



ORIGINAL ARTICLE

Frailty, body composition and nutritional status in non-institutionalised elderly[☆]



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KEYWORDS

Ageing;
Frail elderly;
Body composition;
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Abstract

Objective: Frailty is a clinical syndrome characterised, among other signs, by involuntary weight loss and decreased muscle strength. The aim of this study was to analyse associations between frailty, body composition and nutritional status in non-institutionalised elderly people in the municipality of Alfândega (Bragança-Portugal).

Method: Observational, prevalence and association study involving 220 elderly (mean 75.8 ± 6.8 years of age; 68.8% women). Frailty was assessed according to Fried criteria, body composition by bioelectrical impedance analysis and nutritional status using the Mini Nutritional Assessment Short-Form.

Results: The prevalence of frailty was 23.6%. Frail participants had, on average, lower total muscle mass and lower segmental muscle mass (arms and legs) than pre-frail and non-frail ($p < 0.001$). From the elderly at risk of malnutrition or undernourished ($n = 24$), the majority ($n = 13$) had frailty syndrome. It was observed that 41.2% of the elderly with low weight were frail. This syndrome prevailed only in 17.1% of the eutrophic persons, increasing again to 22.4% in the overweight group ($p < 0.001$).

Conclusion: The phenotypic profile of frail elderly was characterised by lower muscle mass. The results of our study suggest that both underweight and overweight may be associated with frailty. There is the need to prevent and manage frailty, not only taking into account possible

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PALABRAS CLAVE

Envejecimiento;
Anciano frágil;
Composición
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Estado nutricional

treatable medical causes, but also by intervening in important pillars, such as physical activity, dietary and nutritional problems.

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Fragilidad, composición corporal y estado nutricional en ancianos no institucionalizados

Resumen

Objetivo: La fragilidad es un síndrome clínico caracterizado, entre otros signos, por la pérdida involuntaria de peso y fuerza muscular disminuida. El objetivo de este estudio fue analizar asociaciones entre fragilidad, composición corporal y estado nutricional en ancianos no institucionalizados del municipio de Alfândega (Braganza-Portugal).

Método: Estudio observacional, de prevalencia y asociación cruzada en el que participaron 220 ancianos (edad media de $75,8 \pm 6,8$ años; 68,8% mujeres). La fragilidad fue evaluada según el fenotipo de Fried, la composición corporal por impedancia bioeléctrica y el estado nutricional mediante el *Mini Nutritional Assessment Short-Form*.

Resultados: La prevalencia de fragilidad fue del 23,6%. Los participantes frágiles presentaban, en promedio, menor masa muscular total y menor masa muscular por segmentos (brazos y piernas) que los prefrágiles y no frágiles ($p < 0,001$). De aquellos ancianos en riesgo de desnutrición o desnutridos ($n = 24$), la mayoría ($n = 13$) presentaban síndrome de fragilidad. Se observó que el 41,2% de los ancianos con bajo peso eran frágiles. Dicho síndrome prevaleció tan solo en el 17,1% de las personas eutróficas, aumentando de nuevo al 22,4% en el grupo con sobrepeso ($p < 0,001$).

Conclusión: El perfil fenotípico de los ancianos frágiles se caracterizó por menor masa muscular. Los resultados de nuestro estudio sugieren que tanto el bajo peso como el sobrepeso podrán conducir a situaciones de fragilidad. Es fundamental prevenir y gestionar la fragilidad, no solo teniendo en cuenta las posibles causas médicas tratables, sino también interviniendo en pilares importantes, como la actividad física y los problemas dietéticos y nutricionales.

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What is known?

Multiple organic and systemic changes taking place during the ageing process are reflected in body composition and nutritional status of the elderly.

With regards to body composition, studies report a lower muscle and bone mass which in turn affects muscle strength and increases functional deterioration. Moreover, nutritional status affects the health and quality of life of elderly people.

Both sarcopenia and malnutrition may lead to frailty in the elderly and are commonly found problems in the geriatric population. In accordance with the phenotype developed by Linda Fried, frailty in the elderly is a clinical syndrome which is identifiable by the presence of at least 3 of the following criteria: involuntary weight loss, fatigue/exhaustion, reduced physical activity, slowness in walking and decreased muscle strength.

Since the phenotype model assesses clinical criteria which is closely linked with sarcopenia, research incorporating clarifying variables of the model itself is necessary, together with those governing body composition and nutritional status.

What does this paper contribute?

This research study is a contribution to previously provided evidence of aspects which have not been investigated in depth before, such as the prevalence of frailty in the Portuguese elderly and especially the results of the various components of body composition (muscle mass, bone mass, fat and water in the body) differentiating between non-frail, pre-frail and frail elderly people.

Study findings outline the need for preventing and managing frailty, not just taking into account chronic illnesses, but also assessing the promotion of physical activity and dietary and nutritional problems.

Together with the rest of the evidence, results may contribute to the design of interventional and active ageing programmes for the elderly.

Introduction

Frailty is a geriatric syndrome characterised by the loss of reserves and energy in many organs and systems, which have lost their homeostatic capacity to deal with the stressful events of everyday life.¹ Although there is no standard diagnosis for the frail elderly person, we put forward the

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