CASE REPORT

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Antipsychotic Drug Induced Tardive Dyskinesia

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ABSTRACT

A typical antipsychotics are at a lower risk of developing extra-pyramidal symptoms (EPS). But now, atypical antipsychotics are increasingly being associated with neurological side effects such as tardive dyskinesia, tardive dystonia, akinesia, parkinsonism, akathisia, bradykinesia, tremor etc. in which one of the major cases reported is Olanzapine induced tardive dyskinesia (TD). Schooler and Kane criteria is used for diagnosing tardive dyskinesia. Many cases have been published on this particular drug-induced side effect. In many instances tardive dyskinesia is misdiagnosed as tardive dystonia. Here we report the case of tardive dyskinesia associated with the use of antipsychotic drugs in a 50-year-old adult male suffering from persistent delusional disorder in a tertiary health care centre in India. The patient was on Olanzapine therapy for more than 2 years. Upon recurrent episodes of somatic delusions, Olanzapine dose was increased. When the patient developed symptoms of TD, the dose of Olanzapine was de-escalated. Even though the drug dose was reduced, the symptoms persisted which lead to the diagnosis of olanzapine induced TD. Based on this, Olanzapine was stopped and Clozapine treatment was initiated. On follow up, the patient was found to be relieved of the symptoms and complete recovery was achieved after 2 months of clozapine treatment.

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INTRODUCTION

Antipsychotics are a class of medication which aids in the management of psychosis or other psychiatric illnesses such as schizophrenia and bipolar disorder, which may later progress into psychosis. Antipsychotics are classified, based on its activity on the Dopamine and Serotonin receptors, as First-generation Antipsychotics (Neuroleptics) and Second-generation Antipsychotics (Atypical Antipsychotics). First-generation Antipsychotics (FGAs) tend to block all the D2 receptors thereby inhibiting the dopamine transmission. This leads to the development of Extra-pyramidal Symptoms (EPS). One of the main disadvantages of First-generation Antipsychotics is the occurrence of extra-pyramidal symptoms. Tardive dyskinesia, akinesia, parkinsonism are few of the EPS occurring due to the use of antipsychotic drugs. Second generation antipsychotics (SGA) are also known as "atypical" antipsychotics. Originally the term "atypical" was used to signify lower risk of EPS. SGAs tend to block not only the D2 receptors but also the

5HT2A receptors. The affinity of SGAs towards the D2 receptor is lower than that of FGAs which leads to lesser occurrence of EPS (Sethi, 2001). The risk for developing TD is lower for risperidone, olanzapine, quetiapine, and ziprasidone (Gupta *et al.*, 1999). Use of antipsychotics can lead to abnormal involuntary movements of body involving the tongue, upper and lower extremities which are commonly characterized as TD. High potency SGAs which inhibit the dopamine receptors in nigrostriatal area are more prone for causing TD. The risk of developing TD is directly proportional to dosage of SGA (Morgenstern and Glazer, 1993). Tardive dyskinesia causes irregular involuntary movements of the face, tongue, lips, or jaw. It is usually seen as rapid, jerking movements or slow, writhing movements. The incidence rate of Olanzapine induced TD was found to be 0.52% (Beasley *et al.*, 1999). Tardive dyskinesia is often misunderstood with Tardive dystonia (Trugman *et al.*, 1994). In case of tardive dystonia, the onset of symptoms can occur only after few days or few weeks of exposure and the improvement rate is more confined with tardive dyskinesia (Burke *et al.*, 1982). This case report is of tardive dyskinesia associated with the use of antipsychotic drugs in an adult male suffering from persistent delusional disorder.

CASE HISTORY

A 50 year old male who is a known case of persistent delusional disorder on treatment was presented with 5 months history of swaying of neck to the side, associated with tremors, increased tiredness, occasional sleep disturbance and reduced appetite. Patient was noticed to be reporting persistently that there is some problem in his neck and has difficulty in breathing, having food and was constantly worried about that. He also showed abnormal swaying of neck to the side with restriction of movement.

Initially, the patient developed breathlessness and decreased sleep following his surgery for CA (carcinoma)thyroid and then was started on Thyroxin 150mcg/day. During surgery for CA thyroid, vocal cord palsy was observed which is later recovered and on further examination showed the absence of lesion and metastasis. Then the patient was referred to psychiatry department and was started on tab Olanzapine 20mg/day for his psychotic symptoms. The doses were gradually titrated. Psychology consultation was done for diagnostic psychometric. On follow up, after 2 months, relapse occurred hence dose of Olanzapine increased to 30 mg HS and tab Nitrazepam 10 mg/day was added. T. Trihexyphenidyl 2 mg/day was given in order to prevent EPS.

Patient showed mild improvement on follow up. As he presented with tremor, dose of Trihexyphenidyl was increased to 4mg/day. A month after, he had breathing difficulty, decreased sleep occasionally, unable to turn neck towards right side for 3 weeks so T. Phenergan 10 mg/day was added. The patient also exhibited swaying of neck to sides and with reduced sleep-occasionally, O/E- Dystonia+, Tremors, mild rigidity+ MSE: Rapport/cognition-WNL, Spontaneous speech, Normal volume and volubility Grandiose delusions+ Insight-Grade2. So, he was advised to take Tab.Olanzapine 10mg OD, Tab. Trihexyphenidyl 2mg BD, Tab.Nitrazepam 10mg OD, Tab.Levo-Thyroxine 150mcg OD.

