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High prevalence and prescription of benzodiazepines for elderly: data from psychiatric consultation to patients from an emergency room of a general hospital

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Abstract

Objectives: The aim of this study is to compare the use and prescription of psychotropic drugs, with emphasis on benzodiazepines, in elderly and non-elderly patients who are assisted at the emergency room by a psychiatric consultation of a university teaching hospital.
Method: This is a cross-sectional study. We analyzed all records of psychiatric consultation in an emergency room of a general hospital from March 2009 until March 2010. Sociodemographic and clinical variables were compared between the group of elderly and non-elderly in two cutoff points (≥60 and ≥65 years), with emphasis on the use and prescription of benzodiazepines.
Results: Five hundred seventy-five records were found with 71 elderly and 504 nonelderly for the first cutoff point and 51 elderly and 524 nonelderly in the second. Differences between groups were found in all sociodemographic variables (gender, marital status, education, current occupational status). Elderly patients treated at emergency rooms used more psychotropic drugs, particularly antidepressants and benzodiazepines, than non-elderly. About 25% of the patients received benzodiazepine treatment in the emergency setting, and there was no statistical difference between age groups.
Conclusion: There is a wide prevalence of benzodiazepine use among elderly patients in a psychiatric emergency service. Despite the recommendations for its judicious use, benzodiazepines were the most commonly used drug by psychiatrists on duty, regardless of patient's age. These results call for caution in prescribing these drugs and require alternatives to the treatment of psychiatric disorders in the elderly.

Keywords: Benzodiazepines; Elderly; Pharmacoepidemiology; Psychotropic drugs; Brazil

1. Introduction

Population ageing is a worldwide phenomenon. The United Nations anticipates that the Brazilian population over 60 years of age will surpass the 19.1 million individuals (10%) in 2009 to over 64 million (29%) in 2050 [1]. This growth is higher in developing countries compared to developed countries and there is a projection that in five decades around 80% of the individuals above 60 years of age will be living in developing countries [2].

Individuals above 65 years of age usually have a high prevalence of chronic diseases and incapacities [3]. Therefore, this population has a higher chance of needing health care and various medications to treat its diseases [4,5].

The emergency rooms — both in general and psychiatric hospitals — are frequently the first access to mental health assistance to a great portion of the population [6]. Nevertheless, the particular characteristics of this kind of assistance, as a brief evaluation, may facilitate the misuse of psychiatric medication. Benzodiazepines (BZDs) are prescribed for a variety of nonspecific symptoms such as

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sleeping problems, nervous tension, anxiety, depression and somatic complaints [5]. It is common knowledge that elderly individuals frequently have these complaints, and the drug therapy indication based only on this information tends to be imprecise.

Elderly individuals are high consumers of benzodiazepines (BZDs) [7–9], diverging from the recommendations about the strict use of these medications in aged individuals [10,11].

The objective of this study is to compare the use and prescription of psychiatric drugs, especially BZDs, in elderly and non-elderly patients from the emergency room of a university general hospital that has psychiatric emergency assistance.

2. Methods

2.1. Study design and data source

This was a cross-sectional study. The data were taken from a standard protocol from the Emergency Psychiatric Consultation (EPC) service of São Lucas Hospital at the Pontifical Catholic University of Rio Grande do Sul (HSL/PUCRS), Brazil. This study protocol included 25 items, the majority with multiple choice answers, with information about patient's identification, demographic data, clinical aspects, diagnostic hypotheses and data concerning the approach taken. The protocol was filled in by a psychiatry medical resident up to 1 h after seeing the patient, after supervision with a board-certified psychiatrist.

2.2. Sampling design

The sampling was formed by the registers of patients consecutively seen by the EPC of HSL/PUCRS from March 2009 until March 2010. The EPC of HSL assists an emergency unit of private patients, both the ones that pay and the ones having a private health plan. The patients were assisted by the EPC at the emergency unit of HSL/PUCRS or at the admission units. Ninety-five per cent of the assistance was at the emergency room. In order to separate the groups to be compared (elderly vs. nonelderly), two distinct cutoff points were considered: (1) from 18 to 59 years of age for nonelderly and from 60 years of age and up for elderly [World Health Organization (WHO) criteria for developing countries]; (2) from 18 to 64 years of age for non-elderly and 65 years of age and up for elderly (WHO criteria for developed countries). Both cutoff points will be analyzed due to the fact that Brazil is going through a demographic transition process.

