NUTRITIONAL BIOCHEMICAL PROFILE IN AIDS.

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INTRODUCTION

Human immunodeficiency virus infection is a major global health problem; nutritional disorders are present in HIV+/AIDS-infected patients and they may be caused by different factors: inadequate nutrient intake or absorption, metabolic alterations, hypermetabolism, or a combination of these, affection of the gastrointestinal tract, and drug-nutrient interactions.

OBJECTIVE

The aim of this presentation was to show some results related with the nutritional and antioxidant status of a group of adults with HIV infection or with AIDS, through the use of biochemical parameters.

MATERIAL AND METHODS

Body weight (w, kg) and height (h, m) were determined, and the Body Mass Index (BMI) calculated (w/h², kg/m²), in 60 patients HIV+/AIDS between 25 and 50 years old, who attended at the clinic for the care of patients of High Risk 1 of the Faculty of Dentistry of the University of Buenos Aires. Blood samples were collected from fasting patients. The 70% presented CD4 >200 cel/ml and the 50% showed viral charge lower than 50 copies/ml. Serum cholesterol (TC), HDL and LDL cholesterol, triglycerides (TG), apolipoproteins A-I and B (ApoA-I and ApoB), C3 and C4 complement fractions (C3c, C4c), were determined. Specific sera protein fractions of potential utility in nutrition studies: transthyretin (TTR), and retinol binding protein (RBP); and acute phase serum fractions: ceruloplasmin (Cerul) and C-reactive Protein (CRP) were also determined. Specific fractions were determined by quantitative radial immunodiffusion on plates (Diffuplate, Biocientifica SA,
Argentina and Binding Site, UK). Results were compared with reference values. TC, HDL and TG were determined by enzymatic-colorimetric method, and LDL was calculated with the equation of Friedwald (LDL-cholesterol = CT- TG/5 + HDL-cholesterol). Reference values for TC, HDL and LDL, TG, and HDL-cholesterol were taken from the current guidelines for handling dislipemia.

Sera Selenium (Se) was determined in hemolysis-free plasma by flame atomic absorption spectrometry; a calibration curve was performed, using commercial standards; reference values were taken from international bibliography.

Total antioxidant capacity (TAC) was determined by a discoloration assay as described by Miller NJ and Re R and was compared with those obtained in our laboratory on a healthy adult group (Mean 1.92, SD 0.04). Statistical analyses were performed with the Student's t-test.

The study was approved by the Ethics Committee of the University of Buenos Aires, and all participants gave informed consent before recruitment.

RESULTS AND CONCLUSIONS

Body Mass Index (BMI) expressed as X ± SD was: 24.15 ± 1.65.

Sera proteins levels related with nutritional status were lower in AIDS patients in comparison with controls. It was observed, statistical diminution of TTR, C3c and C4c fractions (p<0.001), and RBP (p=0.0356), being important to point out that 20% of the patients showed TTR values lower than 20.0 mg/dl, this value is related to protein deficiency. It should be highlighted that 20% of patients exceeded the desirable values for CRP (< 0.2 mg/dl) with a concomitant increase of serum ceruloplasmin concentration in relation to controls(p<0.001). Moreover, the 50% of group shows HDL cholesterol concentration lower than desirable value (<35mg/dl). No statistical differences were observed in other lipid profile parameters.

The results of Selenium (µg/l) and TAC (mM - Trolox equivalents) expressed as X±SD were 34.7±16.7 and 1.69±0.18, respectively. When results were compared with reference values it was observed diminution in their levels (p<0.01). Reference values for Se were taken from international bibliography (60 – 160 µg/l).
It is important to point out that 81.8% of the patients presented selenium concentration under than 60 µg/l. These findings support previous studies on HIV+/AIDS- suggested that would be necessary a controlled Se supplementation in these patients to protect immune cells. The present results, performed on patients belonging to low and medium socioeconomic levels, with little access to health care services, shows changes in biochemical parameters. Therefore, it proves that the nutritional status of infected patients is affected, together with the development of the disease. Moreover, these findings support previous studies on HIV+/AIDS-infected infants, and emphasize the importance of incorporating functional biochemical parameters in the periodic nutritional controls of these patients. This would allow an early evaluation of the nutritional grade, and the assessment of an appropriated nutritional support, implemented along with the specific retroviral treatment. This would aim at delaying the evolution of the disease, and might improve the prospects of survival and quality of life.

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