Frailty assessment of institutionalized elderly

Avaliação da fragilidade de idosos institucionalizados

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Abstract

Objective: To assess the presence of frailty and its relationship to sociodemographic and clinical characteristics in institutionalized elderly.

Methods: Cross-sectional study with 54 elderly residents in long-stay institutions in the Northeast of Brazil. The data collection instruments were the Edmonton Frail Scale, socioeconomic assessmentand health profiles. Data were analyzed using descriptive statistics and Chi-square test, with significance level of 0.05.

Results: The mean age was 72.4 (± 8.5) years, 61.1% were male and 74.1% had some level of frailty. There were positive correlations between frailty, gender, age, comorbidities, body mass index and the need and amount of medicines.

Conclusion: Frailty in institutionalized elderly is influenced by sociodemographic and clinical characteristics.

Resumo

Objetivo: Avaliar a presença de fragilidade e sua relação com as características sociodemográficas e clínicas em idosos institucionalizados.

Métodos: Estudo transversal com 54 idosos residentes em instituição de longa permanência da região Nordeste do Brasil. Os instrumentos de coleta utilizados foram a Escala de Fragilidade de *Edmonton* e outro de perfil socioeconômico e de saúde. Os dados foram analisados através da estatística descritiva e do teste do Qui-quadrado, com nível de significância 0,05.

Resultados: A média de idade foi de 72,4 (±8,5) anos, 61,1% eram do sexo masculino e 74,1% apresentaram algum nível de fragilidade. Houve correlações positivas entre fragilidade, sexo, idade, presença de comorbidades, índice de massa corporal e necessidade e quantidade de medicamentos.

Conclusão: A fragilidade em idosos institucionalizados sofre influência das características sociodemográficas e clínicas.

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Introduction

Population aging is considered a challenge to public health, due to the increased incidence of chronic diseases that contribute to increase the risk of frailty, physical and social dependence, in need for long term care. Studies indicate that between 10 and 25% of the elderly population has some aspect of clinical predictor of frailty, requiring specific care.[1]

Frailty is considered a very prevalent clinical syndrome that increases with age, consequently increased vulnerability to stressors that result in the decline of physiological reserves, reducing the efficiency of homeostasis and, therefore, the skills to perform important practices of daily life activities.[2] Frail elderly have greater risk for falls, disability , hospitalizations and death, requiring permanent care to prevent the occurrence of adverse clinical outcomes.

In this context, the demand for formal health care tofrail elderlyis increasing, and the institutionalization is a commonendpoint for this group.[3] Long-stay institutions for the elderly is a challenge, because changes due to aging and pre-existing diseases may be aggravated by difficulties in adapting to the new living condition, and due to the lack of motivation and encouragement common in this environment, making the elderly at riskoffrailty and functional decline.[4]

The objective of the study is to assess the presence of frailty and its relation to the sociodemographic and clinical characteristics in a group of institutionalized elderly.

Methods

Cross-sectional study conducted in apublic long-stay institution in Fortaleza, Northeast Brazil, where theygive assistance to abandoned elderly, victims of violence or other social vulnerability.

The study population consisted of 54 elderly who met the following inclusion criteria: to be 60 years old or more, both genders, institutionalized for at least a year and able to answer questions.

Data collection was performed by the researcher during the month of March, 2011. The individual interviewswere held in a privateroom with mean duration of 45 minutes. The sociodemographic and health variables selectedwere gender, age, marital status, education, occupational status, length of institutionalization, chronic diseases, comorbidities, body mass index, need and amount of medicines used. In addition, information on their frailty profile was collected through the Edmonton Frail Scale.[5] The information about diseases and medicines were extracted from medical records of each elderly.

The results were processed and tabulated in the software Statistical Package for Social Sciences version 19.0. For data analysis, we opted for the use of descriptive statistics, absolute and percentage frequency tables. Associations between categorical variables were analyzed using the Chi-square test, with significance level of 0.05.

