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## Effectiveness of ECT in Huntington's disease with mood and psychotic symptoms: A case report

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### ABSTRACT

#### **Introduction**

Huntington's disease [HD] is a neurodegenerative disease with abnormal movements, cognitive decline, and psychiatric disorder. To date, there is no known treatment to eradicate the disease and treatment strategies are often symptomatic. In this study, we review a medical report of a patient with HD and severe psychiatric symptoms treated by electroconvulsive therapy [ECT]

#### **Case report**

The patient is a 36-year-old man with Choreoathetoid movements and Psychiatric symptoms. As pharmacotherapy, had not significant effect Psychiatric and motor symptoms progressed. He treated with bitemporal ECT, Tetrabenazine and aripiprazole. Sessions of ECT had significant effect in treating psychiatric and movement symptoms. within 6 months' follow-up, mood and psychiatric symptoms were controlled and motor symptoms were not worse.

#### **Conclusion**

ECT as an effective treatment in motor and psychiatric symptoms can be considered as first-line therapy that don't have significant side effects and doesn't affect cognition seriously. It is suggested to conduct other studies in future on a larger number of patients and compare pharmacotherapy to treatment with ECT.

**KEY WORDS:** Electroconvulsive therapy; Huntington's disease; Psychiatric symptoms

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## INTRODUCTION

Huntington's disease is an autosomal dominant chronic, progressive, and neurodegenerative disease that is associated with involuntary movements [Chorea, dystonia, Parkinsonism], cognitive decline and psychiatric disorders. WHO has estimated its prevalence 5-7 per hundred thousand people in western countries [1]. Early detection and effective treatment of these symptoms has been increasingly concerned [2]. To date, there is no known cure to eradicate the disease and treatment strategies are often symptomatic. So, little information on treatment including treatment of psychiatric symptoms and the use of antipsychotic drugs and antidepressants is available. Several reports have shown the effect of antidepressants, including mirtazapine, fluoxetine, MAO inhibitors and Venlafaxine in the treatment of HD with depression as an improvement from moderate to mild [3,4]. Antipsychotic drugs, including olanzapine, risperidone and clozapine have been noted for treatment of motor symptoms and psychotic disorder that their effects in these patients are still unclear. In addition, neuroleptics can cause extrapyramidal effects in these patients [5].

The only approved drug by FDA for the treatment of Chorea in HD is tetrabenazine [6]. In several studies, ECT is noted as a treatment affecting psychotic, behavioral and motor symptoms of this disease [7,8]. ECT is used in clinical work for treatment-resistant mood disorders and catatonia and can play a vital role in HD patients that their psychiatric symptoms do not respond to medical treatment or need a rapid treatment [thoughts of suicide or psychiatric disorders] [9]. However, only there are 6 studies in 17 patients of ECT treatment for psychiatric symptoms in HD [10-15].

It is often mentioned that ECT is not a proper choice due to cognitive complications in HD patients with cognitive impairment. Although, in a study of treatment with ECT in 17 patients, three patients experienced improving cognition after treatment with ECT [19]. Three people had not any changes, 10 people didn't place under cognitive testing, but their depression was improved and only one person had cognitive decline [10-15]. In this study, we review a medical report of a patient with HD and severe psychiatric symptoms treated by ECT.

