

# Auditory and Visual P300 Evoked Potentials Do Not Predict Response to Valproate Versus Lithium in Patients with Mania (Letter to the Editor)

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To the Editor:

Although auditory P300 evoked potentials may be altered in patients with bipolar disorder (1,2), there are few studies on the relationship between evoked potentials and response to mania with medications. In a previous issue of this journal (3) we described the EEG characteristics of 20 patients with mania who were responsive to lithium treatment but not to valproate, and 20 patients who were responsive to valproate treatment but not to lithium. Six of the patients responsive to lithium versus 14 of the patients responsive to valproate had nonepileptiform EEG abnormalities. Patients with mania and nonepileptiform EEG abnormalities were statistically more likely to respond to valproate than to lithium.

After the recording of each patient's EEG, auditory and visual P300 evoked potentials were successfully also recorded in 18 of the lithium responsive group (average age 36.7) and 16 of the valproate group (average age 33.3), and stored on computer discs for later analysis. P300 responses were obtained using an oddball paradigm in which the target stimulus occurred randomly in 15% of 300 stimulus presentations. For the auditory P300, the target tone was high-pitched (2000 Hz) as compared to the common tone (1000 Hz). Tones were delivered through earphones at 70 db. The visual P300 was based on checkerboard square pattern reversal with target stimulus in large check size (15 checks across the screen) as opposed to small check sizes (30 checks across the screen) for the common stimulus. Patients were required to mentally count the target

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	Lithium Responsive Patients Mean (SD)	Valproate Responsive Patients Mean (SD)	P
Auditory P300 Latency	324.3 msec (24.1)	333.8 msec (26.5)	ns
Auditory P300 Amplitude	15.4 $\mu$ V (4.1)	14.3 $\mu$ V (5.2)	ns
Visual P300 Latency	441.6 msec (30.3)	447.0 msec (43.2)	ns
Visual P300 Amplitude	10.7 $\mu$ V (5.4)	12.8 $\mu$ V (5.7)	ns

stimuli during each test. In both modalities a 750 msec sweep was employed with a stimulus repetition rate of 0.9 per second, and high and low filters were set at 70 and 0.5 Hz respectively.

Subsequently analysis of latencies and amplitudes has been performed. Latencies were measured at the most positive portions of the elicited P300 peaks. Amplitudes were measured from peak to peak (N2 – P3). Results are shown in the table.

It may be seen that differences in latencies and amplitudes between lithium responsive patients and valproate responsive patients did not differ significantly. Although EEG may be of value in predicting valproate versus lithium response in patients with mania, these findings would suggest that neither auditory nor visual P300 evoked potentials are useful in this regard.

## REFERENCES

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