Event-Related Potentials (ERPs) in Depressed Patients and Healthy Adults During Hemifield Presentations of Emotional Stimuli: A Replication

Introduction

Several lines of research suggest a close involvement of right parietal-temporal regions in processing of emotional stimuli (e.g., Gascard & Cohadon, 1998). Behavioral and electrophysiologic evidence also suggests that mood disorders are associated with right parietal-temporal dysfunction (e.g., Kayser et al., 1997, 2000). In accordance with both these paradigms, healthy adults showed enhanced P3 amplitude to negative than neutral stimuli in most parietal regions, whereas depressed failed to show this ERP sensitivity to emotional content (left hemisphere) and had smaller P3 than controls (Kayser et al., 1997, 2000).

This study aimed to replicate and extend our previous ERP findings during perception of affective stimuli by applying these methodology to new large groups of depressed patients and healthy adults.

Participants

• Participants were 28 depressed patients and 28 healthy controls (male/female: 14/14, mean age: 31.6 years, range: 19-56 years) recruited in our university hospital.

• Participants were matched for age, sex, and education level.

• Depression was assessed with the Hamilton Depression Rating Scale (HDRS) and C altagirone, 1989).

• Participants were excluded if they had a history of head injury requiring medical intervention or neurologic disorder, or EEG data acquisition at .102 Hz band pass (60Hz/ octave), 200 ms pre-stimulus baseline and 1,280 ms epochs. ERP components were extracted using a standard FastICA algorithm (Jenrich et al., 2002). The analysis was performed using the principal components analysis (PCA) of the entire data set (Kayser et al., 2000). Significant effects were confirmed by follow-up analyses.

• PCA factors were submitted to a repeated measures ANOVA with Group (Patient/Control), Emotional Content (negative/neutral), and Hemi sphere interaction indicative of right -hemisphere abnormality in depressed patients compared to healthy adults.
Depressed Patients
(n = 28)

PCA factor loadings

Neutral
Negative
PCA factor loadings
Healthy Adults
(n = 30)

P7

P8

Latency [ms]

Depressed Patients
(n = 28)

P7

P8

Latency [ms]

P7

P8

Latency [ms]