

# Higher Serum Uric Acid Level in Essential Tremor Patients Than Parkinson's Disease Patients

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## Objective:

We hypothesize that the uric acid level in essential tremor (ET) patients is higher than Parkinson's disease (PD) patients, suggesting that uric acid may be an antioxidant to protect dopaminergic neuron degeneration.

## Background:

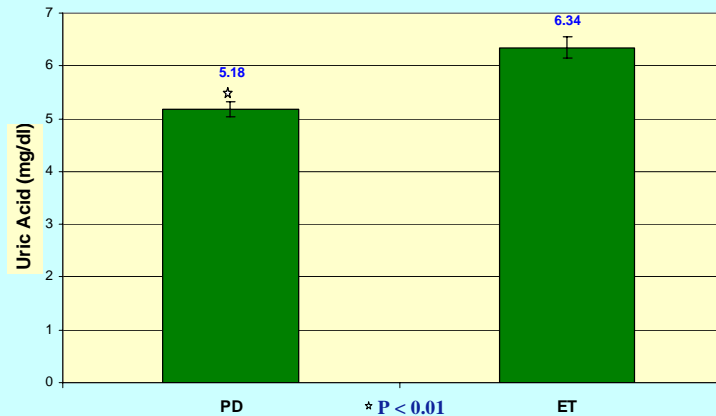
Several studies have linked low serum uric acid level in patients with PD. Uric acid, a natural antioxidant and free radical scavenger, was proposed to attenuate the dopaminergic neuronal degeneration resulted from oxidative stresses. However, no one had investigated the serum uric acid levels in PD patients compared with other movement disorder patients. We hypothesized that patients with ET, of which the mechanism is not likely to involve dopaminergic degeneration, may have higher serum uric acid levels than those of PD patients.

## Design/Methods:

We collected the uric acid value data from 77 PD and 66 ET patients who visited our Parkinson's clinic between 2001 and 2007. Their clinical diagnoses were confirmed by our movement disorder specialists. If there were two or more values of uric acid level on the same patients, the means of those values were calculated. Patients with both PD and ET were excluded. The significance of difference of the mean uric acid values between the two groups was analyzed by the Student's t-test.

	<i>Parkinson's Disease</i>	<i>Essential Tremor</i>
<b>Patient Numbers</b>	<b>77</b>	<b>66</b>
<b>Mean Age</b>	<b>75.8</b>	<b>70.3</b>
<b>Patients Diagnosed with Gout</b>	<b>1</b>	<b>7</b>

## Uric Acid Levels in PD and ET Patients



## Results:

- The mean ages of PD patients and ET patients were 75.8 years and 70.3 years, respectively.
- There was only one PD patient diagnosed with gouty arthritis and on allopurinol, a uric acid lowering agent. There were 7 ET patients who had the diagnosis of gout and were on regular uric acid lowering medications (allopurinol or probenecid).
- The mean uric acid level at the PD group was 5.18mg/dl, while it was 6.34mg/dl in the ET group ( $p < 0.01$ ).

## Conclusions:

- Our results show a significantly higher uric acid level in the ET patient group compared to the PD group, by more than 1.0 mg/dl.
- There was also a higher prevalence of gouty arthritis in ET patients than PD patients.
- These results support that high serum uric acid level may play a role as an antioxidant to prevent neuronal degeneration responsible for PD development.