On follow up, the patient exhibited abnormal movements of both upper limbs, stiffness of neck, tremors and was hospitalized. In view of tardive dyskinesia olanzapine was stopped, Clozapine was started and Alpha Tocopheryl acetate (Evion) was added. Trihexyphenidyl was added for extra pyramidal symptoms and it was augmented with Promethazine. Nitrazepam was added for sleep disturbances. After the initiation of Clozapine therapy 50mg HS, the patient was alleviated of the symptoms. Subsequently, it was increased up to 100mg HS which lead to the complete recovery of TD within 2 months of the treatment. On the next follow up, Clozapine was discontinued and Aripiprazole 15mg HS was started. Currently, the patient is still on Aripiprazole 15mg per day without any re-emergence of TD.

DISCUSSION

In this report, a case with a diagnosis of delusion who later developed tardive dyskinesia after about 2 years of Olanzapine treatment is being discussed. The diagnosis of TD was not set under any strict criteria. The diagnosis of TD is often done based on the Schooler and Kane criteria. These criteria emphasize the presence of three features such as: 1) the use of antipsychotic drugs for at least three months; 2) involuntary movements of moderate intensity observed at least in one region or of mild intensity in at least two regions, 3) exclusion of other conditions that cause movement disorders (Owens, 1999). All the criteria were met in this case.

Prevention is the best approach that we can adopt against TD. Based on each patient's conditions, selection of optimal pharmacological choices and dosage adjustment aids in prevention of drug induced TD (Bhidayasiri and Boonyawairoj, 1024; Aia *et al.*, 2011). Long-term treatment with antipsychotic drugs mentioned in this paper is a major risk factor for developing TD. It is important to reassess the course of treatment for the patients and allow

the patient to continue these kinds of medicines only if necessary. As Clozapine has been known to have a positive effect on reversing the symptoms of tardive dyskinesia, it is considered as the drug of choice for patients who need antipsychotics and who also suffer from tardive dyskinesia (Cornett *et al.*, 2017; Mathews *et al.*, 2005). Based on this, olanzapine was discontinued and clozapine was initiated for our patient.

CONCLUSION

This case report gives information on medications that causes TD and treatment for the same. Atypical antipsychotic agents are good pharmacological tool to treat psychiatric conditions. From many evidences till the date suggest that the use of typical antipsychotics make the patient more prone to develop TD than a patient who is on atypical antipsychotics. TD can considerably change the patient's quality of life. Hence, early diagnosis may increase the chances of minimizing the disorder as well as its remission.

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Conflict of Interest

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REFERENCES

Aia, P. G., Revuelta, G. J., Cloud, L. J., Factor, S. A. 2011. Tardive Dyskinesia. *Current Treatment Options in Neurology*, 13(3):231–241.

Beasley, C. M., Dellva, M. A., Tamura, R. N., Morgenstern, H., Glazer, W. M., Ferguson, K., Tollefson, G. D. 1999. Randomised double-blind comparison of the incidence of tardive dyskinesia in patients with schizophrenia during long-term treatment with olanzapine or haloperidol. *British Journal of Psychiatry*, 174(1):23–30.

Bhidayasiri, R., Boonyawairoj, S. 1024. Spectrum of tardive syndromes: clinical recognition and management. *Postgraduate medical journal*, 87:132–141.

Burke, R. E., Fahn, S., Jankovic, J., Marsden, C. D., Lang, A. E., Gollomp, S., Ilson, J. 1982. Tardive dystonia: Late-onset and persistent dystonia caused by antipsychotic drugs. *Neurology*, 32(12):1335.

Cornett, E. M., Novitch, M., Kaye, A. D., Kata, V., Kaye, A. M. 2017. Medication-induced tardive dyskinesia: a review and update. *Ochsner Journal*, 17(2):162–174.

Gupta, S., Mosnik, D., Black, D., Berry, S., Masand, P. 1999. Tardive Dyskinesia: Review of Treatments Past, Present, and Future. *Annals of Clinical Psychiatry*, 11(4):257–266.

Mathews, M., Gratz, S., Adetunji, B., George, V., Mathews, M., Basil, B. 2005. Antipsychotic-induced movement disorders: evaluation and treatment. *Psychiatry (Edgmont)*, 2(3):36.

Morgenstern, H., Glazer, W. M. 1993. Identifying risk factors for tardive dyskinesia among long-term outpatients maintained with neuroleptic medications: results of the Yale Tardive Dyskinesia Study. *Archives of General Psychiatry*, 50(9):723–733.

Owens, D. C. 1999. A guide to the extrapyramidal side effects of antipsychotic drugs. *Cambridge University Press*, page 351.

Sethi, K. D. 2001. Movement Disorders Induced by Dopamine Blocking Agents. In *Seminars in Neurology*, volume 21, pages 059–068. Georg Thieme Verlag KG.

Trugman, J. M., Leadbetter, R., Zalis, M. E., Burgdorf, R. O., Wooten, G. F. 1994. Treatment of severe axial tardive dystonia with clozapine: Case report and hypothesis. *Movement Disorders*, 9(4):441–446.