2.3. Data analyses

In order to analyze the association among the categorical variables, the chi-square test was used; the analyses of the adjusted residuals were also performed to reveal the differences among the categories of each variable. The Student's t test was used to compare the continuous variables. Significance level of 5% ($P \leq .05$) was considered. The statistical analyses were performed using the software SPSS 15.0 version.

2.4. Ethics considerations

This study was approved by the Research Scientific and Ethics Committee of the Pontifical Catholic University of Rio Grande do Sul.

3. Results

Six hundred fifty-three registers of assistance made by the EPC between March 2009 and March 2010 were found. Out of this total, 78 registers were discarded (44 patients under 18 years of age and 34 registers with an incomplete chart for the age data), leaving 575 registers of patients of 18 years of age or older. In relation to the first cutoff point (≥60 years), 71 (12.43%) elderly and 504 nonelderly were found. For the second cutoff point (≥65 years), 51 (8.86%) elderly and 524 non-elderly were found. The majority (95%) of the assistance was performed at the emergency room, the rest being at the Clinical Admissions Unit. All the patients were referred to the EPC for having some emergency psychiatric demand, with conditions such as suicidal attempt/idea (28.3%), severe depressive symptoms (22.2%), anxiety symptoms (15%) or psychotic symptoms (10.5%), among others.

Table 1 shows the results of the social–demographic and clinic profile of the patients. In relation to gender, there was a greater proportion of female patients in both age groups, and the percentage of women increases in the elderly group, with a significant difference statistically (P=.047, for the cutoff point of 65 years). The differences in the marital status variable reflected the patterns usually found. Among the elderly, there was a greater number of widows/widowers, and among the non-elderly, the vast majority was single and married. There were more retired people among the elderly and the educational level was lower in both cutoff points. The eldery had more medical comorbidities and showed more disruptive behavior in the chief complaint in both cut points.

Table 2 shows the results about the use of psychotropic drugs at the moment of evaluation. The elderly assisted by the EPC used more psychotropic drugs than the non-elderly at both cutoff points among the age groups. In relation to the main classes of psychotropic drugs, the elderly patients used more antidepressants and BZDs than the non-elderly.

Table 3 shows the data concerning the approach of the psychiatrist on duty in relation to the prescription of some psychotropic drug. There was no significant difference statistically among the groups; some class of psychotropic drug was prescribed for 31.2% of the patients under 65 years of age and for 30.6% of the patients of 65 years and up (P=.91). No category of psychotropic drugs presented a

