



Online Brazilian Journal of Nursing

E-ISSN: 1676-4285

objn@enf.uff.br

Universidade Federal Fluminense
Brasil

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Online Brazilian Journal of Nursing, vol. 11, núm. 1, 2012, pp. 26-37

Universidade Federal Fluminense
Rio de Janeiro, Brasil

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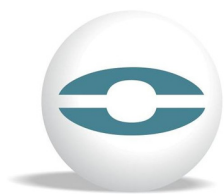
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OBJSN
Online Brazilian Journal of Nursing

ENGLISH

Universidade Federal Fluminense

ESCOLA DE ENFERMAGEM
AURORA DE AFONSO COSTA

v.11, n.1 (2012)
ISSN 1676-4285



Received: 08/01/2011
Approved: 03/15/2012



ORIGINAL ARTICLES

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PREVALENCE OF DRUG USE IN INSTITUTIONALIZED ELDERLY PEOPLE: A DESCRIPTIVE STUDY

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ABSTRACT

Objective: To describe the prevalence of drugs prescribed among the elderly in a long-stay institution for seniors - ILPIs. **Methodology:** This is a descriptive study of a quantitative character conducted in an ILPIs the city of Maringá, Paraná, Brazil. Data were collected between November 2008 and October 2009 through 78 clinical records. For analysis of the data related to medications we used the classification of drugs in a therapeutic subgroup according to the classification Anatomical-Therapeutic-Clinic (ATC). **Results:** Totaled 466 to prescription drugs, with an average of 5.97 drugs per elderly, highlighting the drugs for the nervous system which represented 36.48% of all prescriptions, followed by cardiovascular device (23.17%), digestive and metabolic (22.94%). The most frequently prescribed therapeutic subgroup was Psycholeptics considering that the drug haloperidol being the main medicine prescribed in the institution. **Conclusion:** It is necessary interventions aimed at reducing drugs, contributing to the improvement of quality of life of institutionalized elderly.

Keywords: Health of the Elderly; Medication Systems; Homes for the Aged; Nursing.

INTRODUCTION

The process of demographic transition is a reality that has been changing the profile of the population and morbimortality, resulting, among other things, in the aging of the population⁽¹⁾. The information made available by the last national sense by the Brazilian Institute of Geography and Statistics (BIGS) highlights the extension of the top of the age pyramid, which rose from 4.8% in 1991 and 5.9% in 2000 to 7.4% of elderly population in general in 2010⁽²⁾.

Although the National Policy for the Elderly⁽³⁾ and the Elderly Statute⁽⁴⁾ preconize the maintenance of the elderly among their families, one of the results of this demographic transition is the increased demand by the elderly for long-stay institutions (ILPIs), growing alternative related to factors such as: terminal stages of disease, high dependency of the elderly, higher emergence of chronic diseases^(1,3). This fact, which contributes for many families to seek the option of an asylum in order that the elder is better cared for, as well as others make the institutionalization a transfer of care is seeking exemption of responsibilities, or there are situations of inexistence of a family group, abandonment or lack of own financial resources and/or of the family^(1,5).

Among the elderly who reside in ILPIs, important peculiarities are presented, such as increased sedentary lifestyle, loss of autonomy, lack of family members, factors that contribute to the increased prevalence of morbidities related to independence of older people, often requiring specialized care, regular checkups and continuous medication^(1,2,6).

Medicines are one of the most important items in the assistance to elderly, in which drugs occupy an increasing space in the set of measures aimed at health care. Its effectiveness in ceasing the symptoms and providing treatment of the disease or even in preventing them, make it an important and necessary feature in health care⁽⁷⁾.

However, the excessive use of drugs may expose the person to unnecessary side effects and dangerous drug interactions, which are aggravated by the physiological and pathological conditions related to age⁽⁷⁾.

This way, it is intended to awaken interest for issues related to drug use in these institutions, since this is still an important tool for recovery and maintenance of health of their residents and this form of

approach is a key step in promoting the rational use of product. Moreover, little is known about the pharmacoepidemiology of the elderly, because studies on the topic are still scarce, especially in relation to institutionalized elderly, since those made on the subject are evidently population based^(7,8).

