DETERMINATION OF TRACE LEVELS OF METALS AND VITAMINS A AND E IN SERUM SAMPLES OF HIV PATIENTS AND NORMAL PEOPLE

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Abstract: The literature review of the importance and role of nutrients for proper health and in maintaining the body’s immune system and the role of these nutrients in HIV patients and how critical the concentrations of some of the antioxidants like Se, Zn and vitamins A & E to reduce the viral load will be presented. This lecture deals with the determination of metals like Se, Zn etc. and vitamin A and E in serum of selected HIV patients and normal people. The necessity for monitoring the levels of essential nutrients like Se, vitamin A & E, in the serum of HIV patients and normal people is presented. An attempt has been made to correlate nutrient levels with the stage of the disease through CD-4 count. The CD4 count (cells which defend against infections) in the blood indicates about the intensity of the disease based on which the clinical stage of that person is identified. Normal CD4 counts are observed in persons of stage I and very less at stage IV. Blood samples were collected form 100 HIV infected people and 50 normal persons at the King George hospital, Visakhapatnam, India following proper precautions for sample collection and treatment and preparation of final sample solution for the analysis. The metals are analyzed on ICPMS taking all precautions to get accurate values. Trace metal standards are used to calibrate and quantify their levels in the serum. The vitamins A and E have been analyzed on reverse phase HPLC. Vitamin A, E standards have been used to calibrate and quantify their levels in the serum. The CD-4 counts of the samples have been measured using flow cytometer in the Hospital by the Doctors group. Consent was taken from all patients and normal persons before taking blood samples for analysis nutrient levels and CD-4 count used for this research. The analysis data of trace element and vitamins A and E in serum of both HIV patients and normal persons and CD-4 counts are presented and discussed. In general the micronutrient levels in HIV patients are very low compared to normal persons. The doctors have prescribed antioxidant drugs containing metals like Se, and vitamin A, E to HIV to HIV patients to keep the disease in control. The author study indicates that in addition to CD4 count, the levels of antioxidants in serum which can be analyzed accurately can better indicate the stage of the disease of the person to the doctors. This will help them to prescribe the drugs properly to control the disease more effectively.