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Dynapenia and low skeletal muscle mass in older-age women

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INTRODUCTION

Sarcopenia has been defined as a low skeletal muscle mass (LSMM) with impairment of strength and motility. For the operationalization of this definition, different criteria have been used to define low muscle mass, dynapenia and motor deterioration. And several epidemiological findings suggest that LSMM and dynapenia are associated with both mortality and physical disability. However the association of muscle mass loss and dynapenia is still controversial. Perhaps derived from the coexistence of various operational definitions of LSMM, without there being a gold standard.

The operative definition of low skeletal muscle mass and strength of the European Working Group on Sarcopenia in the Elderly (EWGSPOP) is a consensus conclusion of a group of experts based on literature reviews and scientific discussions.

The Foundation for the National Institutes of Health Project Sarcopenia (FNHISP) cut points for grip strength and lean mass, derived from classification and regression tree analysis in pooled cross-sectional data stratified by sex (7,582 men and 3,688 women)

Since there are different criteria for LSMM, agreement between operational definitions is important, and several groups have reported a low agreement between these operational definitions (kappa below 0.4). Therefore, it is important to be aware of the effect of the use of one or the other of these definitions on the associations

Purpose: This study aimed to examine the association between dynapenia and LSMM defined by several operational definitions in older-aged women.

METHODS

We evaluated 107 women aged 65 or more years from the western of México. A whole body DXA scanning (Hologic QDR 4500) was performed to evaluate the body composition. The indicators and cut points used to diagnose LSMM were: 1) appendicular lean soft tissue absolute kilograms (ALSTKG) ≤ 15.02 ; 2) appendicular lean soft tissue corrected by body mass index (ALST/BMI) < 0.512 , both according to The Foundation for National Institutes of Health Sarcopenia Project (FNHISP); and 3) appendicular lean soft tissue corrected by squared height (ALST/HT2) ≤ 5.45 as established by The European Working Group on Sarcopenia in Older People (EWGSPOP). The criteria of dynapenia was a maximum isometric strength (MIS) of the hand and forearm muscles equal or lower the 20 kg evaluated by handgrip dynamometry (Jamar Handgrip Dynamometer).

RESULTS

Overall prevalence of dynapenia was 71.3%. The prevalences of LSMM and their respective prevalence of dynapenia are showed in Table 1. The probability for dynapenia was significant for women with LSMM defined by ALSTKG and ALST/BMI. No statistical probability was observed with ALST/HT2

Graphical1. Prevalence of low skeletal muscle mass and dynapenia in Mexican older women

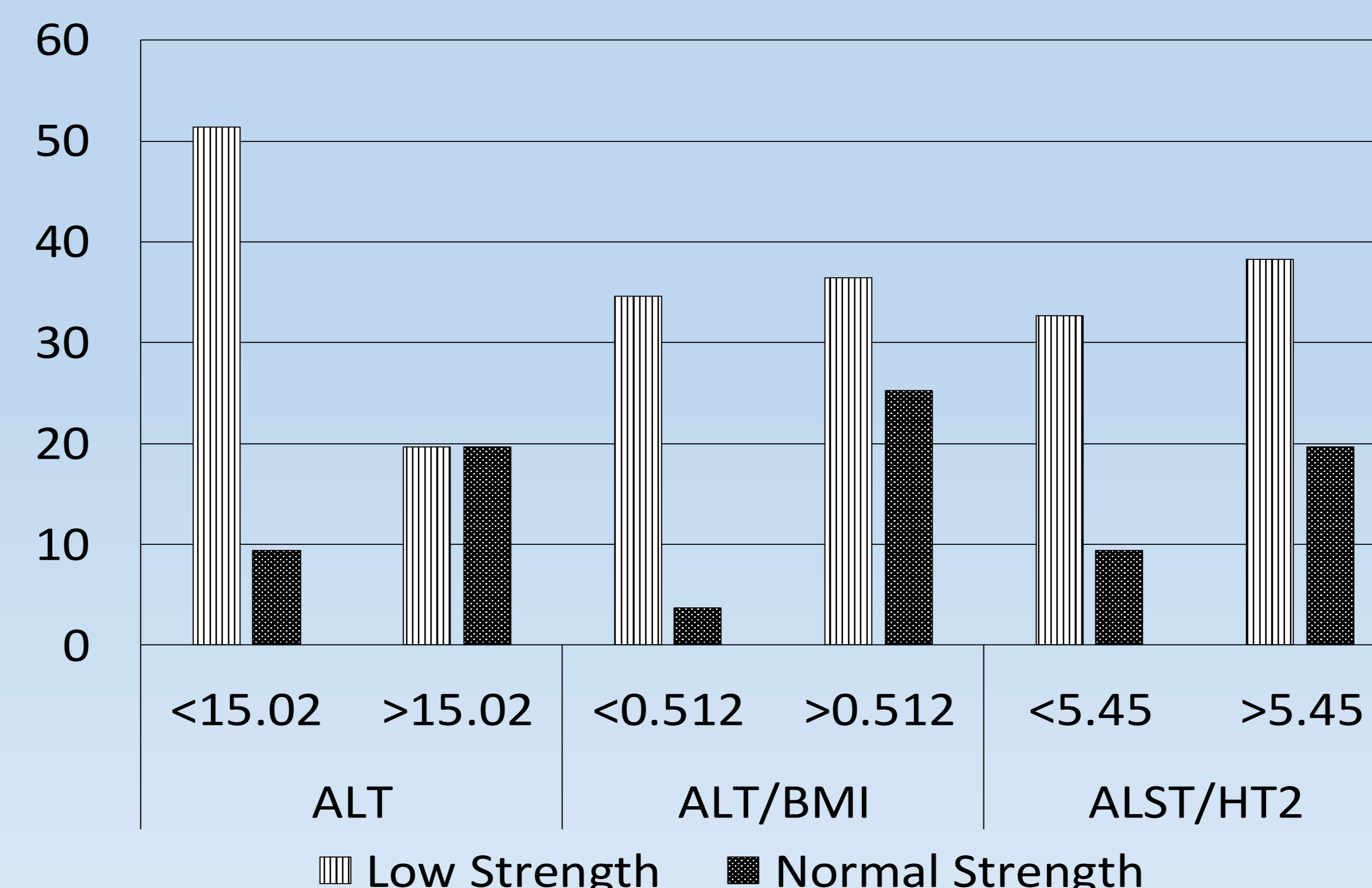


Table1. Dynapenia in older-aged female adults with LSMM

LSMM criterial	LSMM (%)	Dynapenia (%)	OR	95% confidence interval
ALT <15.02 kg	60.75	84.62	5.5	2.2 to 13.6
ALT/BMI <0.5012	38.32	90.24	6.4	2.0 to 20.1
ALST/Ht ² <5.45	42.06	77.78	1.8	0.8 to 4.3

CONCLUSIONS

We observed a high prevalence in both loss of muscle mass and dynapenia in our sample. Prevalence of dynapenia is higher in women with LSMM defined by FNHISP criteria. Our findings suggest that several indicators should be taken in consideration in order to properly assess the impact of LSMM

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