

Evaluating Immunomodulatory Effects of vitamin D on FOXP3 and RORyt Expression in Peripheral Blood Mononuclear Cells of Patients with Allergic Asthma

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Abstract Purpose: This study was conducted to determine the direct effect of vitamin D (vit-D) on mononuclear cells of the blood, mainly T-lymphocytes, in allergic asthma and healthy subjects.

Materials and methods: Isolated peripheral blood mononuclear cells from patients and healthy people were cultured 24-hours in 4 groups of treated with vit-D at 10^{-7} M, 10^{-6} M concentrations, dexamethasone, and control. After extraction of RNA, their cDNA was used for evaluating Foxp3 and RORyt genes expression by Real-time PCR technique.

Results: There was a significant difference between the control group and the asthma group in terms of FOXP3 expression ($P = 0.019$). The treatment with dexamethasone significantly increased the expression of FOXP3 gene of the patient with no treatment ($P = 0.023$) and treatment with vit-D 10^{-7} M significantly reduced the FOXP3 gene expression in the same group ($P = 0.027$). There was no significant difference in RORyt gene expression between case and control groups ($P = 0.805$). All treatments significantly reduced RORyt gene expression in both case and control groups ($P < 0.001$).

Conclusion: Vit-D decreased the expression of FOXP3 and RORyt genes. As RORyt gene increases the severity of the disease, then vit-D can improve the course of the disease.

Key words : [Immunomodulation](#) [Vitamin D](#) [FOXP3](#) [RORyt](#) [Allergic asthma](#)