Neuronal Generator Patterns of Event-Related Potentials (ERPs) to Pleasant and Unpleasant Odors in Depressed and Healthy Adults

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Abstract

The dissociation of N1 sink and arousal in depressed patients is in partial agreement with the findings of Kobal et al (1982). Compared to healthy adults, N1 sinks and P2 source appeared more pronounced in patients with depression, likely corresponding to sinks and sources for valence and arousal, respectively. The independent manipulation of valence and arousal dimensions using pleasant and unpleasant odors did not achieve fully orthogonal ratings as reported by Anderson et al (2003). However, the independent manipulation of valence and arousal dimensions using pleasant and unpleasant odors did not achieve fully orthogonal ratings as reported by Anderson et al (2003).

Introduction

Odor detection task using pleasant and unpleasant odors.

Methods

ERPs recorded from 49 scalp placements using an electrode cap with a nose reference, 200 samples/s. ERPs were filtered using a 10–250 ms time window and a 0.5–20 Hz bandpass filter. ERP/CSD waveforms and topographies were analyzed using principal components analysis (PCA) and CSD-PCA factor analysis. Surface potentials were analyzed using multivariate statistical analysis techniques, including cluster analysis and principal components analysis.

Results

Fig. 7. Grand average CSD-PCA factor scores for controls and patients comparing H2S and C6H6 stimuli at 32 selected sites (A) and at sites T7 and Pz also comparing odor intensity (B).

Conclusions

The dissociation of N1 sink and arousal in depressed patients is in partial agreement with the findings of Kobal et al (1982). Compared to healthy adults, N1 sinks and P2 source appeared more pronounced in patients with depression, likely corresponding to sinks and sources for valence and arousal, respectively. The independent manipulation of valence and arousal dimensions using pleasant and unpleasant odors did not achieve fully orthogonal ratings as reported by Anderson et al (2003). However, the independent manipulation of valence and arousal dimensions using pleasant and unpleasant odors did not achieve fully orthogonal ratings as reported by Anderson et al (2003).