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Otorhinolaryngology And Radio Diagnosis Related To Neuroleptic Malignant Syndrome

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Abstract: ***We present 3 cases of olanzapine induced Neuroleptic malignant syndrome precipitated by upper respiratory tract infection. All three patients were in their 30s with more than a year long olanzapine use history with adequate response. No change in dose was there nor any other comorbidity except for short episodes of Upper Respiratory Tract Infection reported from Otorhinolaryngology department. These cases highlight the need to evaluate relatively benign conditions like common cold precipitating NMS in patients on antipsychotics including less implicated second generation antipsychotics.***

Keywords: ***Neuroleptic Malignant Syndrome, Atypical antipsychotic Olanzapine, Common Cold, Upper respiratory tract Infection.***

I. INTRODUCTION

Neuroleptic Malignant Syndrome is a potentially life- threatening idiosyncratic reaction to neuroleptics and other drugs affecting dopaminergic transmission.

It is mainly characterized by fever, extrapyramidal symptoms, autonomic instability and an altered state of consciousness. It was first described in 1968 by Delay and Deniker. It is primarily caused by dopamine (D2) receptors blockage in the nigrostriatal tract, mesocortical pathway and hypothalamic nuclei.

II. CASE HISTORIES

CASE 1: 32 year old female under treatment for bipolar affective disorder on olanzapine 10mg OD, Sodium valproate 600mg OD for past 1 year who was maintaining clinical remission presented with 5 days history of cold for which she was treated with Amoxiclav 625mg TDS for 3 days reported with worsening of fever along with rigidity, drowsiness, tachycardia. She was admitted under internal medicine for evaluation of fever but no cause could be found until drug use history was considered. Patient was diagnosed with NMS on the basis of DSM-4 TR criteria. Olanzapine was withheld and patient was managed conservatively showing improvement within just a week.

CASE 2: 32 year old Male adult on 15 mg Olanzapine for schizophrenia was also under remission for almost a year when he was diagnosed with pharyngitis and treated with cephalosporins for 5 days. But the next day he was admitted in Internal Medicine For complaints of acute confusional state along with fever, autonomic hyperactivity for 2 days following flu like symptoms. Investigations to rule out meningitis and other causes of pyrexia of unknown origin were unremarkable. However when fever, rigidity and disorientation didn't subside possibility of NMS was kept and serum CPK levels were found to be raised above 2000 IU/L. He was managed conservatively as well after withholding Olanzapine.

Case 3: 34 year old female with schizophrenia on regular olanzapine 10mg OD admitted in internal medicine for workup of fever with lethargy that had not responded to Ciprofloxacin after 5days was eventually diagnosed as NMS after ruling out all other causes of pyrexia. She didn't have marked rigidity nor any altered consciousness. But CPK levels were raised to 1800 IU/L. There was immediate improvement in symptoms after withholding olanzapine.

All three cases were diagnosed as per DSM 4TR criteria after ruling out other medical causes of fever. MRI brain was carried out in all 3 cases along with CSF examination. They had all responded after withholding olanzapine along with conservative management. Rechallenge was not done and they were started on Quetiapine over next 3 weeks.

III. DISCUSSION

With the widespread use of atypical antipsychotics the incidence of NMS has been decreasing progressively and it has been estimated that 0.01% to 0.02% of patients develop this fatal adverse reaction on antipsychotics.

NMS due to neuroleptics is hypothesised to be associated with their ability to block dopamine in the nigrostriatal pathway, mesocortical pathway, and hypothalamic nucleus.

Various risk factors associated are agitation, physical exhaustion, dehydration, and pre-existing neurological deficits, previous episodes of NMS, rapidly increasing dosages, and parenteral medications. However in our patients none of these risk factors were there except for simple symptoms like running nose, sore throat and fever. None of them had reported any undue exertion, exhaustion or dehydration.

Olanzapine is an atypical antipsychotic, which exhibits greater affinity to serotonin (5-HT2) receptors than to dopamine (D2) receptors. On extensive literature search about 20 case reports of NMS induced by olanzapine have been published but most of them had some temporal dose changes or significant comorbidity involved. No such dose changes or major comorbidity except for Upper Respiratory Tract Infection was found in our patients.

Amanth et al. (2004) carried out a review study on NMS associated with atypical antipsychotic drugs. In the MEDLINE database, they identified reviews on 68 patients (21 women and 47 men) suffering from NMS with atypical antipsychotic drugs, namely clozapine (n=21), risperidone (n=23), olanzapine (n=19), and quetiapine =5).

The WHO-UMC causality assessment system was utilised to establish causality with olanzapine, it was "probable" or "likely" to be due to olanzapine.

These case series provide an insight into the role of simple medical ailments in precipitating NMS with ongoing antipsychotic treatment including second generation antipsychotics. Although major limitation of these reports could be lack of large sample size thus making it less statistically significant. Meanwhile we could keep our patients educated about any developing signs of NMS even during benign conditions like URTI until more research is done in this domain.

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