Prevalence of mobility impairment in institutionalized elderly

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ABSTRACT

Objective: To identify the prevalence of mobility impairment in institutionalized elderly people and its correlation with the clinical and functional conditions, a cross-sectional study was carried out with 191 people aged ≥ 60 years residing in 13 long-stay institutions for the elderly in Passo Fundo, year of 2014. Method: A structured questionnaire was used, applied to the elderly or to the technical managers of the institutions. Sociodemographic variables related to health and specific questions about walking difficulties were considered. It was considered mobility impairment the need of any help or aid to walk, be it a cane, a walker or even restriction to bed. A descriptive and bivariate analysis of the data was performed. To verify the association between the categorical variables Pearson’s chi-square test and Fisher’s exact test were applied at a significance level of 5%. Results: The prevalence of mobility impairment was 50.3%. They used wheelchairs 41.7%, walkers 16.7%, canes 14.6% and crutches 3.1% and were bedridden 24%. Of the elderly with mobility impairment, 89.6% were dependent to perform daily living basic activities and 62.5% considered their health as fair, poor or very poor. Conclusion: The high prevalence of mobility impairment, including many bedridden elderly people, highlights the need for preventive interventions before institutionalization and the minimization of the complications that these conditions can bring.

Keywords: Aged, Locomotion, Gait, Homes for the Elderly
INTRODUCTION

Population aging is a global reality and Brazil experiences this process in an accelerated way. In this sense, the 2010 demographic census shows that the Brazilian population is approximately 190 million people, and the contingent of elderly people is about 20 million, or approximately 10.8% of the total population.1

According to the World Health Organization,2 chronologically, old age begins at the age of 65 in developed countries and in developing countries, such as Brazil, at the age of 60. Thus, considering that getting old is a phase of life inherent to the process of aging, and that more and more people are living in this phase, there is a need for a special and humane look at this population.

Large-scale growth of the elderly population occurs under unfavorable socioeconomic and cultural conditions. It is observed that these elderly people are in physical-functional vulnerability and chronic degenerative processes that may predispose to referral to long-term institutions.3 The institutionalization is surrounded by several factors, among which we highlight the advanced age, phase in which several diseases and disorders related to old age may arise, such as gait and mobility disorders.

Walking is a routine task and a fundamental part of daily life activities. Basically, it is defined as the way or style that the individual walks.4 Good gait performance depends on the integral functioning of various organs, especially those that make up the neurological, musculoskeletal, and cardiovascular system.4

OBJECTIVE

In view of the above, the objective was to identify the prevalence of mobility impairment in institutionalized elderly in Passo Fundo/RS and to verify the association with the clinical-functional profile.

METHODS

A cross-sectional study was carried out with 191 individuals aged 60 years or older residing in the long-stay institutions for elderly people (ILPIs – Instituições de Longa Permanência para Idosos) of Passo Fundo, in the year of 2014. Part of this paper was taken of a dissertation research entitled “Factors associated with the institutionalization of Elderly: a population-based case-control study”.

Nowadays, Passo Fundo has 16 ILPIs, which are home to 363 elderly people, according to data from the Senior Citizens’ Desk (The counter is a space for receiving requests regarding situations of risk and social vulnerability, a partnership between the Public Prosecutor’s Office, Passo Fundo Town Hall and the University of Passo Fundo). They are divided into private for-profit and non-profit institutions. The number of residents changes frequently due to transfers and deaths. The ability to receive these elderly people also varies, depending on the availability of accommodation and structure.

For the sample calculation, the acceptable error was 0.05. They were added (10%) to the total to compensate for possible losses (ineligible, refusals, etc.) which resulted in a total of 205 elderly. Between the period of survey of the elderly residents and collection of authorizations up to the moment of the interview, the following losses had occurred: six deaths, four rejections (did not agree to sign the informed consent form), two hospitalizations at the time of the interview, two residents aging less than 60 years. The sample totaled 191 elderly people distributed in 13 ILPIs who accepted to participate in the study.

