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Biochemical parameters in patients suffering from head and neck cancer

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The aim of the study was to evaluate the nutritional status of patients suffering from head and neck cancer at the beginning of the specific treatment, through the use of biochemical parameters⁽¹⁾. Body weight (w, kg) and height (h, m) were determined, and the BMI calculated in 20 adults, who attended TRU, Angel Roffo Institute of Oncology. Blood samples were collected from fasting patients. Specific serum protein fractions of potential usefulness in nutrition studies: transthyretin (TTR), transferrin (Transf), C3 (C3c) and C4 complement (C4c); and acute phase serum fractions: ceruloplasmin (Cp), haptoglobin (Hapto) and protein C reactive (PCR) were measured by single radial immunodiffusion technique on agar gel layers (Biocientífica S.A., Argentina and Binding Site, UK)^(2,3). Clinical aspects were evaluated by Bioelectrical Impedance Analysis (BIA that determines electrical properties of the body resistance (R) and capacitance (Xc)); and basal metabolism (BM). We calculated the phase angle (arc tangent of the ratio Xc to R in degrees) that measures lean body mass⁽³⁾. Biochemical parameters (mg/dl), and BMI (kg/m²) expressed as means and SD, were compared with reference values (VR).

Group	TTR (mg/dl)	Transf (mg/dl)	C3c (mg/dl)	C4c (mg/dl)	Cp (mg/dl)	Hapto (mg/dl)	PCR (mg/dl)	BMI (kg/m ²)
Patients	20.3±8.3	173.1±40.8	101.4±34.5	28.3±8.7	51.8±11.4	217.2±48.3	2.4±2.2	23.0±4.5
RV (range)	20–40	240–338	108–162	23–25	36–52	71–175	<0.3	18.5–24.9

The data showed lower TTR, C3c and Transferrin together with higher Cp and Haptoglobin sera levels, than reference values. Results pointed out to a depressed nutritional status and inflammation. Besides, only 10% showed BMI<18.5%. Thirty-five percent patients had reduction of phase angle and 15% had increased of BM with increased PCR. These findings stress the importance of the inclusion of functional biochemical parameters in the periodic nutritional evaluation of these patients. This would allow an early assessment of the need for appropriate nutritional support, since 70% of patients had normal BM and in this situation patients re-feeding is possible^(1,4); on the other hand, patients with increased BM and phase angle (30–25% respectively) could be a subgroup with systemic inflammatory status where re-feeding may not be useful.

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