

MEETING ABSTRACT

Open Access

# The relationship between visual memory and the P300 in families with schizophrenia

Alexandra Pentarakis<sup>1\*</sup>, Daniel Stahl<sup>2</sup>, Elvira Bramon<sup>1</sup>, Eugenia Kravariti<sup>1</sup>, Robin Murray<sup>1</sup>, Timothea Touloupoulou<sup>1,3</sup>

From 1<sup>st</sup> International Congress on Neurobiology and Clinical Psychopharmacology and European Psychiatric Association Conference on Treatment Guidance  
Thessaloniki, Greece. 19-22 November 2009

## Background

Patients with schizophrenia and their unaffected relatives exhibit significant P300 amplitude and latency abnormalities in conjunction with neurocognitive deficits. Both the deficits in the P300 and neurocognition suggest that these indexes may be potential endophenotypes of the disorder. Few studies have examined the relationship between the P300 and neuropsychological measurements of sustained attention, visual memory and current intellectual ability in schizophrenia and these studies provide inconsistent results. The aim of the present study is (a) to examine which cognitive impairments the P300 reflects in schizophrenia and (b) to investigate the relationship between neurocognition and the P300 in families with schizophrenia in order to examine if these may be potential endophenotypes of the disorder.

## Materials and methods

95 patients with schizophrenia (35 females, 60 males), 149 of their non-psychotic unaffected first-degree relatives (91 females, 57 males) and 69 unrelated healthy controls with no personal family history of psychosis (39 females, 30 males) were assessed both in a P300 oddball paradigm and neuropsychological measurements such as the WAIS-R (Wechsler, 1981), response tendency of the Conner's Continuous Performance Test (Conners, 1995), immediate and delayed visual recall of The Wechsler Memory Scale-Russell's version (Russell, 1975). STATA 9.0 (STATA Corporation, College Station, TX) was used for the statistical analysis of data.

## Results

Significant P300 amplitude reductions and prolonged latencies were found in patients and their unaffected relatives independent of current general intellectual ability, education and age. There was a significant effect of sustained attention (response tendency), on the P300 amplitude reductions of patients and their unaffected relatives. Immediate visual recall had a significant effect on the P300 amplitude reduction of patients and their unaffected relatives, while there was no effect of delayed visual recall. There was no significant effect of immediate and delayed visual recall on the P300 prolonged latencies of patients and their unaffected relatives. Sustained attention did not have a significant effect on the P300 latency, but after controlling for its effect the differences between the groups disappeared.

## Conclusions

The findings of the present study suggest that the P300 amplitude reduction that patients and their unaffected relatives exhibited reflected impairments in effortful attention and in the use of short-memory processes (e.g. encoding) that involve the visual modality. The findings also suggest a dissociation between the P300 and delayed visual recall in patients and their unaffected relatives. Although it is less clear from the present findings, the prolonged P300 latency does not seem to reflect impairments in sustained attention and visual memory processes in either patients with schizophrenia or their unaffected relatives. The P300 amplitude reduction seems to be a potential endophenotype of schizophrenia

<sup>1</sup>Division of Psychological Medicine, Institute of Psychiatry, King's College London, UK

#### Author details

<sup>1</sup>Division of Psychological Medicine, Institute of Psychiatry, King's College London, UK. <sup>2</sup>Division of Biostatistics, Institute of Psychiatry, King's College London, UK. <sup>3</sup>Harvard Medical School, Department of Psychiatry, USA.

Published: 22 April 2010

#### References

1. Wechsler D: **Wechsler Adult Intelligence Scale-Revised Manual**. New York: Psychological Corporation 1981.
2. Conners CK: **Conners' continuous performance test computer program**. Canada: Multi-Healthy Systems, Inc 1995.
3. Russell EW: **A multiple scoring method for the assessment of complex memory functions**. *Journal of Consulting and Clinical Psychology* Stata Statistical Software. Release 9.2. College Station, TX: Stata Press 1975, 43:800-809.

doi:10.1186/1744-859X-9-S1-S123

**Cite this article as:** Pentarakı *et al.*: The relationship between visual memory and the P300 in families with schizophrenia. *Annals of General Psychiatry* 2010 **9**(Suppl 1):S123.

**Submit your next manuscript to BioMed Central  
and take full advantage of:**

- Convenient online submission
- Thorough peer review
- No space constraints or color figure charges
- Immediate publication on acceptance
- Inclusion in PubMed, CAS, Scopus and Google Scholar
- Research which is freely available for redistribution

Submit your manuscript at  
[www.biomedcentral.com/submit](http://www.biomedcentral.com/submit)