It is in this sense that nursing has relevance to the pharmacological process, because due to the physical and mental limitations the elderly people constitute a population susceptible not to keep efficient therapy compliance⁽⁹⁾. It becomes important then the presence of nurses in the ILPIs, since, besides other features, these professionals can evaluate the signs and symptoms that arise in the elderly after starting a new ingestion of medication, the particular needs of each one, taking on the necessary guidelines so that medication errors are avoided.

Still, nursing, as a profession that is scoped to the treatment and daily care, has its obvious role in the pharmacological care, which may promote the establishment of therapeutic alliance, support and maintenance of the treatment, inserting interventions to improve quality of life to the elderly with the rational use of drugs, and identify events that may interfere with the patient's adherence to drug treatment.

Therefore, believing that the knowledge that the prevalence of drug use in institutionalized elderly and the prevalence of drugs may provide to healthcare professionals more adequate resources to maintain pharmacological treatment and better tools to prevent high rates of prescriptions and use of these drugs, it is proposed for the present study, describe the prevalence of consumption of prescribed medications among elderly residents of an ILPIs.

METHODOLOGY

This is a descriptive study of quantitative character conducted in an ILPIs in Maringá, PR, which was founded in 1984 and at the time of this research there were 78 elderly nursing home residents. This institution has philanthropic characteristics; it is maintained by community donations, volunteer services, retirement of some older people and support of the municipal government for its availability to allocate resources for care.

Data were collected between November 2008 and October 2009, through consultation of medical records to ascertain the medical prescriptions. Additional information about the prescriptions was obtained with the nursing staff. Regarding socio-demographic characterization we have also conducted

a survey on medical records, consisting of information about gender, age, length of stay in the institution, family visits and health problems. The research included the charts of 78 elderly patients, who met the following inclusion criteria: legible filling in more than 50% of prescriptions.

Data collection was conducted by the authors of the study and two students of the course of Nursing, State University of Maringá, participants in the research project entitled: "Living conditions and health of the elderly in a nursing home in Maringá, PR" to which this study is part. The team underwent training for the completion of the data and questions that could be made to health professionals.

For analysis of the data related to medications we used the classification of drugs in therapeutic subgroup according to the classification Anatomical-Therapeutic-Clinic (ATC), proposed by the World Health Organization⁽¹⁰⁾. From this classification, the data were organized in the spreadsheet Microsoft Excel 2007® and analyzed with the Statistical Package for Social Sciences SPSS® for Windows® VERSION 18.0. The analysis was descriptive of the study variables.

The development of the study followed the ethical disciplined precepts under Resolution 196/96 of the National Health Council and the project was assessed and approved by the Standing Committee on Ethics in Human Research of the State University of Maringá (No. 131/2008).

RESULTS

It was observed that the elderly had an average of 74 years, with a minimum age of 60 and maximum of 103 years, of which 45 were males, whose average length of stay in the asylum was five years, with a minimum of one year and a maximum of 27 years.

Morbidities registered in the records of each elderly ranged from one to six, with an average of 2.85 diagnoses per person, with 85% of individuals showed one to four morbidities and 15% over five.

The diagnosis of systemic hypertension was predominant (20.63%) on the prescriptions of the institutionalized elderly, followed by depression (17.04%) and other psychiatric problems (12.11%). (Table 1).

Table 1. Nosological profile of elderly residents in a long-term institution, Maringa, Parana, 2010.

Health problem	Number of diagnosis	Rf (%) *
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Systemic arterial hypertension	46	20,63
Depression	38	17,04
Other psychiatric problems	27	12,11
Diabetes Mellitus	25	11,21
Heart Disease	18	8,07
Cataract	8	3,59
Cerebral vascular accident	4	1,79
Others	57	25,56
TOTAL	223	100%

*Rf: Relative frequency.

In addition, it highlighted the diagnoses of Diabetes Mellitus (11.21%), heart diseases (8.07%), cataract (3.59%), stroke (1.79%) and others (25.56%.) The latter includes diseases such as osteoporosis, atherosclerosis, rheumatism, lung and larynx cancer, kidney diseases, hearing problems, bronchitis and Parkinson's.

Regarding the number of drugs used, it was evidenced one to 14 per individual, in a total of 466 prescribed drugs. All medications were prescribed by a doctor of the institution and administered by the nursing staff, with an average of 5.97 medications used by elderly people. It was observed that 30.4% of elderly had lower polypharmacy (one to four drugs) and 67.03% higher polypharmacy (more than five drugs)^(10,11).

