Olanzapine and tardive dyskinesia: a case report

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ABSTRACT

Tardive dyskinesia is a serious and common motor side-effect of treatment with especially traditional neuroleptics with an unknown pathophysiological basis. The essential features of neuroleptic-induced tardive dyskinesia (TD) are abnormal, involuntary movements of the tongue, jaw, trunk or extremities that emerges in a patient predisposed to antipsychotic medication. Although the exact pathogenesis of TD is unclear, there is some evidence that dopamine supersensitivity in the nigro-striatal pathway due to the antipsychotics could contribute to these dyskinetic movements. Atypical antipsychotics have less risk in terms of tardive dyskinesia compared to traditional neuroleptics however there is still probability of late adverse effects. Although it has been suggested that olanzapine can improve tardive dyskinesia in some patients, few reported cases have shown that the prolonged use of olanzapine can instead be associated with tardive dyskinesia/dystonia. Here we report a case who experienced tardive dyskinesia after 12 years of treatment with olanzapine and its treatment with clozapine.

Keywords: olanzapine, tardive dyskinesia, atypical antipsychotic

INTRODUCTION

Tardive dyskinesia (TD) is a severe and common motor side-effect of treatment especially with conventional antipsychotic drugs, without an identified pathophysiological basis. The common characteristics of neuroleptic-induced TD are abnormal, involuntary movements of the tongue, jaw, trunk or extremities that emerges in a patient predisposed to antipsychotic medication. Though the precise pathogenesis of TD is ill-defined, there has been some evidence that dopamine supersensitivity in the nigro-striatal pathway due to the antipsychotics could lead to these dyskinetic movements. Some other hypothesis are reduced gamma amino butyric acid (GABA) turnover, increased GABA receptors in one or more domain of basal ganglia, neurotoxic outcomes of antipsychotics on brain, striatal dysregulation with altered D1 and D2 receptor ratio or increased noradrenergic and decreased cholinergic activity.1
TD impacts 20-30% of patients during long-term antipsychotic therapy, with older patients bearing up a higher risk. Atypical antipsychotics cause lower risk in terms of tardive dyskinesia compared to traditional neuroleptics nonetheless there is still probability of late adverse effects.² Olanzapine is an atypical antipsychotic agent with an accounted lower propensity to cause TD. Although it has been proposed that olanzapine can ameliorate TD in many patients, few reported cases have presented that the prolonged usage of olanzapine may rather be related to tardive dyskinesia/dystonia.³ Here we report a case who had late dyskinesia after 12 years of treatment with olanzapine.

CASE REPORT

A 66 years old, male patient accepted to our clinic with complaints of involuntary movements involving his tongue, jaw, right arm and leg. His psychiatric history began about 12 years ago with persecutory thoughts, social withdrawal, negativity, insomnia, anhedonia and feelings of guilt. He never used alcohol or any other substance. He was taken to a psychiatrist, diagnosed as major depressive disorder with psychotic features and prescribed fluoxetine 20 mg/day + olanzapine 10 mg/day. In follow up, he had clinical improvement with this treatment just whenever olanzapine dose lessened, patient developed exacerbation of paranoid thoughts and social withdrawal worsened. Therefore olanzapine dose could not be decreased rather with the remission of depressive symptoms 2 years ago, fluoxetine treatment was terminated. 2 months before the admission, his family noticed repeated unwilled movements in his right arm. Olanzapine was stopped by his psychiatrist. Although he was medication free for one month; involuntary movements of tongue, jaw continued and rare choreic movements in right leg emerged.

He was hospitalized with the diagnosis of psychotic disorder, not otherwise specified and possible neuroleptic induced tardive dyskinesia. Extensive biochemical, neuropsychological and imaging work-up was negative. A diagnosis of drug-induced tardive dyskinesia was thus made, other causes of dyskinesia were excluded. He did not have psychotic exacerbation of positive symptoms but social withdrawal, negativity progressed during the antipsychotic free period. He even could not get out of home so antipsychotic treatment with clozapine 12.5 mg/day initiated. For protection of his teeth and temporomandibular joints, a dental apparatus was formed by a dentist. Clozapine dose was gradually titrated up to 100 mg/day. Dyskinetic movements improved slightly and psychotic symptoms relieved. Besides clozapine, information about tetrabenazine was given to patient and family. Unfortunately tetrabenazine is not present in Turkey and could only be imported. The titration and follow up of tetrabenazine would require time, patient and his family had to turn back to the city they live so they did not give informed consent for tetrabenazine. Patient discharged from hospital with his will.

DISCUSSION

In this case, the tardive dyskinesia was most probably the result of olanzapine administration. The presence of three features known as the Schooler and Kane criteria is often used for diagnosing neuroleptic-induced TD states. These are: 1) there has been an exposure to antipsychotic medication for at least three months (one month if 60 years and older), 2) involuntary movements of moderate intensity observed at least in one part of body or of mild intensity in at least two parts, 3) exclusion of other circumstances that cause movement disorders.⁴ In our case all these three criteria were met.

Drug related factors contributing genesis of tardive dyskinesia are the type, dosage, serum concentration of antipsychotic, duration of time used, cumulative dose, break in antipsychotic treatment, polypharmacy, alcohol, anticholinergics and history of extrapyramidal symptoms. Other factors for tardive dyskinesia which are not not associated with drug are advanced age, female sex, past somatic treatments (leucotomy, ECT), organic disorders, enlargement of lateral ventricles, cognitive problems, schizophrenia with prominent negative symptoms, affective disorders, the age at first exposure to antipsychotic drug and metabolic disorders like diabetes mellitus.⁵

The age of the patient, beginning of the disorder with mood symptoms and the long-term use of olanzapine may have favoured the appearance of involuntary movements, even though olanzapine has been claimed to carry a low risk for tardive dyskinesia and other extrapyramidal symptoms. Our case has never used olanzapine over 10 mg/day dose; it may be a clue that tardive dyskinesia does not need to come with high doses of olanzapine. In some cases, tardive dyskinesia disappears by only decreasing...
the dose of antipsychotic drug. In highlight of literature dyskinetic movements may remain unchanged in %50; may become less or improve in %10-30 and may get worse in rest of affected patients. Four weeks after cessation of olanzapine treatment patient’s dyskinetic movements involved also some other regions of his body so unfortunately our case is in third group.

Our case does not have any history for use of any conventional antipsychotic or another atypical antipsychotic and tardive dyskinesia starts after two years of olanzapine monotherapy. Tardive dyskinesia induced by one atypical antipsychotic drug can disappear with switching to another atypical antipsychotic. In studies about why TD occurs more often with olanzapin than clozapine, olanzapine is acclaimed for having more affinity for D2 receptors than clozapine. Clozapine dissociates from dopamine receptors faster and has more serotonergic affects. In our case clozapine is used both for dyskinetic movements and psychotic symptoms.

As the best treatment of tardive dyskinesia is only prevention and olanzapine is increasingly being used in elderly subjects, our report emphasises the necessity for judicious use and cautious assessment for tardive dyskinesia or other movement disorders in patients (and in particular elderly patients) taking this atypical neuroleptic.

More intensive research and long term studies in the future are needed to understand dilemma of olanzapine both causing TD and being used for treatment of TD raised by case reports.

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REFERENCES