

[The kind of dependence and estimation of body mass](#)

Kolarzyk E. Kroch S. Szot W.

Przegląd Lekarski. 58(4):276-80, 2001.

[English Abstract. Journal Article]

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AB The aim of the study was to evaluate frequency of overweight and underweight, and estimation of components of body mass (body fat, lean body mass, body water) in 176 people: 61 men with aethanol dependency (group 1), 37 opiate addicted men (group 2), 32 men in control group (group 3), 14 opiate addicted women (group 4) and 32 women after first suicidal attempts who were treated in the Department of Clinical Toxicology (group 5). All of the patients had their Body Mass Index (BMI) calculated. The components of body mass were calculated using the method of **bioelectrical impedance with Maltron**. Statistical analysis was performed using the Statistica Software. The greatest differences were observed between group 2 and group 1. In both groups more underweight, less overweight with less total body fat was observed, with the increase in body water. In both women groups no overweight or obesity were observed, but there were significant differences between various body components masses. Deficiencies in body fat were observed in 86% women from group 4 and in 50% women from group 5. On the other hand excess of body water was observed in 93% from group 4 and only in 47% from group 5. Our studies shown that even among the persons with correct weight calculated using the BMI method some abnormalities can be observed in body fat, lean body mass and body water. We therefore conclude that only by measuring components of total body mass we may evaluate etiology of overweight and obesity.

Body composition by bioelectrical impedance analysis in renal transplant recipients

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Abstract

Bioelectrical impedance analysis was introduced more than a decade ago to measure body composition and nutritional status. There are presently limited data on the nutritional status and body composition measured with bioelectrical impedance analysis in renal transplant recipients, especially among the Asian population. The normal values for these data in renal transplant recipients remain unknown.

Methods

All renal transplant recipients with stable graft function who attended the outpatient renal transplant clinic in June 2003 were recruited for this cross-sectional study. Demographic and clinical data were obtained from participating patients and their outpatient clinic notes. Body composition and bioelectrical impedance data were obtained using the **Maltron BioScan® 916 v3 analyzer**.

Results

Out of a total of 168 renal transplant recipients, 110 participated in this study of body composition and bioelectrical impedance for comparison with data from a previous study of 419 normal healthy volunteer controls.

When compared to the healthy Malaysians, renal transplant recipients showed similar body composition in terms of body mass index, body cell mass, muscle bulk, percentage of body fat, percentage of fat free mass, and percentage of total body water. However, renal transplant recipients have more extracellular water, a lower phase angle, and a lower reactant.

Conclusion

Malaysians who have undergone renal transplantation have similar body composition to the healthy Malaysians when measurements are obtained using bioelectrical impedance analysis.

[An Esp Pediatr.](#) 1999 Jun;50(6):587-93.

[Growth and the assessment of body composition in children treated with the growth hormone].

[Marco Hernández M](#), [Méndez Fernández MJ](#).

Abstract

OBJECTIVE:

The objective of the present work was to analyze the variations in corporal composition of children treated with growth hormone.

PATIENTS AND METHODS:

Nineteen patients, 8 girls and 11 boys, with growth retardation were studied. The mean age of these children was 8.6 years with a range of 4 to 13 years. Growth hormone (GH) secretion was evaluated by using clonidine and insulin stimulation to evaluate the presence of classic and partial deficits of GH. The integrated 24-hour GH concentration was evaluated in the children with neurosecretory dysfunction of GH and with biologically inactive GH. IGF-I and IGFBP3 levels were also studied. Bio-electric impedance was measured with a corporal composition analyzer (**Maltron BF 905**). The software used, taking into account the weight and height of the children and employing Lukaski's equation, give the following information: impedance in Ohms, Lean mass and

fat mass in percentage and Kg, corporal water in liters and percentage, basal metabolism, ideal water and ideal fat. The auxological data were obtained with precision instruments. Analysis of variance (ANOVA) was used to determine if differences existed between the parameters studied at baseline and at 3, 6, 9 and 12 months of treatment. The correlation between the resistance index and total corporal water was calculated, as well as between tricipital skinfold thickness and corporal fat.

RESULTS:

The patients experienced an increase in lean mass (not significant = NS), an increase in corporal water ($p < 0.01$), a decrease in the percentage of fat (NS), a decrease in tricipital and subscapular skinfolds ($p < 0.05$ and NS, respectively), an increase in the perimeter of the arm muscle (NS), an increase in basic metabolism (NS) and a decrease in electrical impedance (NS). The resistance index had a linear relationship with total body water ($r = 0.9$) and tricipital skinfold with corporal fat ($r = 0.8$).

[An Med Interna](#). 1998 May;15(5):255-8.