On Table 2 are described the most consumed groups of drugs according to the anatomical and therapeutic classification of ATC. Among the most consumed 36.48% act on the nervous system (NS), following in descending order drugs with action on the cardiovascular system (23.17%) and digestive and metabolic processes (22.94%), totaling 82, 59% of prescriptions.

Table 2 - Categories of most prescribed medications organized according to Anatomical-Therapeutic-Clinic classification (ATC). Maringá-PR, 2010 (n = 466).

Category*		% (n)
A	Digestive and metabolic processes	22,10 (103)
B	Blood and hematopoietic organ	8,37 (39)
C	Vascular system	23,17 (108)

D	Dermatologic therapy	0,64 (3)
G	Genitourinary therapy (including sexual hormones)	0,00 (0)
H	Hormonal therapy	0,86 (4)
J	Anti-infective therapy (systemic use)	2,15 (10)
L	Antineoplastic therapy and immunomodulatory agents	0,00 (0)
M	musculoskeletal System	2,15 (10)
N	Nervous System	36,48 (170)
P	Pesticides, insecticides and repellents	0,00 (0)
R	Respiratory system	0,86 (4)
S	Sense organs	0,86 (4)
V	Various	0,00 (0)
	With no classification	2,36 (11)

* Groupings according to ATC classification (Anatomical-Therapeutic-Chemical).

The medicines for the blood and hematopoietic organ (8.37%), anti-infective therapy (systemic use) (2.15%), musculoskeletal system (2.15%), hormonal therapy (0.86%), respiratory system (0,86%), sense organs (0.86%), dermatologic therapy (0.64%) and those without classification (2.36%), it was all the medicines that were alluded to in the prescriptions, totaling 17.41% of drugs remnants.

Regarding the therapeutic subgroups most frequently prescribed to the elderly at ILPIs in study, it is seen in Table 3 that the drugs for the nervous system (36.48%) were predominant, followed by those working in the cardiovascular system (23.17%) and digestive and metabolic unit (22.10%).

Considering the most commonly prescribed operating in the NS are found the Psycholeptics (11.37%), and the latter subgroup is divided into antipsychotics (N05A), anxiolytics (N05B), hypnotics and sedatives (N05C), among these divisions the drug haloperidol (6.01%) belonging to antipsychotics appeared as the predominant drug, followed by analgesics like as Paracetamol (4.72%), antiepileptics with chlorpromazine (3.00%) and psychoanaleptics with amitriptyline (1, 29%) (Table 3).

Table 3 - Distribution of therapeutic subgroups most commonly prescribed for institutionalized elderly under the classification Anatomical-Therapeutic-Clinic (ATC). Maringa, Parana, 2010.

Code ATC*	Therapeutic Subgroups	% (n)	Principal Representatives	% (n)
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A	Digestive and metabolic processes	22,10 (103)		
A02	Antacids / antiulcer / antiflatulents	13,09 (61)	Omeprazole	5,79(27)
A10	Drugs used in diabetes	5,15 (24)	NPH insulin / Metformida	1,71(8)
A11	Vitamins	3,86 (18)	B Complex	1,50(7)
C	Cardiovascular system	23,17 (108)		
C01	Cardiac therapeutics	1,71 (8)	Digoxin	1,71 (8)
C02	Antihypertensives	8,37 (39)	Captopril	3,43(16)
C03	Diuretics	6,01 (28)	Hydrochlorothiazide	5,15(24)
C04	peripheral vasodilators	4,08 (19)	Ginko biloba	2,58(12)
C08	Calcium channel blockers	1,71 (8)	Nimodipine	1,07(5)
C10	Lipid-lowering	1,29 (6)	Simvastatin	1,00(4)
N	Nervous system	36,48 (170)		
N02	Analgesics	9,66 (45)	Paracetamol	4,72(22)
N03	Antiepileptics	9,01 (42)	Chlorpromazine	3,00(14)
N05	Psycholeptics	11,37 (53)	Haloperidol	6,01(28)
N06	Psychoanaleptics	6,44 (30)	Amitriptyline	1,29(6)

* ATC: Anatomical-Therapeutic-Chemical Classification.