The data were collected from a structured questionnaire, applied to the elderly. In cases where the elderly were not able to respond, due to cognitive complications or aphasia for example, the technical person responsible for the institution was requested. Sociodemographic variables (gender, age, skin color, marital status, schooling, income), health related (chronic diseases and dependence for basic activities of daily living), along with specific issues related to the difficulty of locomotion were contemplated. The Katz Index6 was attached to the questionnaire and it is an instrument that assesses independence for basic activities of daily living - such as bathing, dressing, going to the toilet, transfers from bed to chair and vice versa, control over the sphincters and unattended feeding.

From the assumption that locomotion is the “displacement of the individual from one place to another in a versatile way and with the lowest energy consumption possible”6 was considered difficulty of locomotion the need of any help or support for ambulation, be it flares, crutches , Walker (partial difficulty), wheelchair users or even restricted to the bed (total difficulty). Some bedridden had moments in wheelchair, nevertheless, those that actively realized the transfers were considered wheelchair users and those that could not sit upright in bed and transfer themselves to the chair were considered bedridden.

RESULTS

A total of 191 institutionalized elderly persons participated in the study, of which 69.1% were female. The mean age was 79 years (± 9.8), ranging from 60 to 115 years. As for income, 60.7% received up to one minimum wage and 91.6% were retired. There was a significant association between difficulty in locomotion and marital status, that is, the elderly living with their partner presented proportionally higher rates of difficulty in locomotion (Table 1).

The prevalence of mobility impairment was 50.3%. As for the gait aiding device, 41.7% used wheelchairs, 24.0% were bedridden (they had moments in the wheelchair but were unable to carry out the transfers), 16.7% used walkers, 14.6% canes and 3.1% crutches. Drug consumption was present in 97.4% of the interviewees (Table 2).

The diseases and complications presented were hypertension 44.2%, Alzheimer’s 26.3%, diabetes 16.3%, other unspecified dementias 13.7%, heart diseases 13.7%, cerebrovascular accident sequelae 13.7% , Arthritis/arthritis/ osteoporosis 10.5%, Parkinson’s disease 9.5%, circulatory diseases 8.4%, respiratory diseases 4.2% and cancer 3.2%. Alzheimer’s disease had a significant association with walking difficulties (p = 0.002) (Table 3).

Other diseases that could affect ambulation in some way were not statistically significant, such as Parkinson’s, other unspecified dementias, arthritis and arthrosis, etc. On the other hand, in the elderly with stroke, 24% (n = 23) had mobility impairment and only 3.2% (n = 3) presented no gait difficulties (p <0.001) (Table 3).

Of the 96 elders with mobility impairment, 89.6% were male, 63.5% were single, 41.7% used wheelchairs, 24.0% were bedridden (they had moments in the wheelchair but were unable to carry out the transfers), 16.7% used walkers, 14.6% canes and 3.1% crutches. Drug consumption was present in 97.4% of the interviewees (Table 2).

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Among the factors that explain this process, it is worth noting that women take better care of their health, conduct consultations and examinations periodically, have a healthy diet, do more physical activities and engage less in accidents. Also, a differential mortality by sex can be listed; drop in maternal mortality; hormonal protection of estrogen; different insertion in the labor market; different consumption of tobacco and alcohol; different posture in relation to health/illness; different relationship with health services. 8

The non-existence of a partner was identified in 89.5% of the elderly. Solitary elderly, faced with complications requiring care, face challenges, especially regarding the provision of care. The changes in the social role of women, traditionally the family caregiver, is one of the difficulties in the provision of home care, since currently, women are inserted in the labor market, which reduces the full-time female presence in the household. These social phenomena have repercussions on a greater demand for long-term care. 9

Low levels of schooling are seen in other studies. In the research developed by Alencar et al. 10 it is observed that 25.5% of the institutionalized elderly are illiterate or with low educational level 59.6%. According to Rosa et al. 11 in the year 2000, 40% of the men and 48% of the elderly women in Brazil declared themselves illiterate.

