Clinical Effect of Oral Vitamin D2 Supplement in Psoriasis: A Double-blind Randomized Placebo-controlled Study

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**Background:** The potential benefit of vitamin D beyond its role in calcium and bone metabolism is currently a growing interest in many research fields, including its immunomodulatory effect in psoriasis. Oral vitamin D is safe, inexpensive, and widely available. However, there are limited reports of RCT studies on oral vitamin D supplement in psoriasis, especially in Asian population, and the results are still inconclusive.

**Objective:** The purpose of this study was to investigate the clinical effect of oral vitamin D supplement in patients with psoriasis.

**Methods:** Patients with mild to moderate psoriasis were randomized to receive oral vitamin D2 4,000 IU/day or placebo for 6 months. The primary outcome was the improvement of Psoriasis Area and Severity Index (PASI) at 3 and 6 months after treatment. The serum vitamin D level, calcium, phosphate, PTH, CRP, and adverse events were also monitored during the study period.

**Results:** A total of 50 subjects were enrolled, of whom 45 patients were eligible and randomized to each group (23 to oral vitamin D2 group and 22 to placebo group). The mean baseline PASI of studied population was 4.45. One-fourth of patients (26.7%) had vitamin D deficiency at time of enrollment. The baseline characteristics were not significantly different between the two groups. At 3 months, patients in the oral vitamin D2 group had significantly higher PASI improvement compared to the placebo group (mean PASI improvement = 1.43 vs -0.33, P=0.034; mean %PASI improvement = 34.21% vs -1.85%, P=0.039, respectively). Interestingly, mean serum vitamin D level was also significantly higher in the oral vitamin D group compared to the placebo group (27.4 ng/mL vs 22.4 ng/mL, P=0.029, respectively). There were no patients with vitamin D deficiency in the oral vitamin D group at 6-month follow-up. No significant difference was noted in adverse events of the oral vitamin D group compared to the placebo group.

**Conclusion:** Oral vitamin D2 supplement in patients with psoriasis not only increases serum vitamin D level, but also significantly improves the treatment outcome without increasing adverse events.

**Keywords:** Psoriasis, Vitamin D, Oral vitamin D2, Vitamin D deficiency
Mean percentage of Psoriasis Area and Severity Index (PASI) improvement at 3-months and 6-months follow-up

- 3-months
- 6-months

- Oral vitamin D2
- Placebo