The development of the study followed national and international ethics standards for research involving humans.

Results

The study included 54 elderly, with a mean age of 72.4±8.5 years, 61.1% male. Regarding the level of frailty, elderly participants were classified, according to the Edmonton Frail Scale as: 3.7% were non-frail, 22.2% were at risk; 74.1% were frail, of which 37.5 % had mild frailty, 35% moderate frailty and 27.5% severe frailty.

Information about the demographic profile of the elderly participants, as well as frailty rank profileare described in table 1. Elderly with mild, moderate and severe frailty were included in the category: frail.

Table 2 presents the clinical characteristics of the elderly, according to levels of frailty. There was significant differences for all the variables studied, except for the variable chronic disease. Regarding Body Mass Index, we highlight the percentage of overweight elderly (24.1%), representing 25% of frail elderly.

Table 1. Sociodemographic variables and levels of frailty

Variables	Non-frail n(%)	At risk n(%)	Frail n(%)	Total n(%)	p-value
Gender					0.013
Male	1(50.0)	8(66.7)	24(60.0)	33(61.1)	
Female	1(50.0)	4(33.3)	16(40.0)	21(38.9)	
Age (in years)					0.043
60-69	0(0)	4(33.3)	10(25.0)	14(25.9)	
70-79	0(0)	6(50.0)	11(27.5)	17(31.5)	
80 or more	2(100)	2(16.7)	19(47.5)	23(42.6)	
Marital status					0.273
Single	1(50.0)	6(50.0)	18(45.0)	25(46.3)	
Separated/divorced	1(50.0)	4(33.3)	14(35.0)	20(37.0)	
Widow	0(0)	2(16.7)	8(20.0)	9(16.7)	
Education					0.249
illiterate	1(50.0)	4(33.3)	20(50.0)	25(46.3)	
Studied for at least 8 years	1(50.0)	7(58.3)	17(42.5)	25(46.3)	
Studied more than 8 years	0(0)	1(8.4)	3(7.5)	4(7.4)	
Occupational status					0.074
Retired	1(50.0)	10(83.3)	31(77.5)	42(77.8)	
Not retired	1(50.0)	2(16.7)	9(22.5)	12(22.2)	
Institutionalization time					0.433
Less than 5 years	1(50.0)	5(41.7)	2(55.0)	28(51.9)	
5 years or more	1(50.0)	7(58.3)	18(45.0)	26(48.1)	

Legend: n= 54; Chi-square test ($p<0.05$)

Table 2. Health characteristics and levels of frailty

Variables	Non-frail n(%)	At risk n(%)	Frail n(%)	Total n(%)	p-value
Chronic diseases					0.184
Yes	1(50.0)	9(75.0)	34(85.0)	44(81.5)	
No	1(50.0)	3(25.0)	6(15.0)	10(18.5)	
Comorbidity					0.049
Yes	2(100)	10(83.3)	23(57.5)	35(64.8)	
No	0(0)	2(16.7)	17(42.5)	19(35.2)	
Body Mass Index					0.01
Underweight	0(0)	10(83.3)	18(45.0)	28(51.8)	
Normal range	1(50.0)	0(0)	12(30.0)	13(24.1)	
Overweight	1(50.0)	2(16.7)	10(25.0)	13(24.1)	
Medicine need					0.003
Yes	0(0)	9(75.0)	36(90.0)	45(83.3)	
No	2(100)	3(25.0)	4(10.0)	9(16.7)	
Amount of medicines					0.026
None	2(100)	3(25.0)	4(10.0)	9(16.7)	
1-2	0(0)	4(33.3)	8(20.0)	12(22.2)	
3-4	0(0)	3(25.0)	10(25.0)	13(24.1)	
5 or more	0(0)	2(16.7)	18(45.0)	20(37.0)	

Legend: n= 54; Chi-square test ($p<0,05$)

Medical records indicated, as more frequent, the following diseases: hypertension (45.5%) and diabetesmellitus (20.4%).