In institutions, the highest age groups were prevalent. These data corroborate a study by Pelegrin et al.12 with 75% of institutionalized elderly in the interval between 71 and 90 years. Ferreira and Yoshitome13 demonstrated that the majority of the institutionalized elderly are concentrated in the 80-85 age group.

The high prevalence of elderly people with some level of locomotion dependence identified in this study is similar to the study by Pelegrin et al.12 with 75% of institutionalized elderly in the interval between 71 and 90 years. Ferreira and Yoshitome13 demonstrated that the majority of the institutionalized elderly are concentrated in the 80-85 age group.

DISCUSSION

The disparity between the sexes was quite significant, since 69.1% were female. According to data from the census,7 Brazil has about 23 million elderly, of these 55% are women, a process known as the feminization of old age.

16.1% (n = 15) had mobility impairment and only 4.4% (n = 4) of the elderly with consumption above 11 medicines/day without assistance (p = 0.010) (Table 3).

62.5% of elderly people who had mobility impairment considered their health as regular, poor or very bad (p = 0.001) (Table 3).
disease, which is a progressive and debilitating degenerative disease characterized by tremors and slowness of movement and conversation, these difficulties increase the chances of the elderly suffering falls and consequently fractures; Alzheimer’s, which already in the mild stage can cause apraxia (inability to perform complex movements such as driving and dressing); osteoarthritis, which is a degenerative joint disease responsible for the major complaints of movement; as well as disorders of the cardiovascular system.4

Due to the accessory mechanisms and difficulties to walk, the rates of impossibility to walk were high, followed by the use of orthoses. In long-term institutions, difficulty walking is frequent, however, rates vary greatly as to the accessory device. According to Alencar et al.10, among the elderly evaluated, 61.7% used a gait aid. The authors identified that 42.5% used a walker, 12.8% a wheelchair and 6.4% a walking stick. Also, there is a discrepancy between the studies regarding the frequency of use of the orthosis. Menezes et al.15 found that of the total of 95 elderly evaluated, 1.05% used a walker and 13.7%, a walking stick. In the study by Gonçalves et al.16, there was a high difference in the numbers of wheelchair users, since only 8.8% used wheelchairs, 7.2%, a walker, 13.5% a cane and 6.1% crutches. In the study by Ferreira and Yoshitome, 13 of the locomotion aid equipment, the walking stick was the most used 42.2%, 17.8% used a wheelchair and 2.2% used a walker, 35.6% did not need any help to walk.

With the advancement of the age it appears in some moment, impediments to accomplish some daily activities. The results of this research show that 75.9% of the elderly present difficulties to do DLBAs. Among those with difficulty locomotion, the dependence to do DLBAs was even more pronounced, with a significant correlation. This high rate of dependence is reported by Del Duca et al.17 in the study on the performance of daily living basic activities with the Katz Index, with 393 elderly institutionalized in Pelotas-RS. The authors found that 79.4% of the elderly were dependent to perform at least one task.

The DLBAs depend on an adequate functioning, according to the complexity of the activity, of the main functional systems: cognition, humor, mobility and communication. The process of loss of independence begins with the more complex tasks, with greater demands, such as bath and progress to dependence to feed.18 Therefore, elderly people with difficulties in wandering lose the full functioning of at

