

The need for a new cut-off value to increase diagnostic performance of bioelectrical impedance analysis compared with dual-energy x-ray absorptiometry to measure muscle mass in Indonesian elderly

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Abstrak

ABSTRACT

Background: the use of bioelectrical impedance analysis (BIA) is affected by the population setting, the type of BIA, and the cut-off point being used. The aim of this study was to determine the diagnostic performance of BIA to measure muscle mass in Indonesian elderly outpatients aged 60 years or more. Methods: a cross-sectional study was conducted at the Geriatric Clinic of Cipto Mangunkusumo Hospital from April to June 2018. The muscle mass was measured using BIA Tanita MC-780MA (Tokyo, Japan) with dual-energy x-ray absorptiometry (DXA) as the reference test. Analysis on the cut-off point was performed based on the Asian Working Group of Sarcopenia (AWGS) criteria and the new cut-off point. Results: from 120 subjects, 74 were female (61.7%). The diagnostic performance of BIA based on AWGS criteria only showed sensitivity and specificity of 79.2% and 66.7%. The diagnostic performance of BIA based on the new cut-off point showed sensitivity and specificity of 75% and 92.7%. The new cut-off point using BIA was found to be <6.9 kg/m² in males (sensitivity 70.6%; specificity 82.8%) and <5 kg/m² in females (sensitivity 85.7%; specificity 97%). Conclusion: the diagnostic performance of BIA Tanita MC-780MA (Tokyo, Japan) was good to measure muscle mass in Indonesian elderly outpatients using a new cut-off point of <6.9 kg/m² for males and <5 kg/m² for females.