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## Pruritus in hemodialysis patients and its relationship with parathyroid hormone; a new look at an old problem

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### Implication for health policy/practice/research/medical education

Study regarding, the association of excessive parathormone secretion with the intensity of itching in hemodialysis patients are conflicting and requires further investigation.

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In hemodialysis, pruritus is regarded as the main popular skin complication (1). Around half of dialysis individuals and a quarter of cases of non-dialysis chronic renal failure experience troublesome itch that diminishes quality of life and is increasingly detected to be accompanied with poor consequences including morbidity or death (2). Uremic itching frequently initiates 6 months following the start of hemodialysis, and it may have a meaningful positive association with the duration of hemodialysis (3). The exact pathogenesis of chronic kidney disease-associated pruritus remains unclear. Several etiologic and pathophysiologic mechanism had been suggested (4), of them the role of parathyroid hormone hypersecretion is more interesting, since this hormone, histamine, magnesium and calcium salts have been suggested as etiologic factors (5). Additionally, calcium-phosphate products, uremic neuropathy and hyperparathyroidism have been regarded in this disease (6). Previous studies also showed dialysis efficacy also is an independent prognosticator of itching in hemodialysis (7-9). It is possible that the rate of the filtration of pruritogenic constituents could influence the intensity of pruritus (8,9). Chronic kidney disease-associated pruritus (uremic pruritus), is bothersome and sometimes become debilitating in individuals with chronic renal disease or end-stage kidney failure not yet on dialysis too (2). To define clinical aspects and risk factors of itching in individuals with chronic kidney disease, Hu et al studied 382 patients (138 hemodialysis, 41 peritoneal dialysis, and 203 chronic kidney disease patients). This study showed, the frequency of itching in hemodialysis cases

was more than that in peritoneal dialysis individuals. This study also showed a noteworthy difference in the value of calcium × phosphorus product, serum urea nitrogen, phosphorus, parathyroid hormone and creatinine, among cases with itching and non-pruritus patients (10). In a previous investigation 37 dialysis cases with uremic itching and parathormone excess, a significant improvement of pruritus was seen one week following parathyroidectomy (11). Meanwhile, El-Shafey et al on 82 hemodialysis individuals with hyperparathyroidism, demonstrated better improvement of itching intensity in cases who administered cinacalcet versus those who received the conventional treatment along with phosphate binders and vitamin D (12). It should remember that, parathyroidectomy should only be reserved for severe forms hyperparathyroidism, since standard treatments of uremic pruritus or treatment by cinacalcet as a CaSR (calcimimetic-targeting calcium-sensing receptor) on parathyroid cells have priority. Study regarding, the association of excessive secretion parathormone with the intensity of itching in hemodialysis individuals are however conflicting and it is possible that several factors act together in uremic pruritus. Hence, the role of parathyroid hormone excess on uremic itching has persisted as a challenge and further investigations in this regard is necessary.

### Authors' contribution

LM is the single author of the paper.

### Conflicts of interest

The author declares that she has no competing interests.

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**Ethical issues**

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