

## ABSTRAK

**Latar belakang:** Rinitis alergi adalah inflamasi mukosa hidung akibat reaksi hipersensitivitas yang diperantarai oleh IgE. Respon imun Th2 dengan memproduksi IL-5 berperan penting dalam inflamasi eosinofilik. Vitamin D diketahui berfungsi sebagai imunomodulator yang dapat menekan respon inflamasi berlebihan. **Tujuan:** Tujuan penelitian ini untuk mengetahui perbedaan gejala klinis dan IL-5 pada rinitis alergi persisten sedang berat dengan dan tanpa vitamin D3. **Metode:** Penelitian quasi eksperimental dengan *design double blind control trial post test only* pada pasien rinitis alergi persisten sedang berat. Sampel yang ditentukan sebanyak 34 subjek dibagi secara acak menjadi dua kelompok: perlakuan (terapi standar ditambah vitamin D3 1000 IU/hari) dan kontrol (terapi standar ditambah plasebo). Hasil diukur dengan skor gejala hidung total (TNSS) dan kadar IL-5 serum setelah 14 hari. Analisis statistik dengan *independent t-test* bila data berdistribusi normal atau uji *mann-whitney* bila tidak normal. **Hasil:** Sebanyak 34 subjek penelitian dengan rata – rata usia ( $34,4 \pm 6,1$ ) tahun pada kelompok perlakuan. TNSS pada kelompok perlakuan ( $2,35 \pm 2,42$ ) lebih rendah dibandingkan kontrol ( $3,82 \pm 2,69$ ), namun perbedaan ini tidak signifikan ( $p=0.096$ ). Kadar IL-5 serum pada kelompok perlakuan ( $8,17 \pm 3,75$ ) pg/ml lebih rendah dibandingkan kelompok kontrol ( $14,55 \pm 5,97$ ) pg/ml dan berbeda secara signifikan ( $p<0.001$ ). **Kesimpulan:** Pemberian vitamin D3 cenderung menurunkan gejala klinis meskipun tidak bermakna dan terdapat penurunan yang bermakna pada kadar IL-5.

**Kata kunci:** *rinitis alergi persisten sedang berat, TNSS, IL-5, vitamin D3*

## ABSTRACT

**Background:** Allergic rhinitis is an inflammation of the nasal mucosa caused by an IgE-mediated hypersensitivity reaction. The Th2 immune response with IL-5 production plays an important role in eosinophilic inflammation. Vitamin D acts as an immunomodulator that can suppress excessive inflammatory responses. **Objective:** To determine the differences in clinical symptoms and IL-5 levels in patients with moderate-to-severe persistent allergic rhinitis with and without vitamin D3 supplementation. **Methods:** This was quasi-experimental study with a double-blind, post-test only, controlled trial design involving 34 patients with moderate-to-severe persistent allergic rhinitis. Subjects were randomly assigned to two groups: intervention (standard therapy and vitamin D3 1000 IU/day) and control (standard therapy and placebo). Outcomes were assessed using the Total Nasal Symptom Score (TNSS) and serum IL-5 levels after 14 days. Data were analyzed using independent t-test for normally distributed data or Mann-Whitney test for non-normal data. **Result:** 34 subjects were included in the study, with a mean age of (34,4±6,1) years in the intervention group. TNSS in the intervention group (2,35±2,42) was lower than in the control group (3,82±2,69), though the difference was not significant (p=0,096). Serum IL-5 levels were significantly lower in the intervention group (8,17±3,75) pg/ml compared to the control group (14,55±5,97) pg/ml (p<0,001). **Conclusion:** Vitamin D3 supplementation tended to reduce clinical symptoms although not significantly and significantly decreased serum IL-5 levels.

**Keywords:** moderate to severe persistent allergic rhinitis, TNSS, IL-5, vitamin D3