

Poster presentation

## Pupillometry in Parkinson disease, correlation with Dat Scan findings

D Fotiou\*<sup>1</sup>, CH Tsalamas<sup>1</sup>, G Gerasimou<sup>1</sup>, I Tsiptsios<sup>1</sup>, G Mentenopoulos<sup>1</sup>, A Goulas<sup>2</sup> and F Fotiou<sup>1</sup>

Address: <sup>1</sup>Laboratory of Clinical Neurophysiology, General Hospital AHEPA, Aristotle University of Thessaloniki, Greece and <sup>2</sup>Lab of Fluid Mechanics, Aristotle University of Thessaloniki, Greece

\* Corresponding author

from International Society on Brain and Behaviour: 1st International Congress on Brain and Behaviour Hyatt Regency Hotel, Thessaloniki, Greece, 20–23 November, 2003

Published: 23 December 2003

Received: 1 November 2003

*Annals of General Hospital Psychiatry* 2003, **2**(Suppl 1):S137

This article is available from: <http://www.general-hospital-psychiatry.com/content/2/S1/S137>

### Background

The diagnosis of Parkinson Disease (PD) has been based on clinical criteria when approximately 70–80% of the nigrostriatal neurons of the substantia nigra (SN) are degenerated. Early diagnosis can be essential for an effective treatment. Latest developments, like PET with 18F-L-DOPA or SPECT with (123) I, try to identify PD in an earlier state by measure the degeneration of dopamine nerve cells. Pupillometry, detects pupil reaction to light which is subserved by subcortical projections, can be combined with this techniques to provide useful data for diagnosis and progression of PD.

### Material and Methods

To detect correlations of neurochemical brain imaging studies with pupillometry in patients with hemi – Parkinson disease, an early phase of this disease. We study 9 untreated patients (7 males and 2 females, 50–74 years of age) who developed symptoms only on one side. The function of basal ganglia evaluated using (123) I Dat SCAN and pupil reaction to light with a new system developed in our laboratory in collaboration with the Fluid Mechanics Dept of the Aristotle University of Thessaloniki, consists of an infra-red video camera, an SLE lamp and an infrared spot light, which has the capacity to record and calculate precisely diameter, acceleration, velocity and other parameters. As a control group we use 10 healthy volunteers statistical similar, studied with pupillometry.

### Results

Pupillometry reveal statistically significant reduction in maximum velocity and maximum acceleration in patients who was positive for hemi-parkinsonism using imaging studies, in comparison with control group.

### Discussion

The use of SPECT in early diagnosis of PD has been recently reported. Despite the number of patients in our study, we suggest that pupillometry can give us more information about the dopamine system even better when is combined with other imaging techniques, and it can be a valuable tool in the study of early phase of Parkinson Disease. Future studies will provide more data about the possibility of using Pupillometry as a screening test to identify preclinical Parkinson disease.