

**Vitamin D Status and its effects as a treatment of acne
vulgaris: Analyses of Serum 25-Hydroxyvitamin D
Levels and Single Nucleotide Polymorphisms in the
Vitamin D Receptor Gene**

Thesis

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Abstract

Background: Acne vulgaris is a disease of the pilosebaceous unit with predominance at the face, neck, upper chest and back. Sebocytes were identified as 1, 25 (OH)₂ D responsive target cells. This theory confirms that vitamin D exerts an immune regulatory function in sebocytes, which supports its anti-inflammatory effects in acne patients.

Objectives: To assess the role of vitamin D in treatment of acne vulgaris and to study its relation to VDR Apa 1, Taq 1, Fok 1 and Cdx 2 polymorphisms.

Methods: This randomized control study included 300 acne patients. Group 1 received cholecalciferol 8,000 IU/day for three months. Group 2 applied 1-2gm of topical vitamin D analogue for three months. Group 3 had no treatment. VDR gene Apa 1, Taq 1, Fok 1 & Cdx 2 polymorphisms were examined by real time PCR with Taq Man allelic discrimination assay. Serum 25(OH) D₃ was measured in all participants before and after treatment by ELISA.

Results: Acne patients showed more significant decrease in serum 25(OH) D₃ concentration (9.7ng/ml) than controls (26ng/ml). Systemic cholecalciferol and topical vitamin D analogue had significantly decreased GAGS by 21.88% & 38.75% respectively after treatment. Patients had significant decrease in Taq 1 A-allele & AA genotype (47.5%, 10%) than controls (80%, 60%) respectively.

Conclusion: vitamin D deficiency and VDR polymorphisms of Taq 1 and Apa 1 may increase the risk for AV. Systemic and topical vitamin D can be used as a complementary therapy for AV.

Keywords: Acne vulgaris – vitamin D - VDR polymorphism