P5

Asymmetry in saccadic eye velocity and latency may distinguish corticobasal degeneration from other atypical parkinsonisms

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Background and Aims: Corticobasal degeneration (CBD) is a neurodegenerative condition exhibiting a notable overlap in clinical and pathological characteristics with other atypical parkinsonisms. Several eye movement abnormalities have been described in patients with CBD; however, oculomotor signs are variable and often resemble those of other parkinsonian disorders. This study aimed to define the distinguishing patterns of eye motility dysfunctions in CBD patients compared to other atypical parkinsonisms

Methods: This study screened patients having diagnosis of atypical parkinsonisms including CBD, according to the diagnostic criteria. All patients underwent a complete neuro-ophthalmological examination and the video-oculography (Eyelink®1000 Plus), consisting of three eye motility tasks in order to evaluate fixation, smooth pursuit and saccades.

Results: A total of 11 patients with CBD (4 males [36.4%], age 67.3±7.2 years) and 33 parkinsonian syndromes, including 23 (69.7%) progressive supranuclear palsy (PSP) and 10 (30.3%) multiple system atrophy (MSA), were enrolled. The inter-eye differences (ID) for saccadic velocity and latency were higher in CBD patients compared to PSP and MSA (91.1±63.1 versus 17.1±23.5 and versus 8.4±9.0, $p<0.001$; 65.9±64.1 versus 16.3±21.6 and versus 18.4±24.6, $p<0.001$, respectively). Receiver-operating characteristics (ROC) analysis showed that an ID for velocities measurement >20°ang/s distinguishes CBD from other parkinsonisms with a sensitivity of 90.9% and a specificity of 90.6%, and the area under the ROC curve was calculated as 0.98 (95% CI 0.95-0.99, $P < 0.001$).

Conclusions: CBD exhibit distinct oculomotor features. The asymmetrical involvement of saccadic abnormalities may help to distinguish CBD from PSP and MSA.