Referring to the group of the cardiovascular system were prevalent the subgroup of antihypertensives (8.37%), with the drug captopril (3.43%) which is the most consumed in this subgroup. However, it is apparent that the drug Hidroclotiazida appears as the main representative of the drugs (5.15%) of the cardiovascular group, followed by captopril (3.43%), Ginkgo biloba (2.58%), digoxin (1.71%), Nimodipine (1.07%) and Simvastatin (1.00%).

In the digestive and metabolic Processes the drugs of the subgroup Antacids/ulcer/antiflatulents (13.09%) were prominent, and it was mainly represented by the drug omeprazole (5.79%). In the other subgroups/medicines stood out the ones used in diabetes (5.15%) especially NPH Insulin/Metformida (1.71%) and the vitamins (3.86%) with the drug B Complex (1.50%) (Table 3).

Hence, in general, out of the drugs prescribed to the elderly people stood out the haloperidol (6.01%) with a greater number of prescriptions, followed by Omeprazole (5.79%) and finally Hydrochlorothiazide (5.15%).

In the charts contained some drugs that are not part of the ATC classification, totaling 2.36% of prescriptions. Representing these drugs there is as an example Aneopino, Lachesis and Leipoideno. Among the inappropriate drugs for the elderly, mentioned in literature, the most common identified in the prescriptions were clonazepam (3.37%), nifedipine (0.63%) and fluoxetine (0.63%).

DISCUSSION

The increase in prevalence of chronic disease triggers the growing consumption of medicines, called polypharmacy, terminology that defines the simultaneous and chronic use of multiple medications, referring to a lower polypharmacy, the use of two to four drugs, and higher polypharmacy the consumption of five or more drugs^(8,11).

When we do an association between health problems and polypharmacy, it is remarkable the increase in the consumption of drugs in individuals with poor health expecting greater usage of medications. Therefore, it is quite common to find a high rate of prescription drugs to elderly residents in ILPIs, since this population is considered weak when it comes to health conditions⁽⁸⁾. The study identified an average of 5.97 medicines per elderly, and 67% of residents use more than four drugs. We believe that this result may be related to comorbidities identified with an average of 2.85 health problems per individual.

Study carried out in a geriatric institution to evaluate the presence of risks of drug related problems and characterize that the prescription of these had an average of 3.03 drugs per person, of which 72.4% of patients used between one and four and 27.6% between five and nine drugs⁽¹¹⁾. Another research conducted in the metropolitan area of Belo Horizonte of population-based 1,598 elderly patients presented an average number of medications consumed of 2.18 per person⁽⁷⁾.

The number of drugs observed in this study is higher than others found in the literature, providing concerns on the quality of life of elderly people, and the simultaneous use of drugs contributes to the appearance of adverse effects, with the incidence of adverse reactions to drugs two to three times higher in this age group than in young adults. this increase in adverse effects is related to changes

caused by aging in the body, pharmacokinetics and pharmacodynamics composition and the high prevalence of major polypharmacy⁽¹²⁾. Factors related to the effectiveness of prescriptions, as well as dose adjustments, and determined periods of time in treatment can help minimize the number of medications in the elderly, thus reducing their vulnerability for adverse reactions.

Our findings show that high blood pressure (HBP) was the prevalent diagnosis in the elderly study, constituting itself as the most frequent morbidity in individuals over sixty years, taking into account that about two thirds of Brazilians elderly people suffer from HBP and its prevalence increases with age and inadequate treatment favor mortality from strokes (CVA) and acute myocardial infarction (AMI)⁽¹³⁾. Thus, the present study confirms the literature, in which predominates the number of diagnoses per HBP, as well as the consumption of drugs for the cardiovascular system as the second most frequently used in this population grouping, contributing to prevent complications associated with cardiovascular events, blood pressure control and reduction of symptoms of illnesses.

Pharmacological treatment is indicated for moderate and severe HBP, and patients with risk factors for cardiovascular diseases and/or significant injury of target organs, however, few people with HBP achieve optimal blood pressure control with a single therapeutic agent, making it necessary the use of combined therapy, particularly among elderly individuals and with relevant comorbidities⁽¹⁴⁾. However, the losses and negative outcomes of adverse events related to medicines are higher in this age group. The frequency of drug interaction increases dramatically according to the complexity of the therapy, and the risk increases by 13% with the use of the two agents, from 58%, when this number increases to five, up to 82% in cases in which are consumed seven or more products⁽¹³⁾.

