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Clozapine Induced EEG Abnormalities and the Serum Concentration of Clozapine in Japanese Patients with Schizophrenia

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Introduction

Clozapine-induced electroencephalography (EEG) abnormalities are common. It has been reported that clozapine-induced EEG abnormalities occur in a dose-dependent manner and correlate with the serum concentration of clozapine (C-CLZ). However, the oppositional results were also reported.

Objectives

The objective of this study was to investigate the relationship between serum level of clozapine and EEG abnormalities.

Methods

Twenty-eight patients were recruited in this study, but five patients were excluded because clozapine was discontinued before post-treatment EEG measurement or measurement of C-CLZ. Ultimately, 23 patients (6 males, 17 females) with an average age of 35 years were enrolled. The subjects were divided into EEG normal and abnormal group. C-CLZ and the serum concentration of metabolite of clozapine (N-CLZ) were measured. The correlation between C-CLZ and daily dose of CLZ (D-CLZ), N-CLZ and D-CLZ were evaluated in each group. C-CLZ per D-CLZ (C/D), N-CLZ per D-CLZ (N/D) and the ratio of C-CLZ to N-CLZ (C/N) were compared between the two groups.

Results

74 serum levels were measured. All patients had normal baseline EEGs, and 10 patients later showed EEG abnormalities. There were a significant correlation between C-CLZ and D-CLZ (EEG normal: rs 0.58, $p<0.01$, EEG abnormal: rs 0.56, $p<0.01$) and between N-CLZ and D-CLZ (EEG normal: rs 0.53, $p<0.01$, EEG abnormal: rs 0.57, $p<0.01$). There were no significant differences between the EEG normal and EEG abnormal groups in C/D, N/D, C/N.

Conclusion

There was no relationship between the serum concentration of clozapine and EEG abnormalities.

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