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How to care the pruritus of HD patients

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Chronic kidney disease (CKD)-associated pruritus (also known as uremic pruritus(UP)) is a common, sometimes extremely distressing, and intractable symptom experienced by patients with advanced or end-stage renal disease. CKD-associated pruritus affects approximately 50% of patients on regular hemodialysis, although there is a paucity of concurring data, the rate of occurrence appears to be similar in those receiving peritoneal dialysis. The prevalence of CKD-associated pruritus may be underestimated by the nephrologists in charge because of the large variation in different populations and the inherent undulating pattern of pruritus in dialysis. Many attempts have been made to relieve this bothersome symptom in affected patients with limited success.

Although the pathophysiology of UP is not completely understood, several factors are thought to be involved in its development. These predisposing risk factors include increased blood urea nitrogen (BUN), calcium, phosphorus and β 2-microglobulin. Other contributing factors are as follows: serum magnesium and vitamin A excess; an increased aluminum level; anemia; erythropoietin deficiency; high ferritin levels; low transferrin and albumin levels; secondary hyperparathyroidism; increased calcium, phosphate and magnesium levels; and an increase in substances released from mast cells (histamine, interleukin [IL]-2, protease, etc.). Dry skin is caused by sweat gland atrophy and dehydration of the skin's stratum corneum layer. These factors are also reported to play a role in UP development.

Patients with UP have difficulty coping with it, and develop associated stress. UP is an increasingly important problem among dialysis patients. It has a negative effect on patients' quality of life, sleep, emotional state, and social relations. Pruritus also contributes to the development of skin and soft tissue lesions and/or infections. UP affects close to 90% of dialysis patients, and corresponds to increased morbidity and mortality. The mortality risk of UP was found to be > 17% based on 18,000 HD patients in the International Dialysis Outcomes and Practice Patterns Study (DOPPS). Overall, UP is typically resistant to treatment and difficult to manage.

Treatment options are limited in the management of CKD-associated pruritus. Therapeutic decision-making is further confounded when favorable findings from many reports (mostly uncontrolled trials or case series) are not validated by later studies. Herein, we present a focused review on the following therapies that have been tried with varying degrees of success:

- Topical treatments

Systemic treatment with μ -receptor antagonists and *k*-agonists

Gabapentin and anti-inflammatory agents

Ultraviolet (UV) phototherapy

A stepwise approach may be employed in therapeutic decision-making. With respect to risk-benefit assessments, the selection of treatment modality should be guided foremost by the agent exhibiting

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a better side-effect profile. If feasible in desperate cases, high-urgency renal transplantation may be considered for suitable patients, which almost always reliably resolves the pruritus.