



# THE ASSOCIATION BETWEEN UREMIC PRURITUS AND SERUM IL-31 LEVELS IN HEMODIALYSIS PATIENTS

Mehtap Kıdır<sup>1</sup>, Veysel Kıdır<sup>2</sup>, Havva Koçak<sup>3</sup>, Erim Gülcan<sup>4</sup>, Nazlı Dizen Namdar<sup>1</sup>, Gülben Sarıcı<sup>1</sup>, Hasan Tak<sup>1</sup>

<sup>1</sup>Dumlupınar University, Faculty of Medicine, Department of Dermatology, Kütahya, Turkey

<sup>2</sup>DPU Evliya Çelebi Education and Research Hospital, Department of Nephrology, Kütahya, Turkey

<sup>3</sup>Dumlupınar University, Faculty of Medicine, Department of Biochemistry, Kütahya, Turkey

<sup>4</sup>Dumlupınar University, Faculty of Medicine, Department of Nephrology, Kütahya, Turkey

**Introduction:** Uremic pruritus is a common condition in dialysis patient. The pathophysiology of uremic pruritus is unclear (1, 2). Interleukin 31 (IL-31) plays a major role in the development of pruritic skin diseases such as atopic dermatitis and allergic contact dermatitis (3, 4). In a study suggested that higher serum IL-31 levels in dialysis patients with pruritus as compared to those without pruritus (5). The aim of this study was to examine the association between uremic pruritus and serum IL-31 levels in hemodialysis patients.

**Methods:** A total of 155 patients undergoing regular dialysis for a minimum duration of 3 months were included in this study. Patients with active infection, cooperation problems, primary skin disorders, acute hepatitis or cholestatic liver disease, or active malignancy were excluded. Pruritus was measured using the Visual Analogue Scale (VAS), with a score range between 0 and 10. ELISA kits were used to measure serum IL-31 levels in all patients.

**Results:** Of the 155 participants were 60 female and 95 male. Average age of participants were  $59.4 \pm 13.7$  years. Uremic pruritus was present in 58 patients (37.4%). Patients with uremic pruritus had significantly higher IL-31 levels than those without pruritus ( $p < 0.001$ ) (Table 1). Also, a positive correlation between VAS score and serum IL-31 levels was found ( $r = 0.594$ ,  $p < 0.001$ ).

**Conclusion:** Serum IL-31 levels are increased in hemodialysis patients with uremic pruritus. Further studies may provide more insight into new therapeutic mechanisms for the management of uremic pruritus.

**Table 1.** Serum IL-31 levels in patient groups

	Patients with uremic pruritus (n=58)	Patients without uremic pruritus (n=97)	P
IL-31 (pg/ml)	$1.79 \pm 0.22$	$1.48 \pm 0.27$	$< 0.001$

**Kaynaklar:** 1. Mathur VS, Lindberg J, Germain M, et al. A longitudinal study of uremic pruritus in hemodialysis patients. *Clin J Am Soc Nephrol* 2010; 5: 1410-9.

2. Pisoni RL, Wikstrom B, Elder SJ, et al. Pruritus in hemodialysis patients: international results from the dialysis outcomes and practice patterns study (DOPPS). *Nephrol Dial Transplant* 2006; 21: 3495-505.

3. Takaoka A, Arai I, Sugimoto M, et al. Expression of IL-31 gene transcripts in NC/Nga mice with atopic dermatitis. *Eur J Pharmacol* 2005;516:180-1.

4. Neis MM, Peters B, Dreuw A, et al. Enhanced expression levels of IL-31 correlate with IL-4 and IL-13 in atopic and allergic contact dermatitis. *J Allergy Clin Immunol* 2006;118:930-7.

5. Ko MJ, Peng YS, Chen HY, et al. Interleukin-31 is associated with uremic pruritus in patients receiving hemodialysis. *J Am Acad Dermatol* 2014 Dec;71(6):1151-9.

