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Functional characterization of T-cell subsets in acquired aplastic anemia patients: Pilot study

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Acquired aplastic anemia (aAA) involves immune mediated destruction of hematopoietic stem cells by T lymphocytes. Response to immune suppressive therapy (IST) is 50-60%. Aim of study was to evaluate the frequencies and function of T-cell subsets in peripheral blood (PB) and bone marrow (BM) of newly diagnosed, untreated aAA patients compared to that of controls. 15 aAA patients and 15 healthy controls were studied. Th1 (CD4+IFN γ), Th2 (CD4+ IL4+), Th17 (CD4+ IL17A+) along with CD8 surface marker and T-regulatory cells (Tregs; CD4+ CD25+ FOXP3+) were analyzed in PB and BM of patients and in PB of controls with three color flow cytometry. In PB of patients the mean percentage frequencies of different cell types were Th1=1.72, Th2=1.09, Th17=1.13, CD8+IFN γ =1.61, CD8+IL4+=0.68, CD8+IL17a+=0.78 and Tregs=2.84, while in PB of controls the respective frequencies were Th1=0.92, Th2=0.44, Th17=0.60, CD8+IFN γ =0.83, CD8+IL4+=0.37, CD8+ IL17a+=0.46 and Tregs=6.05. There was a significantly higher percentage of different cell types in PB of patients as compared to PB of controls i.e., Th1, Th2, Th17, CD8+IFN γ +, CD8+IL4+, CD8+ IL17a+ (all p values <0.05), whereas Tregs mean frequency was lower in patients than controls (p=0.0001). There was no difference in frequencies of respective cells between PB and BM of patients. Significantly increased Th1, Th2, Th17, cytotoxic T-cells and decreased T-regulatory cell frequencies skew the ratio of T-lymphocytes in aAA. These cells and their effector cytokines injure bone marrow rendering it hypocellular.

Biography

Vandana Sharma is currently pursuing PhD under the guidance of Dr. Tulika Seth, Additional Professor, Department of Hematology, All India Institute of Medical Sciences, India.

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