Megestrol in the treatment of AIDS associated cachexia. Evaluation by bioelectric impedance analysis of body composition

[Pérez De Oteyza C](#), [García Cortés A](#), [Menéndez Martínez MA](#), [Torres León JM](#), [Pérez Aznar C](#), [Carnicero Bujarrabal M](#).

OBJECTIVE:

To value the effects of megestrol acetate on the weight and the body composition (fat, lean and body water) in patients with AIDS associated cachexia, by bioelectric impedance analysis. Subjects: 25 patients between 23 and 57 years of age, with confirmed HIV infection and prior weight lost of 7.96 ± 4.6 kg in relation to their habitual weight in the previous months. All the patients were under antiretroviral therapy.

METHOD:

Basal determination, before the beginning of the antianorexic treatment and at the end of it, using bioelectric impedance analysis by **Maltron BF 905 analyzer**, calculating fat, lean and total body water in relation to weight, height, age and sex. Oral administration of 320 mg/day megestrol acetate for three consecutive months.

Statistical comparison (RSIGMA and SPSS) by paired t-test of the mean weight, body mass index, fat, lean and total body water.

RESULTS:

During the three months treatment the mean basal body weight of the patients increased 3.54 Kg ($p < 0.001$) at the expense of an increase of 2.24 kg in the total body lean ($p < 0.01$), while the increment of the body fat (1.2 kg) was not statistically significant. The total body water increased 1.48 L ($p < 0.001$) and the body mass index in 1.22 kg/m² ($p < 0.001$).

CONCLUSION:

Treatment with megestrol acetate results in a sustained and very significant increase of the weight and body mass index in patients with AIDS related cachexia. This increment in weight is at the expense of body lean

iv426 *Dialysis – Adequacy and dry weight* Monday, July 17, 2006

MP381 APPLICATIONS OF BIOIMPEDANCE TECHNOLOGY IN DRY WEIGHT MANAGEMENT OF HAEMODIALYSIS PATIENTS

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Introduction and Aims: Excess post dialysis fluid is a cause of interdialytic hypertension. Therefore it is important to achieve the correct dry weight, to avoid under- or over- hydration. A simple and practical bedside tool is needed to assess patient's extracellular water (ECW) so that it can guide the clinician in assessing dry weight. We performed a cross-sectional study to investigate the use of a bioimpedance analyzer (BIA) in the fluid management of haemodialysis patients and its effect on blood pressure.

Methods: Single frequency (50kHz) whole body BIA (**Maltron BioScan 916 v3 analyser**) was performed post dialysis in 175 stable chronic haemodialysis patients. Total body water (TBW), extracellular water (ECW) and intracellular water (ICW) were derived. BIA-determined dry weight was determined by comparison with BIA data from age- and sex- matched normal controls. Excess weight was defined as the percentage difference between clinically- and BIA- determined dry weight. Average mid-week post-dialysis systolic (SBP) and diastolic (DBP) blood pressure, mean arterial pressure (MAP) and number of antihypertensive medications were recorded.

Results: The following variables were obtained (mean \pm sd): age, 53.7 \pm 13.2 years; BMI, 23.5 \pm 4.7 kg/m²; SBP, 143.3 \pm 21.8 mmHg; DBP, 75.3 \pm 11.1 mmHg; MAP, 98.1 \pm 13.0 mmHg; TBW, 32.2 \pm 5.6L; ECW, 14.9 \pm 3.5L; ICW, 17.3 \pm 3.8L and ECW/ICW ratio, 0.9 \pm 0.3. Clinically-determined dry weight was significantly higher than BIA-determined dry weight (58.7 \pm 12.5kg vs 57.2 \pm 13.0kg, $p < 0.0001$). SBP was significantly correlated with ECW ($r = 0.335$, $p < 0.0001$) and ECW/ICW ratio (0.248, $p < 0.001$) but not with TBW and ICW. Patients receiving ≥ 2 antihypertensive medications had significantly higher ECW (16.3 \pm 3.7L vs 14.3 \pm 3.5L, $p = 0.001$), ECW/ICW ratio (1.03 \pm 0.41 vs 0.83 \pm 0.27, $p = 0.001$) and excess weight (4.0 \pm 4.1% vs 2.1 \pm 3.4%, $p = 0.001$).

Conclusions: In this study we confirmed that higher ECW and excess weight as measured by the BIA were noted in patients with higher post dialysis blood pressure and antihypertensive requirement. BIA is simple and non-invasive, and is less operator-dependent and more objective in assessing fluid status in haemodialysis patients than clinical methods. Further studies on adjustment of dry weight guided by BIA and its effect on blood pressure are needed.