Abstract

Background: Pruritus is a common symptom in end stage renal failure. Many patients suffer from this severe distressing symptom. Although several factors have been postulated to explain uremic pruritus, there is not any conclusive evidence for one of these factors.

Objectives: We aimed to evaluate serum levels of brain derived nerve growth factor (BDNF) and neurotrophin-4 (NT-4), serum calcium, phosphorus and parathyroid hormone in uremic patients with pruritus and without pruritus compared to control subjects.

Methods: 120 patients suffering from renal failure and 60 healthy subjects were included in the study. Serum BDNF and NT4 levels were determined by ELISA. The serum calcium, phosphorus and parathyroid hormone, hemoglobin were also evaluated.

Results: Serum BDNF was significantly higher in uremic patients with pruritus (p value= 0.0026) and uremic patients without pruritus (p value=0.0294) than control subjects. In addition, NT-4 levels were significantly elevated in uremic patients with pruritus (p value< 0.0001) and uremic patients without pruritus than control subjects (p value =0.0016). There was non-significant difference of serum level of BDNF between uremic patients with pruritus and uremic patients without pruritus (p value = 0.1215). However serum NT-4 was higher in uremic patients with pruritus vs non-pruritic uremic patients with a significant difference (p value =0.0026). There was a positive significant correlation between serum level of NT-4 and severity of pruritus (p value = 0.024).

Conclusions: The present study shows that NT-4 level is increased in the serum of uremic patients with pruritus and there was a significant correlation between NT-4 and severity of pruritus suggesting that, NT-4 may have a role in uremic pruritus.

Keywords: Brain-Derived Neurotrophic Factor, Neurotrophin-4, Uremic Pruritus.