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Meeting Abstract

Anthropometry and cancer

Antropometría y cáncer

Berral de la Rosa FJ[1], Torres-López de Haro F[2], Berral-Aguilar AJ[3], Berral-De la Rosa CJ[4]

[1]Doctor of Medicine and Surgery. Laboratory of Biomechanics, Kinesiology and Cineanthropometry. University Pablo de Olavide of Seville. Spain.
[2]PhD student in Sports Science. University of Extremadura. Caceres. Spain.
[3]Diagnostic imaging and nuclear medicine technologist. Spain.
[4]Doctor of Medicine and Surgery. Andalusian Health Service (SAS). Government of Andalusia. Spain.

According to the National Cancer Institute, almost a third of all deaths of people diagnosed with this disease are a consequence of a wasting syndrome called "Cachexia". This process results in an increase in basal metabolism rate (BMR) that cannot be offset by the contribution proteins, leading to the destruction of adipose tissue and skeletal muscle mass, and consequently an alarming weight loss.

Sotelo et al (1) affirm that BMI is not an appropriate parameter to detect a degree of hypo nutrition of a cancer patient, unlike of weight loss value that has a positive correlate. In a patient with cancer an accelerated weight loss, due to the caquexia (2) process, comes at the expense of muscle compartment. Chemotherapy / Radiotherapy are producing the greater deterioration in weight (3).

The use of bioelectrical impedance for the study of body composition in patients with stomach cancer has been reported by Kiyama et al (4) , who found an increase in total body water and extracellular water in patients that have subject themselves to a total gastrectomy.

We agree with several authors on the need to handle objective anthropometric parameters that allow us to follow up on the evolution of the patient's body structure.

Anthropometric variables most frequently used are weight, height, skinfold thickness, muscular perimeters and bone diameters of the extremities (5). From them all, perhaps weight is the most important in a cancer patient, and should always be accompanied, if possible, of the help of an indirect double anthropometric laboratory technique as bioelectrical impedance multifrequency, optopolar and segmental, being the main purpose to determine fluid retention that is often found in these patients, as well as a suitable physical examination (6).

Cancer patients die, not because of the local effects of the tumor, but because of systematic changes occurred throughout the body and induced by these tumors (7). The results of the research have suggested that the tumor cell consumes a large amount of glucose to obtain energy and this way the muscle must consume its own proteins for basic maintenance (8).

In order to avoid deterioration of muscle mass, Capozzi et al (9) proposed for patients, during and after radiotherapy, the realization of progressive resistance exercises. After twelve weeks of intervention the fat-free mass of fat was not reduced, despite the progressive increase of physical activity, but there was a greater effect on the physical condition, quality of life, depression and nutritional values.

BMI limitations to evaluate body composition, due to sarcopenic obesity in patients with leukemia, have been reported by Orgel et al (10). The increase in the percentage of fat mass and loss of -free mass of fat obtained by dual photon absorptiometry of X-rays (DEXA) was a common fact throughout patients' treatment, and there was a poor correlation between BMI and fat percentage, being this a negative correlation.
A review study done by De Ridder et al (11) argues that indicators of abdominal adiposity are better predictors than BMI for gastro-esophageal cancer, leukemia, liver cancer, biliary tract cancer in men and women and renal cancer, in women.

We propose the following strategy to assess body composition of cancer patients through anthropometric variables:

Non - bedridden patient

In the non-bedridden patient, protocols of anthropometric measurements follow the internationally established patterns (12-14).
Body fat mass could be estimated by the indirect method using densimetry. We propose the formula of Durnin and Womersley (15) to obtain the density value, and the formula of Brozek (16) to calculate the percentage of fat mass.
It is known that the greater part of muscle mass is deposited in the limbs (17), so we consider that the appropriate method to obtain muscle mass in oncologic patients is the one proposed by Lee et al (18).

Bedridden patient

To calculate their height we propose the strategy of Chumlea et al (20). To calculate their weight, the formula of Chumlea et al (21). The muscle can be obtained by Heymsfield et al (22) proposing equations to calculate arm muscle area, after validating the anthropometric method in hospitalized patients.
There are other alternatives such as the use of the submandibular fold to obtain the fat percentile (23). Roberto Frisancho (24), determines, using only two variables, muscle and adipose area of the arm, thigh and leg.
Following the proposal of Orgel et al (10), we consider that it would be a good choice to use the method of bioelectrical impedance to observe the changes in these patients' body composition.

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Correspondencia:
Francisco José Berral de la Rosa
Universidad Pablo de Olavide. Dpto. de Deporte e Informatica.
Carretera de Utrera km 1, 41013-Sevilla (España)
+34 650139022
fjberde@upo.es
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