

原 著

Bioelectrical Impedance 法による高齢女性の筋肉量の評価

Assessment of Total and Segmental Skeletal Muscle Mass
in Older Females by Bioelectrical Impedance Method

中塘 二三生¹⁾ 溝畑 潤¹⁾ 大河原 一憲²⁾ 金 憲経³⁾
Fumio Nakadomo¹⁾ Jun Mizohata¹⁾ Kazunori Ohkawara²⁾ Hunkyung Kim³⁾
高谷 竜三⁴⁾ 田中 喜代次⁵⁾
Ryuzo Takaya⁴⁾ Kiyoji Tanaka⁵⁾

Abstract

In the present study, we examined 1) the validity of bioelectrical impedance (BI) method for estimating body composition in the older females such as total fat mass (FM), total fat-free mass (FFM), and total or segmental skeletal muscle mass (SM) compared with dual-energy x-ray absorptiometry (DEXA) measurement as a reference, and 2) the difference of SM between the subjects who were divided into five groups according to required care levels: independent, required support, required care 1, required care 2, and required care 3.

- 1) Significant ($P < 0.05$) relationships were observed between right ($r = 0.919$) or left ($r = 0.865$) leg' SM measured by BI method and DEXA. There was also a significant relationship between DEXA and right ($r = 0.913$), and left ($r = 0.939$) arm' SM measured by BI. Furthermore, total body fat percent measured by the two methods was significant as well ($r = 0.936$).
- 2) Total FM, FFM and SM tended to decrease gradually according to levels of required care. Especially, total FM and FFM in the required care 3 group were significantly lower compared with the independent group.
- 3) SM of the legs, arms and trunk also decreased according to the increasing levels of required care levels. These segmental SMs in the groups that required care were significantly lower compared with the independent group.

These results suggest that SM may decrease not only in the legs, but also in the arms and trunk with increasing levels of required care. Required care level 3 showed the greatest decrease in SM.

キーワード Bioelectrical impedance 法、高齢女性、筋肉量、介護度
Bioelectrical impedance method、older female、muscle mass、
long term care levels

1) 関西学院大学

Kwansei Gakuin University

1-155 Uegahara Ichiban-cho, Nishinomiya 662-8501, Japan

2) 電気通信大学

University of Electro-Communications

3) 東京都健康長寿医療センター

Tokyo Metropolitan Geriatric Hospital and Institute of Gerontology

4) 大阪医科大学

Osaka Medical College

5) 筑波大学

University of Tsukuba