Table 1
Demographic and clinical aspects by age

	<60 years	≥60 Years	P	<65 years	≥65 years	P
Mean Age (*n*=575)	35.53 (SD=11.25)	69.04 (SD=7.37)		36.53 (SD=12.12)	71.98 (SD=6.62)	–
Gender (*n*=575)			.068			.047*
Female	335 (66.7%)	55 (77.5%)		350 (66.8%)	41 (80.4%)[a]	
Male	168 (33.3%)	16 (22.5%)		174 (33.2%)	10 (19.6%)	
Total	504 (100%)	71 (100%)		524 (100%)	51 (100%)	
Marital Status[c] (*n*=570)			<.001*			<.001*
Married	231 (46.2%)[b]	25 (35.7%)		240 (46.2%)[b]	16 (31.4%)	
Single	185 (37%)[b]	4 (5.7%)		185 (35.6%)[b]	4 (7.8%)	
Separate	81 (16.2%)	13 (18.6%)		86 (16.6%)	8 (15.7%)	
Widowed	3 (0.6%)	28 (40%)[a]		8 (1.5%)	23 (41.1%)[a]	
Total	500 (100%)	70 (100%)		519 (100%)	51 (100%)	
Education (years)[c] (*n*=540)			<.001*			<.001*
≤4 years	22 (4.6%)	14 (24.1%)[a]		24 (4.8%)	12 (28.6%)[a]	
5–8 years	68 (14.1%)	16 (27.6%)[a]		74 (14.9%)	10 (23.8%)[a]	
9–11 years	236 (49%)[b]	23 (39.7%)		243 (48.8%)[b]	16 (38.1%)	
≥12 years	156 (32.4%)[b]	5 (8.5%)		157 (31.5%)[b]	4 (9.5%)	
Total	482 (100%)	58 (100%)		498 (100%)	42 (100%)	
Current occupational status[c] (*n*=560)			<.001*			<.001*
Employed/active	308 (62.3%)[b]	7 (10.6%)		312 (60.9%)[b]	3 (6.3%)	
Unemployed	100 (20.2%)[b]	6 (9.1%)		104 (20.3%)[b]	2 (4.2%)	
Retired	32 (6.5%)	50 (75.8%)[a]		42 (8.2%)	40 (83.3%)[a]	
Transient disability (government benefit)	54 (10.9%)[b]	3 (4.5%)		54 (10.5%)	3 (6.3%)	
Total	494 (100%)	66 (100%)		512 (100%)	48 (100%)	
Medical comorbidities[c] (*n*=559)	144 (29.2%)	56 (84.8%)	<.001*	157 (30.8%)	43 (87.8%)	<.001
Chief complaint[c] (*n*=572)			.002			.001
Suicidal idea/attempt	146 (29.1%)	16 (22.9%)		149 (28.6%)	13 (25.5%)	
Depressive symptoms	105 (20.9%)	22 (31.4%)[a]		114 (21.9%)	13 (25.5%)	
Anxiety symptoms	78 (15.5%)	8 (11.4%)		80 (15.4%)	6 (11.8%)	
Psychotic symptoms	54 (10.8%)	6 (8.6%)		56 (10.7%)	4 (7.8%)	
Maniac symptoms	13 (2.6%)	0 (0%)		13 (2.5%)	0 (0%)	
Disruptive behavior	20 (4%)	10 (14.3%)[a]		21 (4%)	9 (17.6%)[a]	
Drug use	46 (9.2%)	2 (2.9%)		48 (9.2%)[b]	0 (0%)	
Others	40 (8%)	6 (8.6%)		40 (7.7%)	6 (11.8%)	
Total	502 (100%)	70 (100%)		521 (100%)	51 (100%)	

[a] Elderly>non-elderly in the residuals analyses (residual≥1.96).
[b] Non-elderly>elderly in the residual analyses (residual≤−1.96).
[c] Variable with missing values.
* *P*<.05.

difference between the groups. The most prescribed class of psychotropic drugs was the BZDs, corresponding to more than 20% of the prescriptions of the patients for each group.

Fig. 1 shows the relationship between anxiety symptoms, prior to BZD use and BZD prescriptions in 61 elderly (≥60 years). Just 7 of 17 elderly that received BZD in emergency had anxiety symptoms, while most (10 of 17) were using this medication class prior to their emergency visit.

4. Discussion

In Brazil, there are few studies about the use of psychotropic drugs in the elderly. As far as our knowledge goes, this is the first study that evaluates the use of psychotropic drugs on a sample of patients with psychiatric demand from an emergency room of a general hospital, comparing elderly patients with non-elderly ones.

Table 2
Everyday use of psychotropic drugs by age

	<60 years (*n*=495)	≥60 years (*n*=70)	P	<65 years (*n*=514)	≥65 years (*n*=51)	P
Some drug	316 (63.8%)	60 (85.7%)*	**<.001**	331 (64.4%)	45 (88.2%)*	**.001**
Lithium	46 (9.3%)	3 (4.3%)	.16	47 (9.1%)	2 (3.9%)	.20
Antiepileptics	85 (17.1%)	12 (17.1%)	.99	87 (16.9%)	10 (19.6%)	.62
Antipsychotics	119 (24%)	21 (30%)	.27	122 (23.7%)	18 (35.3%)	.067
Antidepressants	187 (37.7%)	41 (58.6%)*	**.001**	196 (38.1%)	32 (62.7%)*	**.001**
Benzodiazepines	188 (38%)	43 (61.4%)*	**<.001**	199 (38.7%)	32 (62.7%)*	**.001**

* *P*<.05.

