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Asymmetry and side concordance of rest tremor and bradykinesia in patients with essential tremor

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Introduction: Subtle parkinsonian signs, i.e., rest tremor and bradykinesia (movement slowness), can occur in patients with essential tremor (ET) [1] and can be considered soft signs for the definition of ET-plus [2].

Objective: To investigate in a broad sample of ET patients the clinical and kinematic features of rest tremor and bradykinesia with particular attention to their body distribution and side concordance.

Methods: Eighty ET patients were enrolled. Upper limb action (postural and kinetic) tremor, rest tremor, and bradykinesia during finger tapping, were assessed by using standardized clinical scales and a kinematic system for movement analysis. We then investigated tremor asymmetry and side concordance between motor symptoms in ET patients.

Results: Thirty-one out of 80 patients (38.75%) had clinically detectable upper limb rest tremor. In 21 of them (67.74%), rest tremor was clearly asymmetric. In patients with rest tremor, the kinematic analysis of finger tapping revealed an asymmetry of the movement velocity in 17 cases (54.84%). However, in most patients (10 out of 17, 58.82%), there was no side concordance between rest tremor and bradykinesia. Conversely, in our sample, we observed a side concordance between asymmetric postural tremor amplitude and bradykinesia in a high percentage of cases (9/11 patients, 81.82%; $p=0.01$).

Conclusions: Rest tremor and bradykinesia are relatively frequent features in patients with a clinical diagnosis of ET. Our findings suggest that rest tremor and subtle bradykinesia (movement slowness) in ET possibly reflect different pathophysiological mechanisms [3]. Conversely, the side concordance between postural tremor and bradykinesia in ET suggests that these two motor alterations may have a common pathophysiological basis, possibly reflecting the prominent cerebellar involvement in this condition.

References:

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