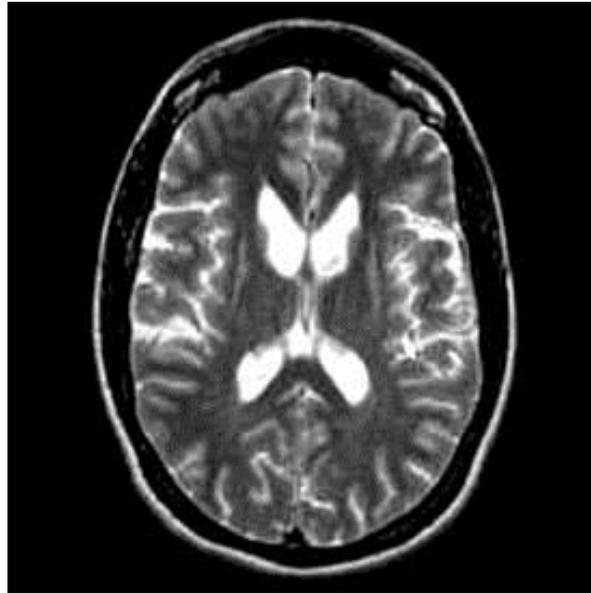
## CASE REPORT

The patient is a 36-year-old man who suffered from Choreoathetoid movements in the upper limbs and difficulty in walking from 4 years ago, Psychiatric symptoms were started about one year ago in the form of physical inactivity, sadness, loss of energy, isolation, taciturnity and problem of rising and walking so that occasionally walked on all fours. Outpatient treatment with tetrabenazine 25 mg three times a day, sertraline 100 mg daily, haloperidol 0.5 mg twice a day did not have much effect in reducing the symptoms of the disease. About 5 months ago, his symptoms changed as elevated mood, sleep disturbance, anxiety, suicidal thoughts and committing suicide, delusions of persecution, talking and laughing with self, talkativeness, aggression, obscenity, anger and physical violence, increase energy, appetite and sexual desire. Sertraline discontinued, and sodium valproate 200 mg three times a day and clonazepam 1 mg per day was added to drugs.

During this period, motor symptoms progressed and the patient was not able to go to the bathroom alone and did personal grooming and even didn't can leave home. Patient was hospitalized in our center due to the progression of

symptoms and lack of response to outpatient treatment. At neurological examination, there were increased deep tendon reflexes, choreoathetoid movements of upper limbs, impaired gait, and voice tics as throat clearing. In laboratory tests, analysis of DNA proved mutation in one allele of HTT gene [repeat mutation CAG] and HD diagnosis. In MRI, atrophy of head of caudate and widening of frontal horn [Figure 1] were observed. In BPRS, patient achieved score 52, YMRS score 30 and in MMSE test, patient achieved score 21 of 30. In family history, two patient's uncles and the cousins had HD.

**Figure-1: MRI-T2 Cutting in patients**



Patient with diagnosis of psychotic disorder due to medical conditions [Huntington's disease] treated with bitemporal ECT, Tetrabenazine 25mg twice a day and aripiprazole 10 mg twice a day. After fourth session of ECT, a significant improvement was observed in motor symptoms [limited choreoform movements and improve gait and reduce the severity of mood and psychotic symptoms. Patient achieved BPRS 24 and YRMS 15 score. MMSE did not have a significant change. After 6 sessions of ECT considering that mood symptoms significantly improved, treatment was discontinued with ECT. It is noteworthy that the patient during treatment with ECT did not have significant side effects. Then patient was treated with aripiprazole 10mg twice a day and tetrabenazine 25mg twice a day. At monthly visits and after 6 months of follow-up, mood and psychiatric symptoms were under control and motor symptoms were not worse. So, that the patient can do his basic works and come for the outpatient follow-ups by himself.

## DISCUSSION

This case report confirms the effectiveness of ECT in the treatment of motor and psychiatric symptoms of patients with Huntington's disease. Despite the fact that antipsychotics are the standard treatment of Huntington's disease, the effects of them is uncertain. In addition, neuroleptics cause involuntary movements due to Extrapyramidal effects

[8]. In this patient, ECT dramatically improved mood, psychiatric and motor symptoms without decline in cognitive performance [MMSE = 20]. The fact that ECT does not cause an increase in extrapyramidal effects can raise it as a first step in treatment of psychosis due to HD [14]. A recent study showed that ECT can protect neurons against Huntingtin protein mutation that result in improving performance and slow the progression of the disease [15].

In the study of Cusi et al in 2013, ECT has been proposed as a valuable, well tolerated remedy in improving psychiatric symptoms in HD. In this study, right unilateral ECT was used. The number of sessions was between 4 and 13 sessions. No significant side effects have been observed and a significant improvement in psychiatric symptoms was created [8]. In a study by Takashi et al in 2013, in a patient with treatment-resistant psychosis due to HD, after four sessions of ECT, psychotic symptoms decreased dramatically and speaking of patient became fluent, but no improvement was observed in motor symptoms. During serial ECTs, motor symptoms improved [14].

In the study of Michelle Magid et al in 2014 on a patient with motor, psychiatric and behavioral symptoms and difficulty in feeding, he improved by getting ECT and maintenance treatment with monthly ECT was continued for 6 months [9].

The limitation of this report is that in this study achieving ECT was at the same time with achieving drug treatments, of course the patient has been already achieving the drug, so in the case of drugs effectiveness, the impact has been after mixing with ECT. The strong points of this report are that, all findings unlike some previous reports have been based on observing patient and not recorded document.

### CONCLUSION

ECT as an effective treatment in motor and psychiatric symptoms can be considered as first-line therapy that don't has significant side effects and does not affect cognition seriously. It is suggested to conduct other studies in future on a larger number of patients and compare pharmacotherapy to treatment with ECT.

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