Table 3
Prescriptions in psychiatric emergency advisory

	<60 years (*n*=463)	≥60 years (*n*=61)	*P*	<65 years (*n*=481)	≥65 years (*n*=42)	*P*
Some prescription	163 (35.2%)	19 (31.1%)	.53	170 (35.3%)	12 (27.9%)	.32
BZD	128 (27.6%)	17 (27.9%)	.97	135 (28.1%)	10 (23.3%)	.49
Antipsychotic	41 (8.9%)	2 (3.3%)	.14	41 (8.5%)	2 (4.8%)	.39

Concerning the social–demographic profile, there was no difference in relation to gender between the groups. Nevertheless, there was a higher prevalence of females in the elderly group (80.4%) and in the non-elderly group (66.8%). Even with the higher female population among the elderly, the Brazilian Institute of Geography and Statistics points out that the proportion of females over 65 years of age is 55%, much lower than that the 80.4% showed in our study [12]. This is in agreement with the data of many other studies that also showed that the female sex is more associated with psychiatric disorders [13,14] and the abusive use of psychotropic drugs [8,9,15–17], especially in the older age groups [9]. In relation to the educational level, the results reflect a social change in Brazil, whereas younger people have more access to education [12]. The higher rate of medical comorbidities among elderly was replicated in our sample, according to the literature [3]. As to the chief complaint, there was a higher rate of depressive symptoms in elderly at the first cut-point and a higher frequency of disruptive behavior in both cut-points. While disruptive behavior can be associated with dementia and cognitive impairment in elderly [18], we have no data about the diagnosis of our sample.

As to the use of psychotropic drugs, there was a high frequency of continuous use in both populations in our study, with a higher frequency among the elderly compared to the non-elderly (88.2% versus 64.4%, *P*=.001). These numbers from a clinical sample are much higher than those found by a

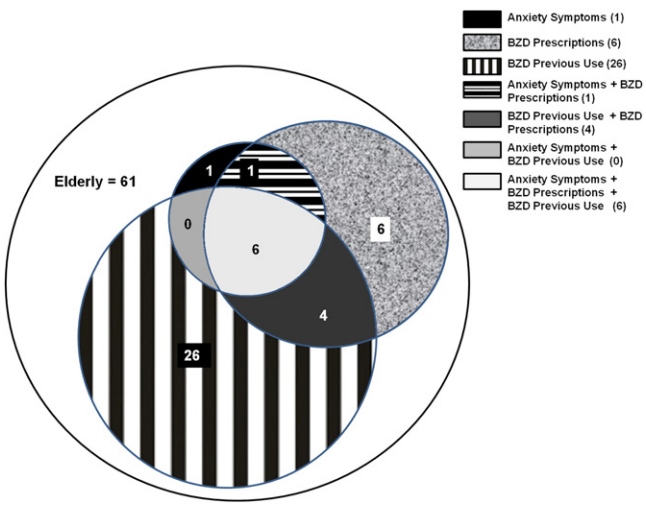

Fig. 1. Relation among anxiety symptoms, BZD previous use and BZD prescription in the elderly ≥60 (*n*=61).

population study with a south Brazilian community dwellers sample that found a prevalence of 9.9% for the use of psychotropic drugs in the general population and 23.1% in the elderly [16]. The higher prevalence of psychotropic drugs in our sample could be explained by the emergency room context, since it concentrates assistance to individuals with a poorer health status and with a greater number of associated diseases compared to a sample of community dwellers, which hinders the accurate diagnosis.

When the class of psychotropic drugs was analyzed there was a higher prevalence of use of BZDs and antidepressant use among the elderly population. These results are particularly important for the BZDs, since there are already guidelines that classify the inappropriate use, side effects to the drug and criteria that limit the use of some medications for the elderly [11]. In our study, 62.7% of the elderly (≥65 years) and 38.7% of the non-elderly (<65 years) were regular users of BZDs. A study, performed in the south of Brazil between 1994 and 2003, showed a high rate of BZDs use, as well as a significant increase in the use of antidepressants in the general population over this period [16]. The high prevalence of BZDs use in the elderly is documented in community dwellers samples in many countries: 15–21.7% in Brazil [8,15], 9.9% in the USA [20], 16% in Australia [17], 24% in Canada [21], 25% in Sweden [22], 31% in France [7], 43% in Taiwan [23] and up to 57% in Portugal [24].

