

Frequency of Immature Dual Negative Dendritic cells is altered in systemic lupus erythematosus

Introduction: Systemic Lupus Erythematosus (SLE) is a serious health hazard, prominently targeting females of reproductive ages. SLE can be managed but not treated due to lack of specific markers responsible for the disease pathogenesis. Along with other immune cells, specialized dendritic cell (DC) system is also altered in SLE. Present study focuses on profile of dendritic cell subpopulations along with the levels of oxidative stress parameters.

Material and methods: Blood samples from healthy controls (HCs), inactive SLE (In-SLE) and active SLE (Ac-SLE) patients were collected after obtaining their consent. Activity of oxidative stress regulating enzymes like: catalase, superoxide dismutase (SOD) and glutathione peroxidase (GPx); along with the level of antioxidant reduced glutathione (GSH) was measured with the help of biochemical assays. Circulating subpopulations of DCs: myeloid dendritic cells (mDC, Lin-HLADR+CD11c+), plasmacytoid dendritic cells (pDCs, Lin-HLADR+CD123+) and a very less noticed population of DCs, immature dual negative dendritic cells (iDC, Lin-HLADR+CD11c-CD123-) was studied using flow cytometry. Statistical analysis was done using one way ANOVA.

Results: Percentage of circulating pDCs was significantly high in Ac-SLE group in comparison to In-SLE and HC group. On the other hand, iDCs were significantly decreased in Ac-SLE group. Percentage of mDCs remains unchanged in all groups. Activity of catalase, SOD and GPx was not altered in any of the group. Also, no difference was observed in levels of GSH.

Discussion/Conclusion: A rare DCs population, iDCs were low in Ac-SLE patients, may be because the cells were matured as pDCs, which is confirmed with the observation of high pDCs percentage in Ac-SLE patients. The SLEDAI score was reported to be very low in In-SLE patients and these patients also have minute or no change in pDCs and iDCs percentage while Ac-SLE patients have very high SLEDAI and shows significant increase in pDCs percentage and decrease in iDCs percentage. Thus, we can conclude that with increase in SLEDAI or disease severity, percentage of pDCs and iDCs is altered.

Keywords : Systemic Lupus Erythematosus, Dendritic Cells, Oxidative Stress, Immature Dendritic cells, Plasmacytoid Dendritic cells

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