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The elderly's health conditions as a risk factor to accidents

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ABSTRACT

To verify the health status in the elderly who have suffered accidents and treated at a reference hospital for emergency care of Ceará, Brazil. This is a cross-sectional, descriptive study, with quantitative approach, developed in an emergency hospital in the city of Fortaleza. For the sample, 182 elderly people were selected. The data were collected using the BOAS Questionnaire as a tool, exported to the statistical software STATA® v.12. Most of the elderly are women (67%); aged between 81 and 90 years (37.4%); have incomplete elementary school (53.31%); are widowed (48.3%); have a family income of one to two minimum wages (31.3%); are retired (68%); live with one or two people (48.3%). As for the perception of health, they refer to it as good (37%). Among the health problems, fall with fracture/injury and chronic diseases were the most frequent (48.3%). They reported having a great vision (39.5%); good hearing (44.8%); teeth in bad condition (79.9%), missing the majority (93.7%). About the presence of clinical depression, it was found that the elderly had no feeling of loneliness (84.7%); they did not want to cry (86.2%); did not feel the life was not worth it (96%). At the end, they said they felt satisfied with life in general (77.2%). the accidents suffered by the elderly are related to individual factors. These factors are related to working life and lack of structure of households and communities to meet the protection needs of the population that is increasingly aging in an active mode.

Keywords: Health Conditions. Elderly, Prone to Accidents

INTRODUCTION

Ageing is a normal process characterized by progressive decline of the body's ability to restore homeostasis, which produces changes in the structure and function of the body and increases vulnerability to stress and disease. This process occurs from birth to death [1].

The term "velho" ("old" in Portuguese) comes from the Latin "Vetulo", an adjective that refers to a very elderly person; remote time object, old, with a long time of existence, well-worn, very used, outmoded, antiquated, obsolete, employee or long used [2].

Old age is a historical, social and cultural phenomenon, multifaceted and multidisciplinary. It runs through the paths of personal and social life and can only be understood in certain time, space, social class, gender and ethnic relations, among other variables [3].

The aging process is not limited to demographic aspects. Its complexity requires to be studied in various disciplines, from various angles. It is a phenomenon that runs through the entire history of humanity, but has different characteristics according to the culture, time and space.

In the aging process considered normal there is interference from extrinsic factors such as lifestyle, psychosocial factors, diet and physical inactivity, which have an important influence on the body. But there is also the successful aging in which the losses of physiological functions are minimal [4].

In chronological terms, in Brazil and other developing countries, the age when a person is considered an elderly is 60 years old or more. Whereas, in developed countries, this age is extended to 65 years. Regardless of the age set for considering a person as an elderly, in different contexts, that chronological milestone is not accurate to define the changes that accompany aging. There are significant variations related to health, participation in society and levels of independence among older people who have the same age [5,6].

The Brazilian population is undergoing a rapid aging process. According to the latest census of the Brazilian Institute of Geography and Statistics, there are over 20 million people aged over 60 years. It is estimated that, by 2025, this number will reach 32 million, making Brazil the sixth country considering the number of elderly people in the world [7].

The fall of the elderly is one of the major causes of death or incapacitation, generating great cost to health, as well as being the main reason of great emotional and psychological damage for the elderly who falls and his/her family [8].

Given the vulnerability to accident risks to which the elderly are exposed, it is necessary for the NHS to be organized in order to improve the attendance in the health services at all levels of care, in a comprehensive approach, for prevention, promotion and elderly rehabilitation.

It is known that aging is often accompanied by diseases and non-communicable chronic diseases. Such conditions can lead to a disabling process, affecting the functionality of elderly people, or impeding or preventing the performance of their daily activities. Although not fatal, these conditions generally tend to significantly impair the quality of life of elderly people [9].

Hospitalizations due to external causes of people over 60 years involving accidents externally or self-provoked, in Brazil, in 2014, were 162,364, being the Northeast with the highest number of hospitalizations due to external causes: 37,107. The State of Ceará is in third place regarding hospitalizations due to external causes, with 7,833 hospitalizations from January to December 2014 [10].

The disabling process that chronic diseases cause in the elderly, if associated with the occurrence of accidents, becomes one more aggravating factor to the health of the elderly.

