15. Kersnik J, Peklar J. attitudes of Slovene general practitioners towards generic drug prescribing and comparison with international studies. *J Clin Pharm Ther* 2006; 31(6): 577-83.
16. Petek Šter M, Kersnik J. Knowledge and acceptance of hypertension guidelines and clinical practice. Experience from Slovenia. *Wien Klin Wochenschr* 2005; 117(15-16): 534-40.
17. Car J, Svab I, Kersnik J, Vegnuti M. Management of lower urinary tract infection in women by Slovene GPs. *Fam Pract* 2003; 20(4): 452-6.
18. Uhlenluth EH, Balter MB, Ban TA e tal. International study of expert judgment on therapeutic use of benzodiazepines and other psychotherapeutic medication, pt2: pharmacotherapy of anxiety disorders. *J Affect Disord* 1995; 35:153-162.