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Visual and perceptual changes in Parkinson Disease patients. A behavioural difficulty in processing depth and peripheral stimuli

Michael Georgiades*[1,2] and John Harris[1]

Address: [1]Department of Psychology, University of Reading, England, UK and [2]Psychiatric Adult Department of General Hospital "G. Papanikolaou", Thessaloniki, Greece

* Corresponding author

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Background

Aims of the study were to investigate whether, visual and perceptual changes in Parkinson Disease (PD) patients found in some laboratory studies, have been noticed by patients outside lab conditions, and so are likely to be of both practical and clinical significance. PD was originally thought of as a motor disorder but recent research shows evidence for changes in vision in PD. At the anatomical and physiological level, it is known that retinal dopaminergic neurones (Nygen-Legros and Savy, 1988) and the latency of visual evoked potentials are abnormal.

Materials and methods

Subjects were 56 (males = 31) PD sufferers (mean age = 57.8, SE ± 1.08 years) and 37 (males = 17) age matched controls (mean age = 56.6, SE ± 1.6 years), recruited by UK Parkinson Disease Society. All patients and subjects were given a Questionnaire to complete and return to the Department of Psychology of Reading. Some questions referred to the occurrence of typical PD symptoms (tremor, akinesia, rigidity) and others pertained to changes in vision, such as colour, brightness, depth, size and shape perception.

Results

The results showed that apart from the typical motor deficiency reported to occur more often to PD sufferers than controls, there were found changes in vision to be highly associated with PD motor symptoms. Such symptoms of PD sufferers are the difficulty having pass through doorways ($p < 0.001$), the impairment in peripheral vision (the need to turn head sideways to see objects, $p < 0.001$), visual hallucinations ($p < 0.01$), difficulty in depth perception ($p < 0.05$), and motion perception ($p < 0.05$). The findings of difficulty reporting depth may reflect physiologically, problems in visuospatial processing, and behaviourally their difficulty in passing trough doorways, which may reflect physiologically an abnormality in internal representation and 3-D image processing. Impairment in perceiving motion is discussed in agreement with physiological findings that PD sufferers have higher motion thresholds to low contrast small displacement stimuli.

References

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