The study is based on data from the physical and mental health status of elderly patients in a reference hospital for emergency care of the State of Ceará, Brazil, when accident victims. Data were obtained from the questionnaire Brazil Old Age Schedule (BOAS), of which the described results show the multidimensional characteristics of living and health conditions of the elderly victim of accidents.

Population aging means great challenges in a developing country like Brazil, where social inequalities reveal the different needs for health care of the elderly [11].

In this scenario, the objective of this study was to verify the health status in the elderly who have suffered accidents treated at a reference hospital for emergency care of Ceará, Brazil.

EXPERIMENTAL SECTIION

This is a cross-sectional, descriptive study, in which the Survey technique was chosen to be used [12]. The study was conducted at a public hospital reference in emergence of the State of Ceará, in Fortaleza, the state capital, Brazil.

The study population was estimated by the number of elderly patients in the studied hospital, victims of accidents in 2013. The study sample was calculated using the formula for finite population studies [13]. For the sample calculation, the following parameters were used: confidence level of 95% ($Z\alpha = 1.96$); sampling error of 5%; in the denominator, the total population of 1,898 elderly was used (number of visits of elderly people in the hospital, in

2013). It was chosen a simple random sample of patients over 60 years, accident victims, treated at the hospital, from April to August 2014. The selection of participants was for convenience, because the subjects of interest are concentrated at the same place. The inclusion criteria were: age from 60 years; accepting participating in the study; having been victim of an accident; and having condition to respond to the interview without help from caregivers. Exclusion criteria: the elderly who were in inpatient units (ICU) in a critical state of health and the elderly who perchance withdraw consent at any time of their participation in the study. Based on the mentioned parameters, the minimum sample size was estimated at 178 seniors selected by convenience, consecutively, according to the hospitalization.

A cutoff of the validated questionnaire Brazil Old Age Schedule (BOAS) [14] was adopted as an instrument for collecting the data, which is a multidimensional questionnaire used for functional assessment and developed for studies of the elderly population in an urban center (Rio de Janeiro, Brazil). This instrument is based on the CARE16 questionnaire for the mental health segment, and OARS14 and PAHO33, with acceptable standards of validity and reliability. The 45 questions regarding the profile of the elderly were used; this questionnaire, multidimensional and used for functional assessment, was developed for studies in the elderly population of an urban center (Rio de Janeiro, Brazil) and was based on other instruments with acceptable standards of validity and reliability, as the questionnaire CARE16 to the mental health sector, and OARS14 and PAHO33 [14].

Data were collected after the researcher's presentation to those responsible for the emergency and hospitalization sector, carrying a badge provided by the institution and permission documents for the research. At these sectors, the information about the hospitalized elderly were raised along with the nursing team, directing to the elderly that corresponded to the research inclusion criteria.

After locating the elderly's bed, he was asked to participate in the study in order to proceed with the interview. All the information about the research was provided, as well as the right withdrawing at any time. At that moment, the informed consent form was signed. For the elderly who could not write or were with limb fracture, the responsible companion was requested to sign the form. The companions were also informed about the research. The presence of the companion facilitated the confirmation of the data reported by the elderly person.

After the collection, the questionnaires were checked and entered in the Microsoft Access database manager 2003® and exported to the statistical software STATA v.12® for processing and generating the results. Data treatment consisted of verifying the entered information and the construction of new re-categorized variables. Data analysis consisted of descriptive and exploratory study of the elderly's clinical characteristics in a univariate manner. Thereby, descriptive and dispersion measures were used for continuous variables (mean and standard deviation), distribution of univariate and bivariate frequencies for nominal and ordinal qualitative variables.

For verifying proportional differences between the observed characteristics and groups regarding gender, the chi-square and Fisher exact statistical tests for nominal variables were used. For ordinal variables, the Chi-square linear trend was used. In all analyzes, the level of statistical significance of 5% ($\alpha \leq 0.05$) was adopted.

This study was in accordance with the ethical and legal requirements of Resolution number 466/2012 and was approved by number 635,039.