Discussion

The limits of the study results was the cross-sectional design, which does not allow us to establish relations of cause and effect. On the other hand, the implication for nursing refers to minimizing the risks that institutionalized elderly are exposed to, through the knowledge of levels of frailty.

The majority of male elderly in this study differs from the results found in two international researches.[6.7] This finding was expected, since the institution researchedhosts, in most cases, ex-homeless, destitute, lost or abandonedelderly, without social and family reference.

In this research, the prevalence of frailty among men contrasts with results from another Brazilian studythat found a prevalence of 9.7% of frail elderly, accounting for 72.7% of frail elderly women.[8] This difference may be related, in part, to the precarious living conditions of the elderly before institutionalization, since frailty is strongly influenced by socioeconomic conditions, lifestyle, and social support network.[9]

The results of this study confirm higher frequency of frailty with increasing age, being more prevalent among the oldest elderly (80 and over).[9] It is noteworthy that frailty is a multidimensional syndrome involving biological, physical, cognitive, social, economic and environmental factors, not being exclusively resulting from the aging process.

Although the presence of chronic diseases is not always accompanied by frailty, its harmful and cumulative effects, during the aging process, lead to an increased risk of adverse health events,[10] resulting in a higher probability of the elderly to become frail due to clinical outcomes that it can possibly present. These events are confirmed numerically, because 85% of the frail elderly had chronic diseases, with a statistically significant association for the presence of comorbidities ($p = 0.049$).

The Body Mass Index showed significant differences with frailty, being underweight prevalent among the frail and at risk for this condition. There was also a significant percentage of overweight among frail or at risk elderly, as the Edmonton Frail Scale. Similarly, the study results on frailty, health and well-being found in elderly prevalence of low birth weight between pre-frail elderly (20.2%) and frail (20.8%), and also a significant amount of elderly with or without frailty with obesity (24.4%).[10]

The problems associated with the nutritional status of the elderly may accelerate the onset of frailty and vulnerabilities, hindering their recovery and reducing significantly their time of life, especially in the presence of chronic diseases. Thus, both malnutrition and overweight are conditions that should be considered as potential markers or signs of frailty, in view of the risk of medical complications for the elderly.[11]

Regarding the use of medication by elderly participants in the research, it was found that frailty increases with need and the amount of medicineprescriptions. Similar results were found in a research with elderly patients in an outpatient clinic of Southeast Brazil.[6] Another study found an association between frailty and changes in pharmacokinetics and pharmacodynamics of various medicines, as well as the amount of medicines consumed.[12]

Thus, the prescription of multiple medications to the elderly should be cautious, as well as observation of the occurrence of adverse events.

Given the above, the early identification of the frailty syndrome is necessary, taking into account its impact on the lives of the elderly, affecting their quality of life, functional independence and their own autonomy.[13] Therefore, it is essential for professionals to use objective tools, with quick and easy applicability, validated, and able to point out, more objectively, indicators of frailty that need to be evaluated in the elderly. In this study, we opted for the application of Edmonton Frail Scale validated and adapted to the Brazilian context. Its use allowed us to detect the profile of frailty of institutionalized elderly, being easy to handle and apply, and is useful for health professionals in the context of clinical practice and research.[5]

Thus, it is necessary to includefrailty assessment as part of the multidimensional institutionalized elderlyassessment, assisting health professionals in the development of clinical interventions and strategies to prevent or minimize the effects of this syndrome and its consequences on quality of life of this population.

Conclusion

Frailty was significantly associated with gender, age, comorbidities, body mass index, and amount of medicines needed.

Collaborations

Borges CL; Silva MJ; Clares JWB; Bessa MEP and Freitas MC contributed in the design, development of research and interpretation of data, drafting, critically revising it for important intellectual content and final approval of the version to be published.

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