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INTRODUCTION

In recent years, various studies have highlighted how ocular and visual symptoms negatively impact the quality of life in PD (Parkinson's Disease) patients.

However, they are underestimated and data on their prevalence and frequency are poor. The objective of this study is to assess the most frequent ocular and visual alterations in a population of patients with PD.

MATERIALS AND METHODS

A questionnaire, the VIPD-Q (Visual Impairment Parkinson's disease questionnaire) was administered to 42 subjects with a diagnosis of Parkinson's disease and 38 healthy subjects matched for age and sex. The VIPD-Q addressed 4 domains according to structures: ocular surface, intraocular, oculomotor and optic nerve. The original questionnaire included 22 questions on ophthalmologic symptoms, this number of items was reduced to 16 after a revision round that aimed to improve readability. One point was assigned for each symptom reported by the patient.

The inclusion criteria in order to select a homogeneous sample of patients affected by Parkinson's disease were:

- Diagnosis of idiopathic PD for at least one year, according to the appropriate clinical criteria.
- Cognitive integrity, MMSE > or = 27.

The exclusion criteria adopted were the following:

- Absence of ocular diseases such as glaucoma, maculopathy, retinopathies, corneal lesions.
- Absence of campimetric deficits
- No previous ischemic events, stroke.

Control subjects were not required to report:

- Ocular diseases such as glaucoma, maculopathy, retinopathies, corneal lesions.
- Absence of campimetric deficits
- No neurological diseases and/or previous ischemic events.
- Cognitive integrity, MMSE > or = 27

RESULTS

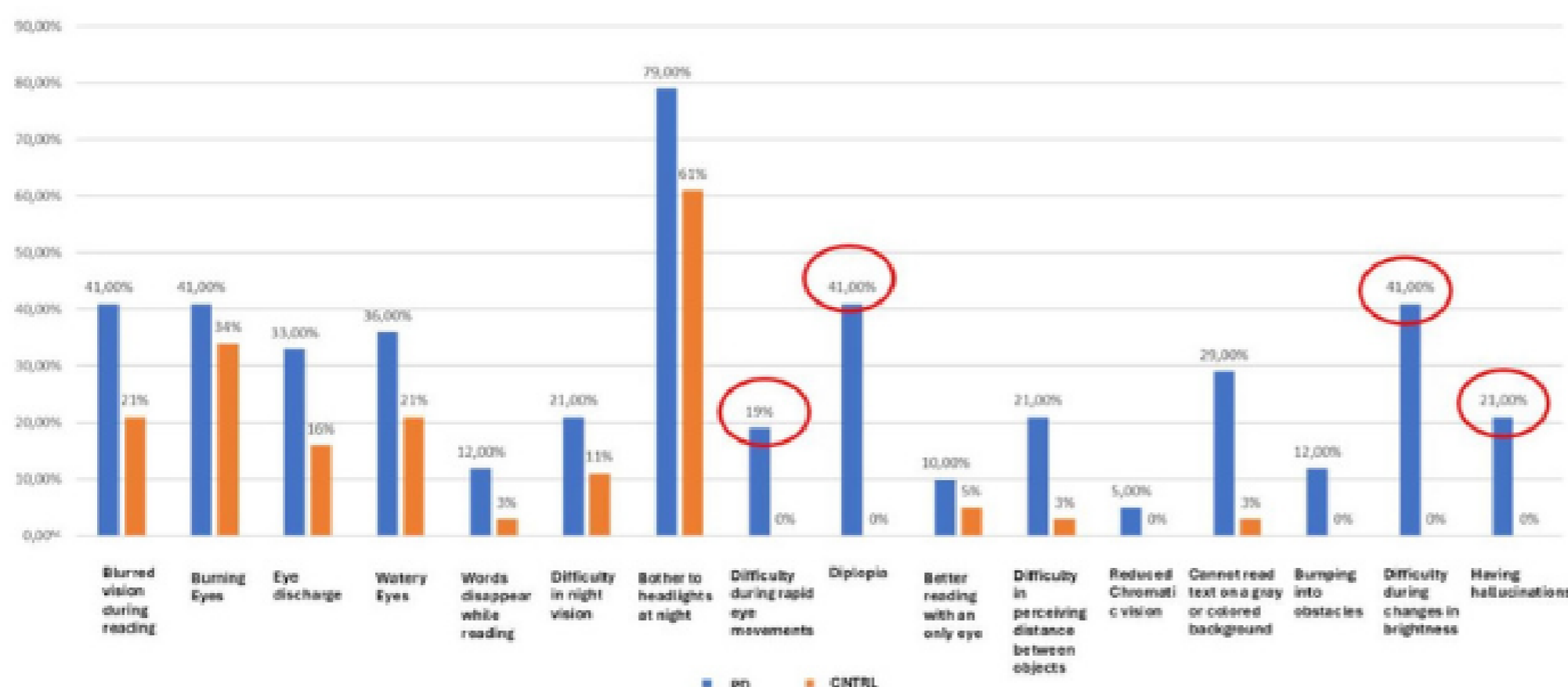


Fig.1. Prevalence of ocular symptoms reported on the VIPD-Q by the two groups.