RESULTS AND DISCUSSION

This study showed that, in 182 elderly accident victims who answered the questionnaire, 67.0% are women and 30.0% men. The average age of the population was 77.9 years, ranging from 60 to 99. As for the educational attainment, 35.2% of respondents are illiterate, with a predominance of elderly people with incomplete elementary education (53.3%). The highest educational attainment was completed higher education and represented only 1% of the total, as seen in Table 1. This corroborates the findings in the other studies, in which the majority of the elderly who have experienced trauma and were treated at an urgent and emergency hospital were women, with a difference regarding only the age group that was below 79 years [15-17].

In the study by Mello, Engstrom & Alves (2014), they report that it is important to notice that, although demographic determinants have shown a relationship to the condition of frailty of the elderly, some are less susceptible to changes and interventions. For example, it is impossible to modify the age and gender, but they should be considered, since various health conditions increase with advancing age and occur differently between men and women [18].

In the aging process, the elderly person is subjected to challenges related to natural aging changes, which are evident in all body systems. There is loss of bone mass, reduced muscle strength, the reflections are slower, and the production of some hormones decreases [1].

Table 1. Social-demographic characteristics of the interviewed elderly at a hospital reference in urgency and emergency (n=182) of Fortaleza – CE, Brazil, from April to August 2014

Characteristics	n (%)
Gender	
Male	60 (33.0)
Female	122 (67.0)
Age group[a]	
60 - 70 years	49 (26.9)
71 - 80 years	53 (29.1)
81 - 90 years	68 (37.4)
91 years and more	12 (6.6)
Educational attainment	
Incomplete elementary school	97 (53.3)
Complete elementary school	4 (2.2)
Complete high school	14 (7.7)
Complete higher education	2 (1.0)
None	64 (35.2)
Not applicable/Not answered	1 (0.6)

Note: [a]Mean of the population age (±sd) = 77.9 ±9.7 years .
Source: Field research.

Table 2 - Distribution of cases, by gender, of health problems reported by elderly respondents in an urgent and emergency reference hospital (n=182) of Fortaleza – CE, Brazil, from April to August 2014

Health problems	Total n (%)	Gender	
		Male n (%)	Female n (%)
Fall without fracture/trauma	1 (0.6)	1 (1.7)	0 (0.0)
Fall with fracture/trauma	47 (25.8)	22 (36.7)	25 (20.5)
Accident with fracture/trauma	6 (3.3)	3 (5.0)	3(2.5)
Chronic degenerative diseases	1 (0.6)	1 (1.7)	0 (0.0)
Other diseases	1 (0.6)	1 (1.7)	0 (0.0)
Fall without fracture/trauma and chronic degenerative diseases	2 (1.0)	0 (0.0)	2 (1.6)
Fall without fracture/trauma and other diseases	1 (0.6)	1(1.7)	0 (0.0)
Fall with fracture/trauma and chronic degenerative diseases	88 (48.3)	16 (26.7)	72 (59.0)
Fall with fracture/trauma and other diseases	10 (5.5)	5 (8.2)	5 (4.1)
Accident with fracture/trauma and chronic degenerative diseases	16 (8.8)	7 (11.7)	9 (7.4)
Fall with fracture/trauma, chronic degenerative diseases and other diseases	6 (3.3)	2 (3.2)	4 (3.3)
Accident with fracture/trauma, chronic degenerative diseases and other diseases	1 (0.6)	1 (1.7)	0 (0.0)
Not applicable/Not answered	2(1.0)	0(0.0)	2 (1.6)

Source: Field research.

As seen in Table 2, among the elderly who were admitted to the emergency hospital, predominated falling victims with fracture/trauma. These had chronic degenerative diseases: Hypertension; Diabetes Mellitus; Alzheimer's disease; heart diseases; hypothyroidism; arthritis/osteoarthritis; Parkinson's disease; osteoporosis; asthma; glaucoma; malignant neoplasms, pulmonary emphysema, and cerebrovascular accident (48.3%). 25.8% were falling victims with fracture/trauma without comorbidities.

The interviewees suffered some kind of accident: fall without fracture/trauma, fall with fracture/trauma, accident with fracture/trauma, besides being removes from their daily activities during their stay in hospital.

