Estimation of body composition by bioelectrical impedance versus dual energy x-ray absorptiometry in polycystic ovary syndrome

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Context: Obesity and fat distribution contribute to the risk for metabolic and reproductive comorbidities in polycystic ovary syndrome (PCOS) and estimation of body composition may have clinical implications for the management of PCOS. Accuracy of a simple measurement of body composition, such as the bioelectrical impedance analysis (BIA) has still not been effectively tested in PCOS.

Objective: To estimate body composition by BIA versus dual energy x-ray absorptiometry (DXA) in PCOS women in comparison with age-matched controls.


Patients: Forty PCOS women (Rotterdam criteria) and 32 age-matched healthy women.

Main Outcome Measures: Clinical and hormonal profile and body composition variables, including total body (FM) and trunk fat mass (tFM), total body (LM) and trunk lean mass (tLM).

Results: Mean age was 23.5±6.1 years vs. 25.7±6.9 years (P=0.168) respectively for PCOS and controls and the prevalence of overweight/obesity was 77.5% PCOS and 50% controls. PCOS had higher FM, tFM, LM and tLM than controls. Moderate or strong and significant correlations between body composition variables on BIA and DXA were found in PCOS and controls (P< 0.001). Good absolute reproducibility by Bland and Altman test was found between BIA and DXA for FM (0.93 in PCOS and 0.94 in controls) and tFM (0.81 in PCOS and 0.83 in controls), moderate reproducibility for tLM (0.38 in PCOS and 0.44 in controls) and poor reproducibility for LM (0.09 in PCOS and 0.12 in controls).

Conclusions: BIA provided good relative agreement with DXA for all assessments. Good absolute agreement between both methods was also found for most of the studied variables, suggesting that BIA is a reliable method for assessing body fat mass and trunk fat mass in PCOS women.

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