

THE PREVALENCE OF BENZODIAZEPINE USE IN THE OLDER INPATIENTS AT NATIONAL GERIATRIC HOSPITAL

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The objective was to identify the prevalence of benzodiazepine use in older inpatients. A cross-sectional descriptive study was conducted at National Geriatric Hospital in 2020 with 258 participants aged 60 and older. Benzodiazepine use was assessed through interview older in-patients about all of sleeping pills they have used before being admitted to the hospital and combined with review of the medical record. The mean age was 73.9 years old. There were 11.2% older patients using benzodiazepines. Only 20.7% patients used benzodiazepines every month, 18.3% used once in 2 - 3 months, and more than a half of older inpatients (65.5%) had used these drugs a few times per year. The mean time of using per month among benzodiazepines users was 7.37 (SD = 6.93). The reduction in the prescription of these drugs should be assessed individually, considering the physiological alterations of the elderly and their adverse effects, in order to minimize incorrect prescriptions.

Keywords: benzodiazepine use, elderly, inpatients.

I. INTRODUCTION

Benzodiazepine is a class of psychoactive drugs which increase the effect of neurotransmitter gamma-amino butyric acid (abbreviated as GABA) at the GABAA receptor. As a result, the main effects of benzodiazepine are sedative, anxiolytic (anti-anxiety), muscle relaxation, anticonvulsant and hypnotic (sleep-inducing). In Quebec, during 1995, more than one-third of adults 65 years of age or older received at least one prescription for a sedative, hypnotic or anti-anxiolytic, the majority of these drugs being benzodiazepines.¹ Besides of the great effects that benzodiazepines bring to most of patients who suffer from anxiety, convulsions or insomnia, its bad side effects are seen in parallel but was less be concerned than the benefits. The sides effects are drowsiness, dizziness, impaired motor coordination,

confusion, decreased concentration, or even memory and cognitive impairment with long-term use.² In addition, users' abuse will result in overdose, drug dependence and poisoning. The elderly also suffers from metabolism impairment and are more sensitive to benzodiazepines, therefore they have higher risk of adverse effects than younger people. The American Geriatrics Society have advised against prescription to older people but there is still a massive over-prescription to this age group.³ The prevalence of benzodiazepine use in the United States is 6.2% (???- is this number correct?) but not Brazil (18.3%) and Australia 6.2 (16%). This prevalence was a bit higher in some European countries such as, Italy (21.5%) and France (31.9%). However, in an Asian country - Taiwan, the prevalence of using this medication in elderly was much higher with approximately 43%. In Vietnam, there were some studies about prevalence use benzodiazepines but studies on older people are still limited. Therefore, the study was conducted

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to identify the prevalence of benzodiazepine use in the older inpatients.

II. SUBJECTS AND METHODS

1. Study subject: Older in-patients from 60 years old and older were being treated in National Geriatric Hospital.

Inclusion criteria: In-patients 60 years and older at the National Geriatric Hospital, patients and patient's family agreed to participate, had the physical and cognitive abilities to do a face-to-face interview.

Exclusion criteria: patients with acute and life-threatening conditions such as acute stroke, myocardial infarction.

2. Study design

Research method: a cross-sectional descriptive study. The sample size was collected based on the entire sampling method and was calculated by using the formula:

$$n = \frac{Z_{1-\alpha/2}^2 p(1-p)}{d^2}$$

From the formula, the estimated sample size was $n = 229$ older patients. The number of older patients in our study was 258 ($p = 0.183$). The prevalence of using benzodiazepines was 18.3% according to the research of Mariana Macedo and colleagues⁴

Location: National Geriatric Hospital (Hanoi, Vietnam).

Time: The research was conducted from January to April 2020.

Variables and indicators: Demographic characteristics include: Age, gender, living area, marital status, educational level, occupation, and living status, Body Mass Index was categorized by the WHO guideline in BMI classification on Asian: Underweight (<18.50), Normal ($18.50 - 22.99$) and Overweight (\geq

23.00). Benzodiazepine use: older inpatients were interviewed about all of sleeping pills used before hospital admission and other information was combined from the medical record. The study started with an explanation to patient that benzodiazepines is a kind of prescribed medicine to assist with falling asleep, commonly used are seduxen and diazepam. Then medical record was reviewed as well as the patients were asked if they have used benzodiazepines or not (both medications were prescribed by doctors or OTC benzodiazepines). If the answer is "yes", then move to the next questions. If the answer is "no", then skip asking about benzodiazepines.