The high frequency of chronic use of BZDs is worrisome since long-term use individuals are at a higher risk of dependence, may suffer withdrawal reactions and also show drug-seeking behavior [25]. On a setting with more vulnerable patients, the continuous use of BZDs becomes even more worrisome, since there is no scientific background for the long-term use of this class of drug as occurs with poor self-reported health status or nervous/emotional status [20], depression [26,27] and insomnia [19,20]. The use of BZDs is associated with several potential problems in elderly, such as cognitive impairment, depression, intoxication, paradoxical reactions, respiratory problems and amnesic syndromes, among others [28]. Elders showing higher anxiety scores may refuse further indication of discontinuation BZDs [29]. The observed in this study could access a private health service and do not reflect an average social economic Brazilian standard. However, we believe that in public services the misuse of psychiatric medication might take place too.

The reasons for the high prevalence of BZDs use could include the inadequate treatment for depression [26,27],

greater contact with health care services [5], greater proportion of women among the elderly [7], lack of proper medical training and the low cost of BZDs [8]. A study performed in the emergency rooms in the USA reported that 82% of the psychiatric emergency doctors prefer to use BZDs in a single therapy as a first alternative in cases of psychomotor agitation [6]. A study performed in Belgium found an association between the use of anxiolytics in women and anxiety episodes, sleeping problems and depressive disorders [19].

The most significant finding of our study was the high percentage of BZD prescription by the medical doctor on duty (psychiatry resident) for the patients, independent of age group. One of each four patients assisted at the EPC received some BZD after the evaluation consultation. This could be justified by the emergency setting, where the BZD plays an important role as a medication of choice in some acute anxiety syndromes, psychomotor agitation and chemical withdrawal [30]. Nevertheless, the high prevalence of BZDs prescription in the elderly at the emergency room deserves, at least, a reflection, since there are already various evidence suggesting other drug options more effective for this age group, mainly due to the vast number of problems from inadequate indication, nonmedical use of BZDs, dangerous side-effects or other negative outcomes associated with medication for the elderly [31] such as dizziness, falls and drowsiness. Our study indicates that in our sample, 15% of the individuals presented anxiety symptoms, and just 7 of 17 elderly (41%) that received BZDs had anxiety symptoms, while 10 of 26 (27.7%) had previous use of BZDs, which would not validate the frequency of BZDs prescription in the emergency room. This research team believes that the inappropriate prescription in the emergency room can also be a risk for the maintenance of a chronic use and even dependence of BZDs, as well as the onset of new chronic users as already seen in some patients after hospital discharge [7]. Thus, the high prescription of BZDs is not due to rate of anxiety or psychiatry symptoms in the emergency room. On the contrary, the majority of indications of such nature seems imprecise, and the decision making was based on the most evident phenomenology but without the huge amount of information capable of improving the diagnostic power and indicate the proper pharmaceutical therapy. Nevertheless, more studies with similar populations are in need to elucidate the weight of the associations with the probability of chronic use of BZDs and other psychotropic drugs besides their correlation with addiction.

The concern with a responsible prescription is even more relevant in the elderly patient, since at this age group, the saturation of the distribution, elimination and metabolism mechanisms is more frequent due to the regular aging process, pathologic processes and the associated prescription of drugs sharing the same pathways. Besides the pharmacokinetics, the pharmacodynamics also go through significant alterations with aging, and both increase the risk of intoxication and drug interaction in the elderly [30]. The elderly have greater sensitivity to BZDs due to alterations on the central nervous system receptors, being, for example, more susceptible to develop sedation, instability, memory loss and lack of inhibition [32]. Furthermore, cognitive, intellectual and psychomotor deficits triggered by BZDs are important causes of accidents and falls in the elderly [33].

