Frailty as a Risk of falls among Obese Elderly women

Thesis

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Ghada Saeed Abohashim

Contents

List of Abbreviations

ACEI	:	Angiotensin-converting enzyme inhibitors
ADL	:	Activities of Daily Living Scale
AF	:	Atrial fibrillation
AMTS	:	Abbreviated Mental Test Score
ATE	:	Adipose tissue expansion
BMI	:	Body Mass Index
CD	:	Cluster of differentiation
CDC	:	Center for Disease Control
CMV	:	Chronic/persistent Cytomegalovirus
CNS	:	Central nervous system
FI	:	Frailty index
FRAT	:	Fall Risk Assessment Tool
GDS	:	Geriatric depression scale.
GH	:	Growth hormone
HS	:	Highly significant
IADL	:	Instrumental Activities of Daily Living Scale
IGF-1	:	Insulin growth factor 1
IL-6	:	Interleukin 6
IQR	:	Inter-quartile range
LDL	:	Low density lipoprotein
MMSE	:	Mini Mental Status Examination Test
MR	:	Mineral corticoid receptors
NS	:	Non significant
OH	:	Orthostatic hypotension
OSAS	:	Obstructive sleep apnea syndrome
PD	:	Parkinsonism
S	:	Significant
SES	:	Socioeconomic status
SO	:	Sarcopenic obesity
SPSS	:	Statistical Package for Social Science
TNF-α	:	Tumor necrosis factor-α

List of Abbreviations (Cont.)

TUG	:	Timed "Up & Go" Test
WBC	:	White blood cell
WHO	:	World Health Organization

List of tables

List of Figures

Abstract

Risk of falls among obese elderly females

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Abstract

Background: It has been suggested that obesity increases fall risk, based on diminished static balance and increased fall-related injury risk.

Aim of study: To determine whether overweight and obese individuals have higher fall risk than individuals of healthy weight.

Methods: A case control study conducted on140 elderly females participants aged 60 years and above. They were divided into 2 groups (Obese and Non obese) according to their Body Mass Index (BMI). A comprehensive geriatric assessment was done and risk of falls was assessed by timed up and go test.

Results: it was found that by using TUGT there was highly significant (p-value=0.001) higher risk of falls among obese elderly female subjects than the non-obese. 50% of obese female in our study have positive risk of fall while only 20%of non-obese group at risk of fall by TUGT.

Conclusion: It was concluded that obese elderly females are at higher risk of falling than non-obese**.**

Keywords: Risk of falls, Obesity, elderly.

Introduction

Older adults are a growing segment of the population in most countries. Accordingly, the number of persons with disability and dependence is also likely to increase over the next decades. Frailty is a syndrome characterized by dysfunction of multiple systems, reduced functional reserve and increased vulnerability to environmental stressors. As a consequence, frail individuals are at increased risk of illness, disability, institutionalization and death**(Tucker et al.,2013).**

The prevalence of overweight and obesity in older adults is very high in many countries. There is evidence that obesity in the elderly increases the risk of physical inactivity, poor functional performance, and mobility limitations **(Goodpaster et al.,2010).**

The number of obese elderly persons is rapidly increasing. Obesity has important functional and economic implications in elderly. Obesity increase risk of diseases, hospitalization, and also increase risk of frailty**(Hubbard et al., 2010).**

Fried et al defined frailty as: "A physiologic syndrome characterized by decreased reserve and resistance to stressors, resulting from cumulative decline across multiple physiologic systems, and causing vulnerability to adverse outcomes" ***(Fried & Walston 2003).***

Frailty symptoms are common in elderly; they have reduced reserves and stressors resistance and increase risk of falls, disability and hospitalization. Frail persons also have more difficulty coping with consequences of major surgeries such as hip fracture than individual who are not frail, and many of them experience more significant functional losses, frailty not only affect physical and mental health of elderly but also result in great burden of care to families and society **(Liu,2015).**

Falling is defined as sudden, unintentional change in position causing an individual to land on lower level, on an object, the floor, the ground or other surface. Falls have been shown to result in increased morbidity and responsible for over 17million disability-adjusted life years lost. One in three adult over the age of 65 will experience at least one fall every year **(Villarreal etal.,2012).**

A study was done to reveal association between obesity and frailty which state that the association between BMI and frailty showed a U-shaped curve. This relationship was consistent across different frailty measures. The lowest frailty index (FI) scores and lowest prevalence of Fried frailty were in those with BMI 25-29.9. At each BMI category, and using either measure of frailty, those with a high waist circumference were significantly more frail **(Romero-Ortuno et al., 2011).**

Obesity is associated with structural and functional limitations with impairment of normal gait. Although falls have been identified as the most common cause of injuries in the obese, the mechanisms associated with increased fall risk among the obese population are still unknown. Results indicated that young obese adults walked similarly as their lean counterparts except for exhibiting greater step width and higher transversal friction demand, suggesting that slip-induced fall risks are similar along the horizontal direction, but increased along the transversal direction under certain floor conditions **(Chang et al., 2011).**

Aim of the work

To assess frailty as a risk of falls in obese elderly women.

Chapter 1
Frailty

Frailty is a common clinical syndrome in older adults that carries an increased risk for poor health outcomes including falls, incident disability, hospitalization, and mortality **(Gill et al.,2006).**

The geriatric syndrome of frailty is a syndrome of physical vulnerability characterized by multisystem dysfunction and lack of physiological reserve. It is associated with medical comorbidities and increased risk of disability, increased health services usage, and mortality **(Gill et al.,2006)**

The frailty syndrome should be a target of investigations and interventions given its impact on elderly individuals, their families and the society as a whole (**Lopes et al.,2012)**

Definition

`Frailty is theoretically defined as a clinically recognizable state of increased vulnerability resulting from aging-associated decline in reserve and function across multiple physiologic systems such that the ability to cope

with everyday or acute stressors is comprised **(Rockwood et al.,2005)**.

It is also has been defined by Fried et al. as meeting three out of five

1- Weight loss: unintended weight loss of more than 5 kg or 5% of body weight in the last year
2- Weakness: grip strength in the lowest 20% at baseline, adjusted for gender and body mass index
3- Exhaustion as indicated by self-report exhaustion on maximal effort capacity
4- Slowness: as measured in walking speed of 6 meters, being in the lowest quintile (in the original article by Fried et al. it was 15 feet walking speed).
5- Low physical activity or mobility: as calculated according to the patient's report of his or her weekly activities**.**

(Fried et al.,2005)

A pre-frail stage, in which one or two criteria are present, indentifies a subset at high risk of progressing to frailty **(Fried et al.,2005)**