Epidemiology of Frailty and Malnutrition among community dwelling Elders compared to Nursing Homes Elders in Greater Cairo

Thesis

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Bassant Abdullah

بِسْمِ ٱللَّهِ ٱلرَّحْمَٰنِ ٱلرَّحِيمِ

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صدق الله العظيم

سورة مريم آية (٤)

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List of Abbreviations

Abb.	Full term
ADLs	Activities of daily living
ASPEN	American Society for Parenteral and Enteral Nutrition
BMI	Body Mass Index
CAPMAS	Central Agency for Public Mobilization and Statistics
CFS	Clinical Frailty Scale
CHS	Cardiovascular Health Study
COPD	chronic obstructive pulmonary disease
CSHA	The Canadian Study of Health and Aging
DM	Diabetes Mellitus
Eg	For example
EFS	Edmonton Frail Scale
ESPEN	European Society of Clinical Nutrition and Metabolism
kg	kilogram
GFI	Groningen Frailty Indicator
GS	Grip stregnth
HGS	handgrip strength
HIV	Human Immunodeficiency Virus
IADLs	Instrumental activities of daily living
MAC	Mid arm circumference
MNA	Mini-Nutritional Assessment
MUST	The Malnutrition Universal Screening Tool
SHARE	Survey of Health, Aging and Retirement in Europe
SHARE -FI	SHARE - Frailty Instrument
SOF	Study of Osteoporotic Fracture
SPSS	Statistical Package for Social Science
TFI	Tilburg Frailty Indicator
USA	United states of America
WHAS	Women's Health and Aging Study

ABSTRACT

Background: Frailty and malnutrition are common problems among elders. Studying these two concepts is very important as both of them amenable for preventive interventions and are reversible.

Aim: The purpose of this study was to measure the prevalence of frailty and malnutrition among two groups of Egyptian elderly and to analyze the relationship between these two concepts on three levels in a sample of Egyptian elderly.

Design: Cross-sectional study.

Methods: The study included 350 elderly participants aged 60 and over, 175 participants from nursing homes and 175 community dwellers. The following measurement was obtained: sociodemographic data, health status, functionality of family (family APGAR score), screening for depression (5 item Geriatric Depression Scale) and cognitive status (Mini-Mental state). Frailty was measured using SHARE frailty index whereas nutritional status was measured using the Mini Nutritional Assessment questionnaire.

Results: Frailty was highly prevalent among the two study groups with a percentage of 71.7% although it was more frequent among nursing homes. Frailty and malnutrition were highly prevalent in older age, in females, in widowed elderly, in those living alone, in participants with dysfunctional family, with comorbidities, with more than three comorbidities, with ischemic heart disease, receiving more than 3 drugs, with depressive symptoms and in those with lower cognitive performances. Strong relationship was found between 14 out of 18 MNA items and frailty status.

Conclusion: Frailty and malnutrition are highly prevalent problems among elderly in both nursing homes and community dwellings. They are two closely related sharing common characteristics.

Key words: Frailty, Malnutrition, APGAR score

INTRODUCTION

The world's older population continues to grow at an unprecedented rate. Today, 8.5 percent of people worldwide (617 million) are aged 65 and over. According to a new report, this percentage is projected to jump to nearly 17 percent of the world's population by 2050 (1.6 billion) ***(He et al., 2016).*** In Egypt, citizens above the age of 60 accounted for 6.9 percent of Egypt's population in 2015.The percentage represents six million citizens, three million men and three million women, according to the Central Agency for Public Mobilization and Statistics (CAPMAS). Based on the 2015 population survey, the percentage is subject to increase to 11.5 percent by 2030 ***(CAPMAS, 2016).***

There are certain health conditions that are expected to be a challenge to the health care system with the increasing aging population and one of the most serious challenges facing the world today is how to plan for a rapidly aging population. Healthcare systems struggle to cope adequately with the common presentations of ill health in older people who are frail mainly because their healthcare states change suddenly and unpredictably. This is the basis of comprehensive geriatric assessment which has been demonstrated to optimize outcomes for older people with frailty ***(Clegg et al., 2011).***

Frailty and malnutrition are common problems among elderly population.

Frailty is an increased vulnerability to advanced and persistent loss of function that, at least initially, only becomes evident under stress. Frailty has been described as loss of ability to adapt to stress because of diminished functional reserves ***(Varadhan et al., 2008)***. According to this simple description, frailty may be said to provide an exaggerated example of how physiologic functions attenuate with aging ***(Fried et al., 2009).*** Frailty is a term that has enjoyed substantial growth since the 1980s, but it often remains undefined. Even when defined, it is evident that different authors emphasize different aspects of frailty.

Malnutrition in the elderly is characterized by insufficient dietary intake, poor appetite; muscle wasting and weight loss. Malnutrition is defined as a chronic state in which a combination of varying degrees of over – and under nutrition and inflammatory activity change body composition ***(Soeters et al., 2009).*** In the elderly malnutrition is an ominous sign. Without intervention, it presents as a downward trajectory leading to poor health and decreased quality of life (***Chenc et al., 2001)***.

Underweight as well as obesity are both associated with higher risk of frailty***(Espinoza et al., 2007; Blaum et al., 2005)***. Also, Malnutrition can increase age-associated loss of muscle mass and strength. Therefore; it has an important role in the development of sarcopenia and consecutively also of physical impairment, which both represent substantial elements of the frailty syndrome (***Bales et al., 2002; Bauer et al., 2008)***.

Magnitude of the problem

The prevalence of malnutrition in a recent review of ***Crede 2012*** was 27 % among elders and the prevalence of frailty was 17% in community dwelling elders in a multinational study that included 10 European Countries ***(Santos-Eggimann et al., 2009).*** Another study has revealed that about one half of the nursing home patients were frail ***(Kojima, 2015).*** However; In Egypt the prevalence of malnutrition was 10.8 % among elders ***(Khater et al., 2011),*** and the prevalence of frailty in institutionalized elders was 58.7% ***(Tayel et al., 2016)*** and 23.9% among community-dwelling elders ***(Ebeid et al., 2016).***

Rationale

Identification of frailty and malnutrition in early stage is important because interventions may potentially prevent or delay their clinical consequences as both of them considered as an early stage of disability which, differently from disability, are still amenable for preventive interventions and are reversible ***(Tavassoli et al., 2014)***

Recently, the close relationship between malnutrition and frailty has gained growing attention as there is a great overlap between malnutrition and frailty. Several studies focused on the association between the assessment of the nutritional status and frailty in older adults***(Van Kan et al., 2011, Bollwein et al.,***

2013 and Dorner et al., 2014). However, data are lacking about frailty in developing countries and in less developed countries, which are faced with rapidly growing elderly population and where the prevalence of frailty and malnutrition is high ***(Ferdous et al., 2010).***

A better understanding of frailty and malnutrition could also help practitioners consider these conditions together with respect to diagnosis and treatment ***(Celia et al., 2017)***.

However, there are a scarce of studies in Egypt which study the relationship between these two geriatric problems; frailty and malnutrition and this is the role of the current study.

GOAL AND OBJECTIVES

Goal:

To prevent the onset of disability, loss of independence and other outcomes for which elders are at risk by screening and early diagnosis of malnutrition and frailty.

Objectives:

1. To measure the prevalence of frailty and malnutrition among group of elders in some nursing homes and another group of elders from community-dwellings.
2. To compare the prevalence of frailty and malnutrition in the same sample.
3. To identify if there is an association between frailty and malnutrition in elderly population.