Absence of correlation between complaint and visual alterations in PCA patients:

A FGD-PET controlled study

Guerrier L., Cransac C., Pagès B., Saint-Aubert L., Payoux P.,Péran P., Pariente J.

Background: Posterior Cortical Atrophy (PCA) is a progressive neurodegenerative disease characterized by initial predominant visual impairment. PCA is classified as an atypical form of Alzheimer 's disease (AD). However, diagnosis of PCA syndrome remains complicated with a delay between first symptoms reported and diagnosis that may be up to several years [1]. The aim of this study is to better characterize PCA patients' complaints, cognitive deficits and their neuronal substrates.

Method: Fifteen patients with PCA were recruited and matched with 18 healthy controls. For each participant, an evaluation of daily visual difficulties [1] as well as a full neuropsychological assessment and FDG-PET were performed. We compared glucose metabolism between PCA patients and heathy controls. Correlation between patients' complaint questionnaire scores and performance was performed. Voxel-wise correlation between metabolism and performance was also conducted.

Results: Major impairment of cognitive functions was found in PCA patients and more specifically in visual domains. A hypometabolism of all visual areas (ventral and dorsal streams) is also worth noting in PCA patients in comparison to healthy controls. Positive correlations were found between these visual impairments and hypometabolism in right parieto-occipital cortex. However, no correlation was found between PCA patients' complaint and visual impairment.

Discussion: Our main results suggested there is a consistent link between clinical impairment and brain metabolism. However, PCA patient's complaint is not in agreement with visual alterations. Combining literature and ours results, it seems to be that patients are generally aware to have difficulties but are not able to characterize them [1, 2]. This misunderstanding of difficulties in PCA patient may be at the origin of the delayed diagnosis.

[1] B. Croisile and H. Mollion, "Q-ACP : un questionnaire d'é valuation des plaintes visuelles et gestuelles des patients ayant une atrophie corticale posté rieure Q-ACP: A questionnaire for evaluating visual and gestural complaints in patients with posterior cortical atrophy," vol. 4, pp. 8–5, 2010.

[2] D. E. Everhart, J. M. Highsmith, and C. E. Davis, "Posterior cortical atrophy: A case study of benson's syndrome that initially presented as anxiety disorder," *Appl. Neuropsychol.*, vol. 19, no. 3, pp. 229–236, 2012.