Frequency (every month, once in 2 - 3 month or few times per year) and duration are obtained by asking the participant to list the exact total number of months which they used this medication, and the number of benzodiazepines used per month.

3. Data processing and data analysis

The process of data coding, entry and analysis was done by using the Statistical Package for Social Science (SPSS) software (version 22). Descriptive statistics were adopted to examine characteristic data: frequency, percentage, mean, standard deviation.

4. Ethical consideration

The study was conducted at the National Geriatric Hospital. Study subjects were explained clearly about the purpose of the study, and they were willing to participate in the study. Study tool was not involved in sensitive or intimate problems, and did not affect the subject's emotion. Collected data was used for research. The results of the study were intended for improving community health and not for any other purposes.

III. RESULTS

1. General characteristics

The demographic details of the patients in this study are shown in Table 3.1. The age of sample was from 60 to 98 with the mean age was 73.90 years old. The greatest distribution was generated by people aged from 60 to 69, with a percentage of 38.4%. People from 70 to 79 years old represented 32.2% and people over 80 years old accounted for 29.5%. Among 258 participants, the percentage of female participants accounted for 46.9% (n = 121) while the male participants were 53.1% (n = 137). The number of married participants (76%) was higher than single/ divorced/ widowed (24%). Most of the older patients live with their family (86.4%). More than a half of participants 56.2% had normal BMI (145) while 20.2% (n = 52) were overweight and 23.6% (n = 61) were underweight.

Table 1. Patient's Demographics (n = 258)

Characteristics	Frequency (n)	Percentage (%)
Age group (mean of age ± SD: 73.90 ± 9.25)		
60-69	99	38.4
70-79	83	32.2
≥80	76	29.5
Gender		
Male	137	53.1
Female	121	46.9
Marital status		
Married	196	76.0
Single/ Divorced/ Widowed	62	24.0
Living situation		
Family	223	86.4
Caregivers	32	12.4
Alone	3	1.2
Body Mass Index (BMI)		
Underweight	61	23.6
Normal	145	56.2
Overweight	52	20.2

The mean of comorbidities medical illness was 2.5194 (± 1.312) diseases, with the minimum disorder was 0 and the maximum was 7 diseases concurrently. There were four diseases that most of the participants suffered from, i.e., hypertension (61.2%), diabetes (27.9%), heart failure (16.3%), and chronic kidney disease (11.3%).

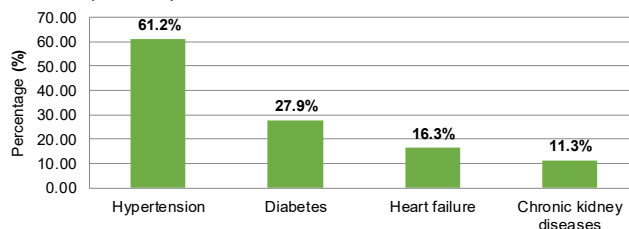


Figure 1. The percentage of poor sleep in the elderly inpatients (n = 258)

Among 258 participants, 42 patients had normal quality of sleep which accounted for 16.3% while 216 patients complained that they had poor sleep (83.7%).

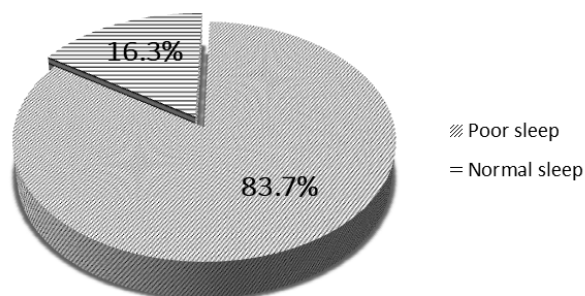


Figure 2. Quality of sleep in the elderly patients (n=258)

2. Prevalence of Benzodiazepines use

Among total 258 participants attended to this study, there were 29 patients (11.2%) taking benzodiazepines at least once. The prevalence of non-user benzodiazepines accounted for 88.8% (n = 229).

