The Effectiveness of Neurofeedback Therapy in Craving of Methamphetamine Use

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Abstract

Introduction: Relapse in methamphetamine dependency is one of the most difficult parts to treat. Therefore treatment of craving for usage is one of the essential sections of treatment in methamphetamine dependency (addiction). This study evaluates the effect of neurofeedback therapy on craving for use. Methods: In this study 20 male patient with methamphetamine dependency who diagnosed on the basis of DSM-V were selected. None of the patients had any psychiatric and neurologic disorder except addiction of methamphetamine. Patients were divided into 2 groups of 10. The first group has taken real neurofeedback therapy sessions while the second has undergone non-real neurofeedback (sham) therapy. Then the two groups have been compared with t-test. Result: The result shows that in the first group (real neurofeedback), craving for methamphetamine use has been decreased significantly whereas in the second group (non-real or sham), the decrease was not significant. Conclusion: Neurofeedback therapy is effective in treatment of craving for methamphetamine use.

Keywords

Methamphetamine, Neurofeedback, Craving

1. Introduction

There are many studies showing the effectiveness of neurofeedback therapy in the remission of alcohol and substance dependency [1]-[6].

Passini and colleagues (1977) [7], Fahrion and his team (1992) [8], and Peniston and Saxby (1995) [9] concluded that neurofeedback therapy was effective in alcoholic patient.

Goldberg and colleagues [10] in 1976 showed the effect of neurofeedback therapy (alpha conditioning) on patients with methadone dependency.

The objective of this study is to find out the effect of neurofeedback therapy on methamphetamine craving on Pz region.

2. Method

This study is clinical trial with 20 male patients who were referred to Ebne-Sina Hospital in Mashhad, Iran. They were selected by psychiatrist using convenience sampling and then divided into two groups of 10 after matching age and IQ. The first group consisting of 10 has undergone real neurofeedback therapy and the second group has undergone non-real neurofeedback therapy (sham). Each patient took 10 sessions of 30 minutes neurofeedback therapy. Theta/Alpha enhancement has been done on Pz region with protocol of unipolar in the two groups. DDQ (Desire for drug questionnaire) is used for measurement of craving [17]. Validity and reliability of this questionnaire have been checked in Iranian population [18] [19].

Paired t-test was used to compare data using SPSS software, version 20.

3. Result

The following table shows the descriptive statistical analysis of change in craving in the two groups (Table 1). The difference between pre-test to post-test within each group were measured and compared with paired t-test (Table 2).

As seen in Table 2, the craving for methamphetamine use from 1st session to 10th session was significantly decreased in real neurofeedback group (p < 0.005), whereas the decrease was not significant in non-real group.

4. Discussion

This study shows that theta/alpha enhancement (Deep Relaxation) in Pz region significantly reduces craving for use of methamphetamine.

This study shows the positive effect of neurofeedback therapy in craving for methamphetamine use as it was for other substance or alcohol use in other researches [1]-[15].

5. Conclusion

Theta/Alpha enhancement protocol (Deep Relaxation) in neurofeedback therapy in Pz region is an effective method for treatment of Methamphetamine craving.

| Table 1. Descriptive statistical analysis of change in craving in each group. |
| Max | Min | SE | SD | Mean |
| Craving | Post | Pre | Post | Pre | Post | Pre | Post | Pre | Post | Pre |
| Case group | 55 | 69 | 21 | 36 | 3.6363 | 3.76372 | 11.499 | 11.9019 | 36.70 | 52.10 |
| Control group | 63 | 68 | 31 | 40 | 3.4583 | 3.4649 | 10.936 | 10.9569 | 49.40 | 52.50 |

| Table 2. Comparison of craving between the two groups. |
| Paired Sample t-Test | Pre/Post-Test |
| Real Neurofeedback Group | Non-Real Neurofeedback Group (Sham) |
| t | 3.774 | 1.491 |
| p-value | <0.005 | >0.05 |
This study has been performed on male patients. Researches on female subjects and their comparison are suggested.

References


