

International Conference on

Autoimmunity

October 13-14, 2016 Manchester, UK

Absolute lymphocyte count: A probable substitute marker for CD4 count in HIV-infected patients in economically restrained countries**Ruchee Khanna, Vaishnavi Pahwa and Chethan Manohar**
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Background: CD4 count is the primary clinical parameter used for the initiation of HAART (Highly Active Anti-Retroviral Therapy) and prophylaxis against opportunistic infections in HIV infection. The utility of Absolute Lymphocyte Count (ALC) in lieu of CD4 count in such patients has been a long-standing topic of debate, especially in resource-constrained settings.

Aim: To find the relationship between CD4 count and Absolute Lymphocyte Count (ALC) and interpret the clinical utility of ALC as a surrogate marker for CD4 count.

Materials & Methods: A total of 455 EDTA blood samples from HIV-infected patients were analyzed for their ALC and CD4 counts, over a period of 6 months from January 2015 to June 2015 in Clinical Laboratory, Kasturba Hospital, Manipal. Correlation analysis between ALC and CD4 count and receiver operating characteristic (ROC) analysis at CD4 count $\leq 200/\mu\text{L}$ and CD4 count $\leq 350/\mu\text{L}$ were conducted as proposed by WHO guidelines.

Results: The male to female ratio among our subjects was 2:1 and their age ranged from 11 to 78 years. The median ALC was $1600/\mu\text{L}$ and the median CD4 count was $258.58/\mu\text{L}$. A strong positive correlation (Pearson coefficient, $r=0.741$) was obtained between CD4 count and ALC. Areas under the ROC curve for ALC and CD4 count $\leq 200/\mu\text{L}$ and CD4 count $\leq 350/\mu\text{L}$ were 0.901 (95% CI, 0.872-0.929) and 0.911 (95% CI, 0.885-0.937), respectively, both of which showed an excellent correlation. Also, from the ROC analysis, the ALC cut off at CD4 count $\leq 200/\mu\text{L}$ (Sensitivity-83.87%, specificity-81.41%, PPV-75.73%, NPV-87.95%) and CD4 count $\leq 350/\mu\text{L}$ (Sensitivity-80.22%, specificity-86.44%, PPV-90.28%, NPV-73.56%) was determined to be $\leq 1450/\mu\text{L}$ and $\leq 1650/\mu\text{L}$, respectively.

Conclusion: ALC was found to have a strong correlation with CD4 count and the ALC cut offs corresponding to CD4 counts $\leq 200/\mu\text{L}$ and CD4 count $\leq 350/\mu\text{L}$ was found to be $\leq 1450/\mu\text{L}$ and $\leq 1650/\mu\text{L}$, respectively. Hence, ALC can be considered as a clinically plausible substitute marker for CD4 count.

Biography

Ruchee Khanna has completed her MBBS and MD Pathology from Saurashtra University, India. She is presently working as an Associate Professor in Department of Pathology, Kasturba Medical College, India. She has published 15 papers in indexed international journals.

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