Some suggestions include the education of patients and medical doctors to reduce the renewal of prescriptions, to stimulate the re-evaluation of the pharmacotherapy indicated and alternatives for the anxiety therapy linked to other non psychiatric health problems [7]. In addition, we suggest the evaluation for the addictive behavior, including the research of use of psychotropic drugs is always necessary. As alternative to BZDs prescription in emergency, a careful diagnosis of the chief complaint and the management of the primary cause of anxiety such as depression and medical conditions can decrease its use. The optimization of the antidepressants and low doses of antipsychotics also can be used, and the management should be individualized. If a BZD is necessary, lorazepam is preferable [28].

In summary, this research showed a high prevalence in the use of psychotropic drugs, especially BZDs, in the elderly in relation to the non-elderly patients assisted in an emergency service of a general hospital that provides a psychiatric assistance. Despite the many recommendations for the judicious use of this class of medication in old age, BZDs are still a class of medication most used for the elderly. Furthermore, our study shows that BZDs are also the most prescribed medications by the psychiatrist on duty at the emergency room, independent of age, knowing that in our sample, only 15% of the individuals were diagnosed as having anxiety symptoms as a chief complaint. These results suggest greater care for the prescription of these medications and for the search of alternative ways for the treatment of psychiatric condition in the elderly. More research is needed to establish both the risk-benefit of BZD in the elderly and also to find alternative ways to decrease the prevalence of chronic users.

References

[1] Population Ageing and Development 2009. United Nations, New York: Department of Economics and Social Affairs. Population Division (http://www.un.org/esa/population/publications/ageing/ageing2009.htm, accessed 15 July 2010).
[2] World Health Organization. 10 facts on ageing and the life course. http://www.who.int/features/factfiles/ageing/ageing_facts/en/index.html, accessed 15 July 2010.
[3] Kriegsman DMW, Deeg DJH, Stalman WAB. Comorbidity of somatic chronic diseases and decline in physical functioning: the Longitudinal Aging Study Amsterdam. J Clin Epidemiol 2004;57(1):55–65.
[4] Ajjar ER, Cafiero AC, Hanlon JT. Polypharmacy in elderly patients. Am J Ger Pharmacother 2007;5:345–51.
[5] Jorm AF, Grayson D, Creasey H, Waite L, Broe GA. Long-term benzodiazepine use by elderly people living in the community. Aust N Z J Public Health 1999;24:7–10.

