Oral Vitamin D3 in the Management of Autoimmune Disorders

Autoimmune disorders are complex and have enormous physical, emotional and psychosocial distress in affected patients. Evidence suggests vitamin D3 resistance with gene polymorphisms related to its metabolism to have a potential role in their patho-prognosis. Higher daily doses of vitamin D3 are thought to countervail the prevailing resistance and immuno-modulate the scenario to the patient's clinical advantage and also check the progression (1).

The circulating levels of D3 have been found to share an inverse relationship with the progression of autoimmune disorders. (2) The role of vitamin D3 especially in autoimmune disorders has been evidenced in many studies. The effect of Vitamin D3 is attributed to the immunomodulatory effects of Vitamin D3 on monocytes, macrophages, T cells, and dendritic cells that plays an important role in the pathogenesis of autoimmune disorders.

The genetic polymorphisms of the vitamin D receptors have been found to induce a high level of vitamin D resistance in autoimmune diseases warranting higher doses of vitamin D to combat this resistance and achieve meaningful clinical effects. (3,4) Studies suggest that Vitamin D3 concentrations in serum lower than 300 ng/mL do not induce any toxicity (5).

Monitoring parathyroid hormone levels in the serum can be used as the best biological indicator to estimate the optimal therapeutic doses of vitamin D3 in treating autoimmune disorders. (4). Low Vitamin D levels result in an elevated level of parathyroid hormone (PTH) due to the direct feedback mechanism it shares with Vitamin D system. With Vitamin D3 therapy, the PTH levels are expected to come down. However, due to the Vitamin D resistance at the VDR (Vitamin D receptors) found in those with autoimmune disorders, the drop in PTH could be suboptimal,

warranting an increase in the dose of vitamin D to combat this resistance and better biological actions. **(4,6)**

As Vitamin D3 levels shares an inverse relationship with PTH, which is regulated by calcium homoeostasis. (9) Therefore, a reduction in vitamin D or calcium results in hyperparathyroidism which needs constant surveillance while administering daily dose of vitamin D3 therapy.

The observations from my cases of 1000 + patients have demonstrated promising and durable control of the signs and symptoms, with no adverse events or relapse being reported after regular oral dose supplementation of Vitamin D3. The drop in PTH levels and clinical prognosis were utilized as the guide for deciding the vitamin D dosage. Further, reports suggest high doses of vitamin D up to 50000 IU daily can be safely used in autoimmune conditions. (7) This has shown to alleviate the individual Vitamin D resistance and induce clinically meaningful results.

Optimal doses of Vitamin D enhances both the natural and adaptive immunity, which makes this practice effective and worth considering over the present-day management of autoimmune disorders.

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