

## P1

### Bradykinesia in patients with valproate-induced tremor

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*Background:* Valproate is one of the most effective treatments for epilepsy. Among its side effects, tremor and parkinsonism have been reported. Earlier neurophysiological observations showed bradykinesia (movement slowness) during upper limb movement in patients with valproate-induced tremor. However, the pathophysiological mechanisms of this movement abnormality are unclear.

*Objective:* To investigate the possible occurrence of bradykinesia in patients with valproate-induced tremor during finger movements and possible distinguishing features with bradykinesia in Parkinson's disease.

*Methods:* 22 patients with valproate-induced tremor, 22 patients with Parkinson's disease, and 22 healthy controls were enrolled. All participants underwent a standardized neurological examination, video recordings, and kinematic assessment of the finger tapping. Rest, postural and kinetic tremor of the upper limbs was also objectively recorded in patients using a motion analysis system. One-way analysis of variance was used for between-group comparisons. Correlations analysis was used to test possible correlations between clinical data and kinematic features in patients.

*Results:* Clinical evaluation and kinematic analysis showed that patients with valproate-induced tremor were slightly bradykinetic, i.e. slower, than healthy controls (both  $p < 0.05$ ). Unlike Parkinson's disease patients, however, patients with valproate-induced tremor did not present a decrement in amplitude (sequence effect) during finger tapping. Finally, there was no correlation between bradykinesia and tremor severity in patients.

*Conclusions:* Bradykinesia (movement slowness) without decrement is a common motor feature in patients with valproate-induced tremor which may suggest distinctive pathophysiological mechanisms.

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