Factors that improve the quality of life of these older people inserted in ILPIs may contribute to reduced rates of problems caused by HBP. It is therefore of paramount importance to the nursing staff to know the rates of consumption of medicines, in which we may engage interventions aimed at these ideas, including physical exercise, stretching, changes in eating habits of the elderly, among others, in order to minimize drug consumption by non-pharmacological therapies.

Despite the high prevalence of HBP, something that draws attention is the preponderance of group of drugs for the NS in this population, unlike the results found in other studies in which the higher drug use refers to the cardiovascular system.

The stay in nursing homes can contribute to the onset of neuropsychological problems. From an epidemiological standpoint, the frequency of depression in the elderly in asylum institutions reaches

31% of residents, with approximately 13% of them develop depressive episode in the first year of admission^(15,16).

Depression among the elderly is a common disease, especially among those with various health problems. Aging causes cognitive and functional impairment, influencing the onset of depressive syndrome, such as health problems, loss of a partner and/or social roles, abandonment of family, and inability to perform activities^(15,17). The abandonment of the family in this study may be related to the worsening of the depressive disorders, and 49.31% of the elderly of the institution do not receive family visits and 41.77% are visited very rarely or only once a year.

Also, the diagnosis of depression refers to the idea in a study involving 188 institutionalized elderly in the city of Rio Grande, RS, that this disease may lead elders to falls, with 51% increased chance of the risk of falls (5). The relationship between the use of drugs and falling has been thoroughly investigated in the literature, although it is not possible to report the exact cause between medicines and falls, only in more frail elderly patients or using more severe drugs such as those involved in NS.

It should be noted that the subgroup Psycholeptics was the most prevalent among the class of NS, with the drug Haloperidol. This drug has side effects such as sedation, tardive dyskinesia, reduction of anticholinergic effects and dystonia, which may cause clinical consequence such as falls, hip fractures, confusion and social isolation⁽¹⁴⁾. Interventions aimed at the approximation of the family, the encouragement to socialization and activities that stimulate the elderly within the ILPIs are essential actions that cooperate to minimize the problems of depression, thereby reducing the rates of consumption of drugs related to pathology.

Regarding the group of the digestive and metabolic system, it was highlighted in the study due to the consumption of omeprazole. This drug is widely used nowadays and shows favorable results in the treatment of dyspeptic disorders and in protecting the gastric system against abuse of drugs, with the consensus that this drug may be prescribed to patients safely and for long periods of time⁽¹⁸⁾. The use of the drug Omeprazole is usually related to overuse of other medications, eliminating possible adverse reactions that lead to the digestive system. The study in focus may consider this hypothesis as it showed high levels of other drugs, suggesting caution in care regarding prescriptions and excessive administration of medicines⁽¹⁹⁾.

However, the elderly population is more susceptible to health disorders caused by the effects of drugs, resulting from weakness and the physiological impairment of organs and systems that affect the

elderly. Thus, it is necessary to promote rational use of medications in the elderly to ensure the effectiveness and safety of treatment and their health condition, especially among nursing home residents due to being considered a more vulnerable and fragile population⁽²⁰⁾.

CONCLUSION

The results showed that HA was the predominant disease among the elderly, yet the most used drugs were those working in the NS. This fact makes us believe that despite the high rate of diagnosis of depression and other pathologies associated with the NS, there are elderly who make continued use of psychotropic drugs and its diagnosis is not complete. The study reveals that the drug Haloperidol was the most prescribed within the institution.

Certainly there is the need to use these drugs in the therapeutic treatment of the elderly in order to ease the symptoms resulting from the changes of aging and prevent further aggravating, but what they need are the articulations of prescriptions with nursing interventions aimed at improving the quality of life of the institutionalized elder, in which nursing can enter in the asylum the daily life physical and labor activities that contribute to minimize the unwanted effects of drugs.

Knowing about the desirable and undesirable pharmacological effects that may arise by excessive or abusive use of medication among the prescribed deadlines and schedules while not abusing medicalization, and guide them to verbalize any discomfort related to the ingestion of drugs, will contribute to assist the nurse and the nursing staff, since they are responsible for the administration of medications and the majority of care for the institutionalized elderly.

This proposal of awareness aims to ensure a good adherence to treatment and the use of drugs only when there is full indication, ensuring safe care, free of unexpected and undesirable effects and a better quality of life for older people in particular. Therefore, we propose the realization of future studies for the relevance of the topic, especially for this population.

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