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Press release

Voluntary eye movements, a new indicator of postural control in Parkinson disease?

Postural instability is the main factor associated with falls in patients with Parkinson disease, but there are other symptoms, such eye disorders. Teams from Pitié-Salpêtrière Hospital, AP-HP, and the Brain and Spine Institute (Inserm, CNRS, UPMC) have examined the link between these eye disorders observed in some patients and postural instability. Their results demonstrate a potential new marker of posture control in Parkinson disease. These results are published in the journal [Neurology](#).

Some patients with Parkinson disease show impairment of the voluntary eye movements, the "antisaccades." Dr Claire Ewencyk, from the team led by Prof Marie Vidailhet, and Prof. Stéphane Lehericy, from the Brain and Spine Institute, (Inserm, CNRS, UPMC) at Pitié-Salpêtrière Hospital, AP-HP, conducted a study in 30 patients with Parkinson's disease with or without postural control disorders, and 25 healthy subjects.

The researchers examined the patients' walk and balance, and recorded the initiation of walking and eye movements. At the same time, they studied the interactions between two areas of the brain: the frontal oculomotor area, which plays an important role in visual attention and eye movements, and the mesencephalic locomotor area, which is strongly involved in the control of posture and eye movements.

Their results indicate that patients with posture disorders also show abnormal reaction time (latency) in their voluntary eye movements. This abnormality is correlated with an alteration in the parameters during initiation of a step, particularly the duration of anticipatory postural adjustments, mechanisms used by the central nervous system to maintain balance in a standing position while performing voluntary movements.

Studying the interactions between the frontal oculomotor and mesencephalic locomotor areas of the brain reveals, in healthy subjects, a correlation between the frontal connections of these areas and the latency of voluntary eye movements. In patients with Parkinson disease, this association disappears. This suggests extensive involvement of the mesencephalic area in the disease, which affects both posture control and eye movements.

The prolongation of the reaction time of eye movements or "antisaccades," a simple and reliable parameter, might constitute a prognostic marker of postural control in Parkinson disease, and be used for patient assessment in future longitudinal studies.

Source:

[Antisaccades in Parkinson disease: A new marker of postural control?](#)

Ewencyk C1, Mesmoudi S2, Gallea C2, Welter ML2, Gaymard B2, Demain A2, Yahia Cherif L2, Degos B2, Benali H2, Pouget P2, Poupon C2, Lehericy S2, Rivaud-Péchoux S2 and Vidailhet M2.

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***About AP-HP:** AP-HP is a university hospital, and an internationally recognised force in clinical research in France and Europe. Its 39 hospitals receive 8 million patients a year, in clinics, emergency departments, and through planned hospital admissions or home hospitalisation. It provides a public health service for all, on a 24-hour basis, which for AP-HP is a matter of both duty and pride. AP-HP is the biggest employer in Île de France: 95,000 people – physicians, researchers, allied medical staff, administrative staff and other employees – work there. <http://www.aphp.fr>*



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