COULD SERUM ALBUMIN LEVELS SERVE AS A PREDICTOR OF CD4 COUNTS IN STAGING DISEASE AND MONITORING DISEASE PROGRESSION IN HIV/AIDS PATIENTS?

Dora Mbanya1,2, Eninwi Muna1, Claude Tayou Tagny1,2 and Tazoacha Asonganyi1

1Faculty of Medicine & Biomedical Sciences, University of Yaounde I, Cameroon
2University Teaching Hospital, Yaoundé, Cameroon

Abstract: Based on the World Health Organization and Centre for Disease Control classifications, HIV infection and AIDS may be staged using clinical criteria and CD4 counts. These have been indispensable in the management of both newly diagnosed patients and monitoring evolution. The need for alternate methods of staging and monitoring the disease are necessary due to the cost and inaccessibility of these tests. Since, changes may occur in the concentrations of some biochemical markers which serve as indicators of the evolution of the disease and its complications, serum albumin levels were measured in HIV-1 infected persons. These were evaluated, in a cross-sectional study, as a possible predictor of CD4 counts in staging disease and monitoring disease progression in HIV infection and in AIDS patients. For each consenting participant, a questionnaire was completed and a blood sample was collected for serum albumin assays and CD4 count measurements. Serum albumin levels were determined by the Bromocresol green method, while the CD4 lymphocyte counts were obtained by flow cytometry using the FACScount. Data was collected and analyzed using the Statistical Software for Social Sciences (SPSS Version 13.0). Comparison across groups was performed using the Students t-test. Correlations between variables were examined using the non-parametric Pearson test. Linear regression was performed to identify serum albumin levels as a predictor of the CD4 cell count. R values of 0.8-1.0 were considered as a strong correlation, 0.5-0.8 as a moderate, 0.2-0.5 weak and 0-0.2 as negligible correlations. The results obtained showed a mean CD4 count of 285±173.27/mm³ and a mean serum albumin level of 47.92±8.54 g/l. There was no significant difference between the mean CD4 counts and albumin levels in those on highly active antiretroviral therapy - HAART (283.99±180.12/mm³ and 47.34±8.62g/l respectively) and those not on HAART (289.62±161.11 c/mm³ and 48.98±8.36 g/l respectively). There was a weak or negligible correlation (r=0-0.5) between CD4 counts and albumin levels at all cut off levels of CD4 counts. A moderate correlation existed in those on HAART. However, these correlations were not statistically significant. It may be concluded that serum albumin levels in our setting should not serve as a predictor for CD4 counts, hence cannot be used to predict disease stage, monitor disease progression or indicate the effectiveness of ARV therapy. We recommend that the direct measurement of CD4 counts should be used as much as possible in the management of HIV/AIDS patients in this population. Other less sophisticated and more affordable methods of determining CD4 counts should be evaluated and made available for use in all treatment centers of the nation.

Key words: Albumin, HIV/AIDS, CD4 counts