Comparison of proportions of T lymphocyte subsets according to serum 25(OH) vitamin D levels in postmenopausal women

Many reports have proposed significant role of vitamin D on immune mediated disease. This study analyzed lymphocyte subsets according to serum 25(OH) vitamin D levels in postmenopausal women to determine the potential effect of vitamin D on immune-mediated disease.

On a prospective observational basis, we enrolled 31 postmenopausal women who underwent health checkup in our hospital. Peripheral blood drawn for the estimation of total T, B cell, NK cell count, proportion of CD3+, CD4+ ,CD8+, Th1, Th2, Th17 and Treg subsets of T lymphocyte after fasting on the morning. We also measured BMI, estrogen, fasting glucose, hs-CRP, lipid profile, serum 25(OH)D, calcium, phosphate.

The subjects were divided into three groups according to serum vitamin D levels. Proportion of $CD4^+$(p=0.024) T cells were significantly decreased in 3 tertile group compared with 1 tertile group. Proportion of CD8+(p=0.004) T cells in 3 tertile group were significantly increased than that of the 1 tertile group and 3 tertile group. Also, $CD4^+/CD8^+$ T cell ratio in 1 tertile group was significantly increased than that of the 2 tertile group and 3 tertile group. However there was no differences in total T, B, NK cell count, Th1, Th2 cytokine producing T cell population, Th17 and Treg cells according to vitamin D levels.

In this study, serum vitamin D levels in postmenopausal women is associated with changes in the peripheral CD4+, CD8+ T cell compartment.