Comparing the data between the two groups, a statistically significant difference emerged in the items: diplopia ($p < 0.001$), having hallucinations ($p < 0.05$), bumping into obstacles ($p < 0.05$), not being able to read a text on a gray or colored background ($p < 0.05$), difficulty in perceiving depth and distances between objects ($p < 0.05$), deficit of rapid eye movements ($p < 0.05$), difficult during changes in brightness ($p < 0.05$), finally disappearing of letters while reading ($p < 0.05$). (See fig.1).

The results showed a higher prevalence of ocular symptoms in PD patients compared to the control group, as evidenced by the mean total score on the VIPD-Q (PD: 4.8 ± 2.6 , CONTROLS: 1.8 ± 1.3).

Correlation analysis revealed a positive correlation between the total score obtained from the questionnaire and the years of illness (Pearson's $r: 0.353$ ($p < 0.05$)).

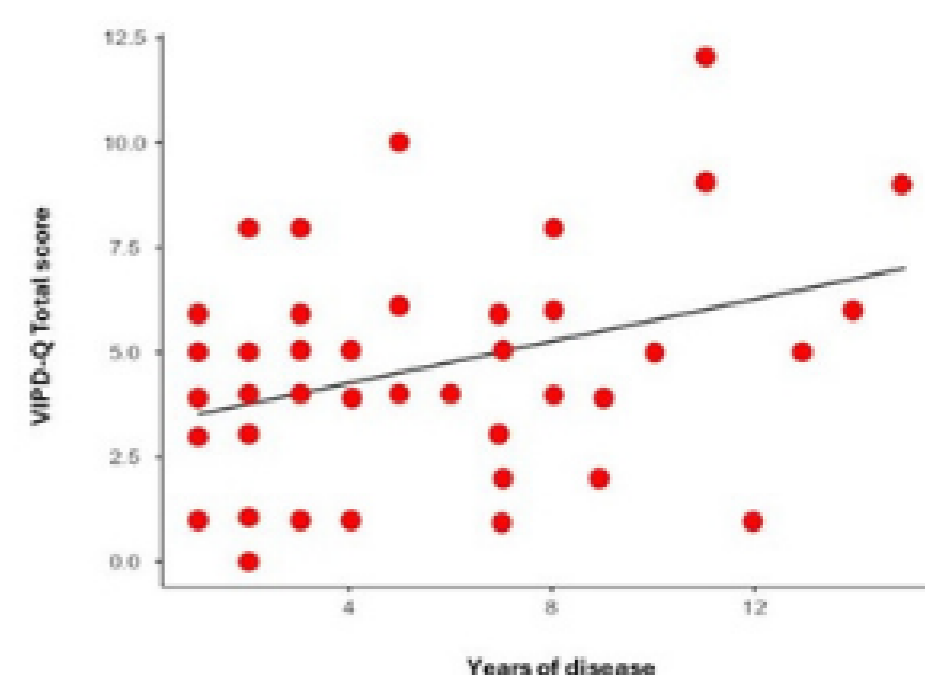


fig.2 -Correlation graph between VIPD-Q total score and years of disease in PD patients.

DISCUSSION AND CONCLUSION

The higher prevalence of ocular symptoms in PD patients compared to the control group, suggests that Parkinson's disease itself or its pharmacological treatment influence visual functions beyond the normal aging process.

Our results indicate multiple ocular involvement in PD patients including eye movements (diplopia, difficulty in making rapid eye movements), optic nerve (deficit in contrast sensitivity), retina (insufficient night vision) and the ocular surface (excessive secretions at the ocular level).

The PD patient's care by the orthoptist requires a comprehensive approach oriented towards the management of the associated multiple visual problems. Education and information by healthcare professionals to patients and caregivers is crucial.

Armstrong, R A. "Oculo-Visual Dysfunction in Parkinson's Disease." Journal of Parkinson's disease vol. 5,4 (2015).

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