

## Cross roads between Pulmonology and Psychiatry

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### Abstract

Leukotriene receptor antagonists (Montelukast) has been used for many years in the treatment of asthma in both acute and chronic stages. It is considered safe and is widely used in pediatric age group as well as adults. However, the use of montelukast could produce symptoms mimicking a psychiatric disorder.

**Keywords:** Montelukast, Hallucinations, Psychiatric Manifestations.

### Introduction

Leukotriene receptor antagonists, have been used for many years in the treatment of asthma in both acute and chronic stages.<sup>(1)</sup> Montelukast is a leukotriene receptor antagonist (LTRA) used for the maintenance treatment of asthma and to relieve symptoms of seasonal allergies. Montelukast is a cysteinyl leukotriene receptor (CysLT1) antagonist. It acts by blocking the action of leukotriene D4 (and secondary ligands LTC4 and LTE4) on the CysLT1 in the lungs and bronchial tubes by binding to it.<sup>(2)</sup> This reduces the bronchoconstriction otherwise caused by the leukotriene and results in less inflammation. Its rare side effects include increase in suicidal behavior, agitation, aggression, anxiousness, dream abnormalities and hallucinations, depression, irritability, restlessness, and tremor. Philip G et al in their analysis of behavioural related adverse experiences, found the frequency of such adverse experiences to be 2.73% versus placebo 2.27% and the odds ratio for montelukast versus placebo was 1.12 (95% CI, 0.93-1.36). They concluded that such adverse effects were rare. They found three reports in which hallucinations were reported after taking montelukast.<sup>(3)</sup> An analysis of reported cases done by Wallerstedt SM et al found that of the 48 psychiatric experiences reported, more than one included nightmares (n = 15), unspecified anxiety (n = 11), aggressiveness (n = 11), sleep disorders (n = 10), hallucination (n = 3). Majority of them showed adverse reaction within one week of exposure.<sup>(4)</sup>

### Case Report

A 12yr old female child, telugu speaking, of rural dwelling, presented to psychiatry outpatient department along with her parents. The patient's chief complaints were hearing of voices, audible thoughts and anxiety. On enquiring with the parents they reported that child was complaining that someone is calling her name frequently but when she checks nobody is around and that she could hear her own thoughts along with

frequent reports of anxiety since past 10 days. Her sleep and appetite were however normal. She was a known case of asthma and was recently prescribed Montelukast once daily. On examination the patient was alert and oriented with normal psychomotor activity. Mood was anxious, thought echo and second person auditory hallucinations were present, with intact cognitive functions. According to ICD 10 she was diagnosed as a case of acute schizophrenia like psychotic disorder and was started on Risperidone 2mg and Trihexyphenidyl hydrochloride 2mg. On review after two weeks her symptoms persisted. As Montelukast can cause adverse effects like hallucinations, mood changes and anxiousness, the diagnosis was revised to substance induced psychosis. Montelukast, Risperidone 2mg and Trihexyphenidyl hydrochloride 2mg were stopped and the patient was asked to come back for review after 10 days. On her next review her symptoms had remitted completely.

### Discussion

In the above case a rare adverse effect was observed. The differential diagnosis of this case with acute schizophrenia like psychotic disorder and its further management is worth highlighting. The remission in symptoms on stopping montelukast and without any antipsychotics indicates that the drug could have been the cause of the psychotic symptoms. There have been cases reported earlier on such adverse effects caused by montelukast. One such case was reported by Kocyigit et al who reported the case of a 13-year-old patient who had visual hallucinations after starting a therapy with montelukast, which disappeared within 48 hours after the cessation of drug intake.<sup>(5)</sup> Most reports have reported onset within one week of starting of the drug. The common adverse effects of montelukast reported include gastrointestinal disturbances, headache, hypersensitivity reactions, eosinophilia and edema. Few Studies state that montelukast can cause hallucination, anxiousness, mood changes as adverse effects.<sup>(3)</sup> Neuropsychiatric disorders as side effects of montelukast were more frequently reported for children

than for adults. Infants and children seem to be more prone to sleep disturbances, whereas adolescents present symptoms of depression/anxiety and psychotic reactions more often. Suicidal behavior and completed suicide are also frequently reported.<sup>(6)</sup> Depression, apathy, persistent cry, concentration disorder, amnesia and depersonalization were reported with a lower frequency rate.<sup>(7)</sup> Few studies also state that when montelukast was used by the schizophrenic patients their hallucinations worsened and when they stopped using montelukast there was reduction in the reported hallucinations.<sup>(6)</sup> In patients who have adverse effects, the symptomatology seems to become less within a few hours of discontinuation of montelukast.<sup>(8)</sup> In the above case the diagnosis of acute schizophrenic like psychotic disorder is unlikely, as the age of onset is later in females. Also the complete remission of symptoms on stopping montelukast, even in the absence of antipsychotic drug treatment weighs more in favor of drug induced psychotic symptoms.

The psychiatric adverse effect of other prescribed medications is often overlooked while diagnosing psychiatric disorders, leading to an erroneous diagnosis of a primary psychiatric disorders. This case report emphasizes the need for a thorough evaluation of all comorbid conditions and the medications prescribed for the same, along with their adverse effect profile while evaluating a psychiatric disorder.

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