Besides suffering an accident, most of the surveyed elderly also had pre-existing diseases, chronic degenerative: ICD-10I10 – systemic arterial hypertension; ICD-1 E11 - diabetes mellitus; ICD-10 G30 - Alzheimer's disease; ICD-10 I51 - complications of heart disease and ill-defined heart disease; ICD-10 E03.9 - Hypothyroidism unspecified; ICD-10 - M06.9 - Arthritis unspecified; ICD-10 M19.9 - Osteoarthritis unspecified; ICD-10 G20 - Parkinson's disease; ICD-10 M81.9 - unspecified osteoporosis; ICD-10 J45.9 - unspecified asthma; ICD-10 H40- glaucoma; ICD-10 C25 - Malignant neoplasms of the pancreas, ICD-10 J43.1 - pulmonary emphysema, ICD-10 I69.9 – cerebrovascular accident (CVA) sequel.

The presence of chronic diseases and comorbidities associated with more dynamic life of contemporary elderly favors the occurrence of falls, resulting in significant psychological, physical and social consequences for the lives of these individuals [17, 19]

As for the dynamic life of the elderly, this can be detected in accidents in which elderly people were involved when they were conducting their means of transport: ICD-10 V80 (no collision horse fall); ICD-10 V22.4 (motorcyclist injured in a traffic accident with two-wheel motor vehicle).

Studies have been developed and point out that the elderly accident mortality rates are very close to the age group of adolescents and young adults. Traffic accidents among the elderly need attention especially when considering their preventable [15].

Fractures can cause immobility in elderly interfering with basic daily activities and can lead them to a situation of dependency and loss of autonomy. Falls and road accidents may be more common with the elderly because of the physiological changes resulting from the aging process itself, as reduced walking speed, deficit of visual and auditory acuity, physical and cognitive impairments from diseases and inadequate home environments where the elderly reside [17].

Associated with the severity of the trauma/fractures in the elderly person, pre-existing diseases contribute to the deterioration of the health status of the elderly. According to this study, the majority of respondents had association between fracture/trauma and preexisting conditions, which contributed to a greater permanence of the elderly in the hospital and, consequently, greater exposure to infections and emotional damage due to the inevitable isolation of a hospitalization.

Diseases commonly associated with aging are the chronic degenerative non-communicable, such as cancer, cardiovascular diseases, the accumulation of fat in the blood vessels, emphysema, Alzheimer's disease, diabetes mellitus, cataracts, degeneration associated with aging, rheumatoid arthritis and macular degeneration. Rheumatoid arthritis and degeneration are age-related [1].

Lima and Campos (2011) warn that it is important to emphasize that the cardiovascular system is the first to inadequately express by the trauma. The considerable prevalence of hypertension among the elderly can be an aggravating factor during the primary evaluation of trauma. The same emphasis should be given in relation to the medication which can interfere with that assessment [15].

According to the Brazilian Society of Hypertension, in Brazil hypertension affects more than 30 million Brazilians (36% of adult men and 30% of women) and is the most important risk factor for the development of cardiovascular disease (CVD) especially CVA and myocardial infarction, the two major isolated causes of deaths in the country [20].

The analysis by regions shows that the medical diagnosis of hypertension was lower in the North (14.5%) and Northeast (19.4%). The Southeast region was the one that had the highest proportion of individuals aged from 18 years who reported diagnosis of hypertension among the major regions (23.3%). The South and Midwest regions had proportions statistically equal to the average for Brazil.

Systemic arterial hypertension (SAH) is a complex chronic and multifactorial disease that constitutes a public health problem worldwide. In the elderly population, the prevalence is 65%. This is a condition that represents a high social cost, as it is responsible for about 40% of cases of early retirement and work absenteeism [20].

Diabetes mellitus is a metabolic chronic disease, one of the most important current public health problems, causing morbidity and mortality. It affects 382 million people worldwide and it is estimated that by 2035 this number will increase to 592 million people. In Latin America, there are almost 25 million people with diabetes. In Brazil, there are 11.6 million people aged 20-79 years old [21].

In Brazil, the number of people with diabetes has been growing faster since 2006, when the percentage was 5.5%, and, in 2013, increased to 6.9% of the Brazilian adult population. The disease is more common among women (7.2%) than among men (6.5%) [22].

