Frailty profile for geriatric patients in outpatient clinic of RSUP H. Adam Malik Medan

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Abstract. Frailty is a circumstance of increased vulnerability to bad resolution of homeostasis after a stressor occasion, which increases the risk of adverse outcomes. Early detection of frailty in elderly patients is a must but is rarely in the Geriatric Outpatient settings. We conducted a study to see the frailty profile for geriatric patients in the outpatient clinic of RSUP H. Adam Malik Medan. A cross-sectional research with a descriptive method was in the Geriatric Outpatient Clinic of Adam Malik Hospital from July-September 2016. The population of this study was patients from the Geriatric Outpatient Clinic, and sampling was by using consecutive methods. Samples were by questionnaires assessing (FRAIL Scale).This study was140 patients. Based on age, the age group of 81-90 years was dominantly frail (53.8%). Most of the subjects worked as government employees (109 subjects), and most of them were robust (42.2%). Based on income, both groups were dominated by robust (38.3% and 41.3%, respectively). Based on BMI, most were robust with underweight 33.5%, normoweight 37.8%, and obese 44.7%. Among the 140 patients, frailty was in the 27.1% of the subjects and the contributing factors were Age, Gender, and Obesity.

1. Introduction

Aging is a process that transforms a healthy adult into more frail due to the declining in the physiological system and increases the susceptibility to various diseases and death exponentially. The group of people who experience the effects of aging is known as the elderly. Regarding age, elderly is described as someone whose age is more than 60 years (Asia) or 70 years (America, Europe).[1] In Indonesia,by the year 2000, the prevalence of elderly (≥ 60 years) was 14,396,745 people and increased in the year 2010 up to 18,043,712 people. It is due to an increase in life expectancy.[2] An elderly who has a high life expectancy will survive with more complex health problems.Therefore, elderly patients are often found with more than one chronic disease or multipathology.[3]

One of the most problem commonly found in elderly is the clinical condition of frailty. Frailty associated with the loss of physiological reserve in the respiratory, cardiovascular, renal,hemopoietic and clotting systems,endocrine system, immune system, skeletal muscles and declining brain function.[4] FRAIL Scale is a simple questionnaire that includes five components (Fatigue, Resistance, Ambulation, Illness, and Loss of weight) with a high sensitivity and negative predictive value in differentiating vulnerability from robustness. The questionnaire is relatively simple, easily and quickly administered, compared to other screening tools.[5,6] A study from Enrique Diaz and colleagues showed that frailty measured through the FRAIL scale associated with an increase in the rate of mortality, hospitalizations, dependency in activities of daily life, and falls.[7]

Based on this, we conducted a study to see the frailty profile for geriatric patients in the outpatient clinic of RSUP H. Adam Malik Medan.

2. Methods

2.1. Patient Selection

The type of this research is a cross sectional study with a descriptive method done in the Geriatric Outpatient Clinic of Adam Malik Hospital. Sampling isfrom July-September 2016 by using consecutive sampling with a total of 140 patients. The inclusion criteria were patients from the Geriatric Outpatient Clinic, Age ≥ 60 years and are willing to take part in the study, while mental illness (such as psychotic disorders and using antidepressant) is the exclusion criteria.

2.2. Assessment of Frailty

Subjects of the study were interviewed to obtain data about age, gender, occupation, weight, income, and history of illness (diabetes, coronary artery disease, lung disease, and lumbal spine problem). Subjects were also interviewed by using the FRAIL scale (Fatigue, Resistance, Ambulation, Illness, and Loss of weight Scale) questionnaire during their visits to the clinic.

2.3. Statistical methods

Descriptive analysis was used to express the relationship between each component and the FRAIL Scale results. The data were by using SPSS ver.22 (SPSS Inc., Chicago).

3. Results

This study was 140 patients from the geriatric outpatient clinic who have met the inclusion and exclusion criteria. More than half (80%) of the subjects were female. The most ages found in the age group of 60-70 years (80%). Most subjects were anemployee as government employees (80%) with an above average income (57.1%). Subjects suffered from coronary artery diseases were 17.9%, diabetes mellitus 59%, lung diseases 16%, lumbal spine problems 29% and osteoarthritis 26.6%. Subjects were tested with Time up and test, and most subjects were within the normal limit (48.6%). Based on FRAIL Scale, subjects were three categories where the division was robust (40%), pre-frail (32.9%), and frail (27.15) (Table1).

Table 1. Demographic characteristic.

Characteristics	n=140
Gender	
Man	60 (42.9)
Woman	80 (57.1)
Age	
60-70 years	80 (57.1)
71-80 years	47 (33.6)
81-90 years	13 (9.3)
Occupations	
Soldiers	1 (0.7)
Farmers	3 (2.1)
Midwives	1 (0.7)
Teachers	6 (4.3)
Housewives	12 (8.6)
Entrepreneurs	6 (4,3)
Government employees	111 (80)
Income	
Average (Rp. 1-2.9 Million)	60 (42,9)
Above Average (Rp. 3-5 Million)	80 (57.1)

Timed Up and Go (TUG)	
independent (≤ 10 s)	37 (26.4)
Independent in some activity (11-20 s)	68 (48.6)
Variation in some activity (21-29s)	27 (19.3)
Mobility disrupted (>30 s)	8(5.7)
FRAIL Scale	
Robuste	56 (40.0)
Pre-frail	46 (32.9)
Frail	38 (27.1)
Diabetes Mellitus	
Negative	81 (57.9)
Positive	59 (42.1)
CAD	
Negative	115 (82.1)
Positive	25 (17,9)
Lung Diseases	
Negative	124 (88.6)
Positive	16 (11.4)
Lumbal Spine problems	
Negative	111 (79.3)
Positive	29 (20.7)
Osteoarthritis	
Negative	100(71.4)
Positive	40(26.6)