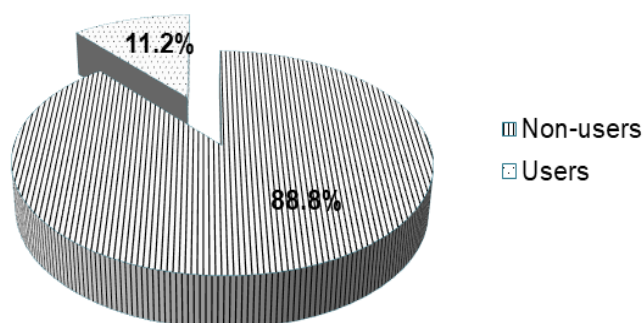


Figure 3. Prevalence of benzodiazepines use in the elderly patients (n = 258)

3. Characteristics of Benzodiazepines use in elderly patients

20.7% of benzodiazepine users (n = 6) consumed these medications every month, 18.3% (n=4) used once in 2-3 months, 65.5% (n = 19) used few times per year. The duration of benzodiazepine used in the elderly up to 6 months was 82.8% (n = 24). The mean times of using these drugs was 7.37 per month.

Table 2. Characteristics of using benzodiazepines in elderly patients (n=29)

Characteristics	Frequency (n)	Percentage (%)
Using frequency		
Every month	6	20.7
Once in 2-3 months	4	13.8

Few times per year	19	65.5
Duration of use (month)		
≤ 6 months	24	82.8
> 6 months	5	17.2
Number of times use per month (times)		
Mean of times ± SD	Minimum	Maximum
7.37 ± 6.93	01	30

IV. DISCUSSION

The mean age of the study participants in this study was 73.42 years old (SD = 9.08) ranging from 60 to 98. It is similar to a research in Brazil among 1606 participants, with the mean age of 73.8 years (± 8.0).⁵ The most common disease that elderly patients suffered from in our study was hypertension (61.2%), diabetes (27.9%), heart failure (16.3%), and chronic kidney disease (11.23%). In a research of Patrick P. Gleason, the most common diseases were hypertension 40.5%, diabetes mellitus 22.4% and coronary heart diseases 16.3%. Of 258 elderly inpatients, there were 248 individuals reported poor sleep representing 83.2% while good sleepers were 50 people or 16.8%. In a research of Shelly L. Gray and colleagues, there were 55.21% elderly complaining of sleep difficulty. Our research was conducted among elderly inpatients whose sleep was affected by many other factors in the hospital. Therefore, the prevalence of people with poor sleep in this study was higher than others.

Prevalence of benzodiazepines use of 258 people in this study were 11.2% (n = 29). This result was higher than a research by Patrick P. Gleason and colleagues among 5.181 elderly people which 511 (9.9%) were taking at least one benzodiazepine⁶ and a study of Shelly L. Gray with only 5.5%.⁷ However, our result was lower than a study in 2010 of Mariana Macedo and colleagues among 423 the elderly people with the prevalence was 18.3%⁸ and 21.5% of a total of 10468 patients aged 65 - 84 years in Italy.⁹ In Taiwan, the prevalence

of benzodiazepines was much higher with an approximate number of 43%.¹⁰ Our study was conducted at the National Geriatric Hospital where the doctors have been trained about the bad side effects in older patients therefore drug prescription is limited.

The prevalence of older people using benzodiazepine a few times per year was highest with the percentage of 65.5% (n = 19). There was more than one fifth of the participants using this medication every month (20.7%). Besides, there were 82.8% of total 29 users taking benzodiazepines up to 6 months and 17.2% had longer use. In another study by Mariana Macedo, 14.5% used up to 6 months and 85.5% had longer use. On the average, older people used benzodiazepines 7 times per month, some used once a month while some used it every day.⁴ The prolonged use of benzodiazepines was associated with many adverse effects, including sedation, amnesia, cognitive impairment and ataxia, and lead to a greater number of falls.⁴ Therefore, using benzodiazepines in the older people should be controlled and prescribed with caution to minimize the unwanted bad side effects.

V. CONCLUSION

From this study composed of 258 elderly in-patients, we noticed that the prevalence use of benzodiazepines in elderly patient was low compared with other researches in the world. Considering the physiological alterations of the elderly and the drugs adverse effects,

drugs prescription should be assessed on a case-by-case basis in order to minimize over prescriptions.

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