Alzheimer's disease was found, in minor extent, in some interviewees. It represents an important risk factor for accidents. As a dementing illness, it can pose risks for accidents or falls and begins to manifest long before clinically evident. After 65 years of age, and often well before this age, individuals already experience the initial pathologic changes which lead to a degeneration in brain function and structure [23].

The cause of dementia can be a complex combination of genetic influences and environmental exposures. It is likely that these exposures accumulate throughout life. These factors represent a great challenge and an important

implication for preventive intervention of dementia. Other factors may be associated with the disease, such as cranium-encephalic trauma, female gender, Caucasian ethnicity, aluminum and atherosclerosis [23].

As for heart diseases mentioned by the elderly as pre-existing disease, it was found that many did not know they were suffering from heart disease. Only with the evaluation at the hospital, the problems were detected, which were still to be clarified at the time of the survey. Because of this, many seniors did not undergo fractures surgery as soon as admitted to the hospital.

In this regard, publish data report that, from history data and physical examination of the patient, it is possible to estimate the risk of preoperative morbidity. Cardiac complications after non-cardiac surgery are reflections of specific factors of the patient, the specific procedure and the circumstances under which the surgery is performed [24].

Preoperative evaluation may lead to interventions that reduce post-operative risk and long-term mortality or change the process of the surgery decision making. This may include choosing lower risk, less invasive procedures or even non-operative management.

Published data report that healthy elderly tend to fall during daily activities outside their home, while frail elderly tend to fall at home during routine activities without great demands on their balance [25].

There were several reasons for the elderly to fall. The most common were their own height when stumbling in barrier indoors or on the street. Some falls were due to imbalance while climbing the ladder or chair to perform some work activity, such as watering hanging plants, repairing electrical installations and painting the house. Only a fall occurred from an animal when the elderly felt dizzy and fell from his horse.

The changes in body balance and mobility are among the most common complaints of the elderly, clinically characterized as dizziness, gait deviation and instability. These changes in postural control expose patients to increased risk of falls and their consequences. Determining the history of falls in the last year and the use of auxiliary instruments of the march, such as canes and walkers, are part of the balance and mobility assessment. In the study, most surveyed elderly people reported no need to use auxiliary instruments of the march [26].

CONCLUSION

In this study, it is concluded that the health status of the elderly who were accident victims according to the existing theoretical contributions, essential to the analysis, support the analogies established between the possible influences of gender and age on the risk of accidents, since elderly women are active and play activities that predispose to accidents.

The relationship between the accident suffered by the elderly and preexisting conditions prevailed in falling victims with fracture/injury. These victims had comorbid chronic and degenerative diseases: Hypertension; Diabetes Mellitus; Alzheimer's disease; heart diseases; hypothyroidism; arthritis/osteoarthritis; Parkinson's disease; osteoporosis; asthma; glaucoma; malignancies, cerebrovascular accident and pulmonary emphysema (48,3%).
It is necessary to expand the primary health care of the elderly, so that there is an active search for medical appointments and professional teams in health facility next to their homes. Therefore, health teams need to be attentive to the peculiarities of each elderly person in a comprehensive care, not only in fragmented care, in the care for the elderly with hypertension, diabetes, heart problems, Alzheimer's disease carrier, Parkinson's disease, among other fragmented conditions in actions directed to the disease.

The pertinent literature analysis confirms the observation that clinical, demographic and physical and mental health, when associated with causes of accidents, are related to individual factors, such as working life and lack of structure of households and communities to meet the needs for protection of the population that is increasingly aging in an active mode.

The relevance of this analysis only makes sense in this work when considering the individual (physical and mental), social and environmental factors, in the context of political and social changes as key elements for the protection of the elderly, making them less vulnerable to risks associated with the social environment, which is not yet prepared for the population’s rapidly aging.

Accidents that occur more with elderly women require epidemiological studies for better understanding of the relationship between predisposing factors to genders for accidents and the process of coping with stressors given the health problems in this group.

The greater severity of risks to accidents among elderly women, with preexisting diseases, and lower educational attainment, is issues that cannot be ignored by health professionals, for the elderly seem to belong to a special risk group and should be the focus of specific disease prevention and health promotion programs.

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