### Table 3. Distribution of the elderly regarding health and mobility impairment variables, Passo Fundo - RS, 2014

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mobility Impairment</th>
<th>Total</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>%</td>
<td>No</td>
</tr>
<tr>
<td>Hypertension</td>
<td></td>
<td>39</td>
<td>40,6</td>
</tr>
<tr>
<td>Diabetes</td>
<td></td>
<td>57</td>
<td>59,4</td>
</tr>
<tr>
<td>Parkinson’s disease</td>
<td></td>
<td>19</td>
<td>19,8</td>
</tr>
<tr>
<td>Alzheimer’s disease</td>
<td></td>
<td>77</td>
<td>80,2</td>
</tr>
<tr>
<td>Other dementias</td>
<td></td>
<td>19</td>
<td>19,8</td>
</tr>
<tr>
<td>Heart diseases</td>
<td></td>
<td>87</td>
<td>90,6</td>
</tr>
<tr>
<td>Motor sequelae of CVA</td>
<td></td>
<td>80</td>
<td>83,3</td>
</tr>
<tr>
<td>Arthritis/arthritis/reumatism</td>
<td></td>
<td>13</td>
<td>13,5</td>
</tr>
<tr>
<td>Circulatory diseases</td>
<td></td>
<td>83</td>
<td>86,5</td>
</tr>
<tr>
<td>Respiratory diseases</td>
<td></td>
<td>85</td>
<td>88,5</td>
</tr>
<tr>
<td>Cancer</td>
<td></td>
<td>93</td>
<td>96,9</td>
</tr>
<tr>
<td>Daily Life Basic Activities (DLBAs)</td>
<td></td>
<td>90</td>
<td>93,8</td>
</tr>
<tr>
<td>With difficulties</td>
<td></td>
<td>86</td>
<td>89,6</td>
</tr>
<tr>
<td>Without difficulties</td>
<td></td>
<td>10</td>
<td>10,4</td>
</tr>
<tr>
<td>Practice of physical activity</td>
<td></td>
<td>11</td>
<td>11,5</td>
</tr>
<tr>
<td>Consumption of medicine</td>
<td></td>
<td>85</td>
<td>88,5</td>
</tr>
<tr>
<td>From 1 to 5</td>
<td></td>
<td>32</td>
<td>34,4</td>
</tr>
<tr>
<td>From 6 to 10</td>
<td></td>
<td>46</td>
<td>49,5</td>
</tr>
<tr>
<td>11 and more</td>
<td></td>
<td>15</td>
<td>16,1</td>
</tr>
<tr>
<td>Health condition</td>
<td></td>
<td>36</td>
<td>37,5</td>
</tr>
<tr>
<td>Excellent/good</td>
<td></td>
<td>60</td>
<td>62,5</td>
</tr>
<tr>
<td>Fair/poor/really poor</td>
<td></td>
<td>36</td>
<td>37,5</td>
</tr>
</tbody>
</table>
least one of the main systems that are responsible for independence in the performance of DLBAs, which is the locomotor system.

The most frequent diseases were hypertension, Alzheimer’s, diabetes, other unspecified dementias, heart disease, stroke sequelae, arthritis/arthrosis. Pelegrin et al.16 identified a high prevalence of arterial hypertension, with 47.2%, followed by diabetes 18%, 13.9% osteoporosis, 13.9% dementia and 12.5% had had a stroke.

The sequelae of CVA, in most cases, cause a pathological march known as spastic, due to the installation of hemiplegia or hemiparesis. In these cases the lower limb becomes rigid, slightly flexed in the hips and extended in the knee; the foot remains in planter flexion and when walking, it scrapes across the ground. To compensate for this problem, the individual swings the affected leg in an outer arc (circumference) at each step. These sequels lead to a compromise in balance.4

Individuals in advanced stages of Alzheimer’s experience a gait known as magnetic gait, which is characterized by the broad base, slightly bent posture, small, rapid steps. This study presents as main limitation the impossibility of temporal interrelationship, thus, associations and data need to be interpreted with care. Longitudinal studies to follow the process of impairment of gait in institutionalized elderly could clarify cause and effect relationships more accurately.

CONCLUSION

It was identified a high prevalence of elderly people who need help or even can not walk in institutions. The mobility impairment were associated with Alzheimer’s disease, stroke motor sequelae, difficulties to perform daily living basic activities, physical inactivity, high medication consumption and poor health perception. These findings are cause for concern, since these elderly people are likely to have gait difficulties, which increases the chances of accidents and/or the evolution of the condition to situations of total dependence.

Measures aiming at minimizing the complications inherent in the mobility dependence should be stimulated. Preventive actions in order to avoid or delay the difficulty of locomotion, with the maximum maintenance of the locomotor skills should be taken. For those with more severe conditions, wheelchair and bedridden, the focus is on the complications caused by immobilization, as well as the incentive of any and all functioning muscle groups.

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REFERENCES