[6] Allen MH, Currier GW. Use of restraints and pharmacotherapy in academic psychiatric emergency services. Gen Hosp Psychiatry 2004; 26:42–9.
[7] Fourrier A, Letenneur L, Dartigues JF, Moore N, Bégaud B. Benzodiazepine use in an elderly community-dwelling population — characteristics of users and factors associated with subsequent use. Eur J Clin Pharmacol 2001;57:419–25.
[8] Lima MS, Hotopf M, Mari JJ, Béria JU, Bastos AB, Mann A. Psychiatric disorder and the use of benzodiazepines: an example of the inverse care law from Brazil. Soc Psychiatry Psychiatr Epidemiol 1999;4:316–22.
[9] Carrasco-Garrido P, JIménez-García R, Astasio-Arbiza P, Ortega-Moliona P, Miguel AG. Psychotropics use in the Spanish elderly: predictors and evolution between years 1993 and 2003. Pharmacoepidemiol Drug Saf 2007;16:449–57.
[10] Paterniti S, Dufouil C, Alpérovitch A. Long-term benzodiazepine use and cognitive decline in the elderly: the Epidemiology of Vascular Aging study. J Clin Psychopharmacol 2002;22(3):285–93.
[11] Fick DM, Cooper JW, Wade WE, Waller JL, Maclean JR, Beers MH. Updating the Beers Criteria for Potentially Inappropriate Medication Use in Older Adults. Arch Intern Med 2003;163: 2716–21 (Reprinted with corrections previously to online versions of this article).
[12] Instituto Brasileiro de Geografia e Estatística (IBGE) 2002. Perfil dos idosos responsáveis pelos domicílios no Brasil. RJ.: Rio de Janeiro
[13] Andrade L, Walters EE, Gentil V, Laurenti R. Prevalence of *ICD-10* mental disorders in a catchment area in the city of São Paulo, Brazil. Soc Psychiatry Psychiatr Epidemiol 2002;37:316–25.
[14] Maragno L, Goldbaum M, Gianini RJ, Novaes HMD, Cesar CL. Prevalência de Transtorno mental comum em populacões atendidas pelo Programa Saúda da família (QUALIS) no município de São Paulo, Brasil. Cad Saude Publica 2006;22(8):1639–48.
[15] Alvarenga MJ, Loyola Filho AI, Firmo JOA, Lima-Costa MF, Uchoa E. Prevalence and sociodemographic characteristics associated with benzodiazepines use among community dwelling older adults: The Bambuí Health and Aging Study (BHAS). Rev Bras Psiquiatr 2008;30 (1):7–11.
[16] Rodrigues MAP, Facchini LA, Lima MS. Modificações nos padrões de consumo de psicofármacos em localidade do Sul do Brasil. Rev Saude Publica 2006;40(1):107–14.
[17] Windle A, Elliot E, Duszynski K, Moore V. Benzodiazepine prescribing in elderly Australian general practice patients. Aust NZ J Public Health 2007;31:379–81.
[18] Cohen-Mansfield J. Agited behavior in persons with dementia: the relationship between type of behavior, its frequency, and its disruptiveness. J Psychiatry Res 2009;43:64–9.
[19] Van der Heyden JHA, 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;18:1101–10.
[20] Gleason PP, Schulz R, Smith NL, Newsom JT, Kroboth PD, Kroboth FJ, et al. Correlates and prevalence of benzodiazepine use in community-dwelling elderly. J Gen Int Med 1998;13:243–50.
[21] Thomson M, Smith WA. Prescribing benzodiazepines for noninstitutionalized elderly. Can Fam Physician 1995;41:792–8.
[22] Johnell K, Fastbom J. The use of benzodiazpines and related drugs amongst older people in Sweden: associated factors and concomitant use of other psychotropics. Int J Geriatr Psychiatry 2009;24: 731–8.
[23] Cheng JS, Huang WF, Lin KM, Shih YT. Characteristics associated with benzodiazepine usage in elderly outpatients in Taiwan. Int J Geriatr Psychiatry 2008;23:618–24.
[24] Sousa M. Perfil dos utilizadores de psicofármacos na Unidade de Saúde Familiar de Canelas. Rev Port Clin Geral 2007;23:33–42.
[25] Lader MH. Limitations on use of benzodiazepines in anxiety and insomnia: are they justified? Eur Neuropsychopharmacol 1999;9(suppl 6):399–405.
[26] Valenstein M, Taylor KK, Austin K, Kales HC, McCarthy JF, Blow FC. Benzodiazepine use among depressed patients treated in mental health settings. Am J Psychiatry 2004;161:654–61.
[27] Assem-Hilger E, Jungwirth S, Eeissgram S, Kirchmeyr W, Fisher P, Barnas C. Benzodiazepine use in the elderly: an indicator for inappropriately treated geriatric depression? Int J Geriatr Psychiatry 2009;24:563–9.
[28] Sheikh JI, Cassidy EL. Treatment of anxiety disorders in the elderly: issues and strategies. J Anxiety Disord 2000;14(2):173–90.
[29] Cook JM, Biyanova T, Thompson R, Coyne JC. Older primary care patients' willing to consider discontinuation of chronic benzodiazepines. Gen Hosp Psychiatry 2007;29:396–401.
[30] Sabbi EH, Quevedo J, Almeida JTA. Emergências psiquiátricas no idoso. In: Kapcziski F, Quevedo J, Schmitt R, Chachamovich E, editors. Emergências psiquiátrica. Porto Alegre: Artmed Editora; 2001. p. 205–211.
[31] Comité de Consenso. Tercer Consenso de Granada sobre problemas relacionados com los medicamentos (PRM) y resultados negativos asociados a La medicación (RNM). Ars Pharm 2007;48(1):5–17.
[32] Bogunovic OJ, Greenfield SF. Use of benzodiazepines among elderly patients. Psychiatric Serv 2004;55(3):233–5.
[33] Landy F, Onder G, Cesari M, Barillaro C, Russo A, Bernabei R. Psychotropic medication and risk for falls among community-dwelling frail older people: a observational study. Gerontology 2005;14(1): 11–6.