The result of the descriptive analysis of the FRAIL Scale results and the demographic data of the subjectsarein table 2. Based on gender, male subjects were dominant robust (40%) and the female subjects (40%). Based on age, age group of 60-70 years was dominant robust (48.8%), age group of 71-80 years was equal between pre-frail (36.2%) and frail (36.2%), and the age group of 81-90 years was dominant frail (53.8%). Most of the subjects worked as government employees (111 subjects), and most of them were robust (42.2%). Based on income, both groups had been dominated by robust (38.3% and 41.3%, respectively). Based on BMI, most were robust with underweight 33.5%, normoweight 37.8%, and obese 44.7%.

Table 2. Frail scale composition by age, sex, occupation, income and BMI.

	Frail Scale			
	Robust	**Pre-frail**	**Frail**	**Total**
Gender				
Men	24 (40.0%)	18 (30.0%)	18 (30.0%)	60 (100.%)
Women	32 (40.0%)	28 (35.0%)	20 (25.0%)	80 (100.%)
Age				
60-70 years	39 (48.8%)	27 (33.8%)	14 (17.5%)	80 (100.0%)
71-80 years	13 (27.7%)	17 (36.2%)	17 (36.2%)	47 (100.0%)
81-90 years	4 (30.8%)	2 (15.4%)	7 (53.8%)	13 (100.0%)
Occupations				
Soldiers	1 (100.%)	0 (0.0%)	0 (0.0%)	1 (100.0%)
Farmers	0 (0.0%)	2 (66.7%)	1 (33.33%)	3 (100.0%)
Midwives	0 (0.0%)	0 (0.0%)	1 (100.0%)	1 (100.0%)
Teachers	3 (50.0%)	1(16.7%)	2 (33.3%)	6 (100.0%)
Housewives	4 (33.3%)	3 (25.0%)	5(41.7%)	12 (100.0%)
Entrepreneurs	2 (40.)%)	2 (40.0%)	2 (20.0%)	6 (100.0%)
Government employees	46 (42.2%)	38 (33.00%)	27(24.8%)	111 (100.0%)
Income				

Average	23 (38.3%)	20 (33.3%)	17(29.3%)	60 (100.0%)
Above Average	33 (41.3%)	26 (32.5%)	21 (26.3%)	80 (100.0%)
BMI				
Underweight	1 (3.3%)	0 (0.0%)	2 (66.7%)	3 (100.0%)
Normoweight	34 (37.8%)	31 (34.4%)	25 (27.8%)	90 (100.0%)
Obese	21 (44.7%)	15 (31.9%)	11 (23.4%)	47 (100.0%
TOTAL	**56 (40.0%)**	**46 (32.9%)**	**38 (27.1%)**	**140 (100.0%)**

4. Discussion

Frailty is related to several inter-related physiological systems and associated with an increase in the rate of mortality, hospitalizations, dependency in activities of daily life, and falls. Acknowledging this condition at an early stage is a must, and one of the simplest tools to measure frailty is the FRAIL Scale. The study aims to get a profile of frailty among the elderly patients in the Geriatric Outward Clinic on RSUP H. Adam Malik.

This study was 140 patients, and 27.1% of the subjects were frailty based on the results of the FRAIL Scale. More than half (80%) of the subjects were female, and frailty was found dominant in female (25%) rather than male. It is consistent with the study from Ruth et al that concludes elderly women is frailer (frailty) than men.Inflammation may play a key role in frailty pathogenesis. Older women accumulate more abdominal fat than older men, and this may be acontributor to their frailty status. Abdominal adiposity is associated with low-grade systemic inflammation, mediating its link with metabolic syndromes.[8]

The most ages found in the age group of 60-70 years (80%) and based on the FRAIL Scale, frailty was in 17.5% subjects of the group. But, frailty was dominant in the age group of 81-90% (53.8%). This result is consistent with the previous study that the prevalence of frailty is found in the age of >60 years and the prevalence increases with age. Oxidative stress or cumulative damage to mitochondria and mitochondrial DNA (mtDNA) caused by reactive oxygen species (ROS) is one of the causes of aging.[5,9]

Most subjects were as government employees (80%) with an above average income (57.1%), and frailty was found 24.8% and 26.3% respectively. Although we found no prior study regarding the correlation between types of occupation and income, it is probably due to lack of exercise. Lack of physical exercise in elderly is one of the risk factors of frailty and working as a civil servant does not require much physical activity.

The results showed that in obese subjects, 23.4% were frail and 31.9% were pre-frail. Obesity is correlated with increased oxidative stress and contribute to frailty in elderly. A study conducted by Kathryn et al. concludes that obese in elderly contributes to frailty and that weight loss and exercise interventions improve function andbiomarkers of physical frailty among obese seniors.[10]

The weakness of this study is the number of samples that are not too large so that further research is neededon a larger scale to assess the effectiveness of FRAIL Scale.

5. Conclusions

We conduct a cross sectional research to see the frailty profile for geriatric patients in the outpatient clinic of RSUP H. Adam Malik Medan and concludes that among the 140 patients, frailty was in the 27.1% of the subjects and the contributing factors were Age, Gender, and Obesity. It is still a preliminary study, and further analytic research is still needed.

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