

Pakistan's increasing SMOG and the use of Montelukast: Weighing airway benefits and neuropsychiatric risks

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Dear Editor, Montelukast is a selective leukotriene receptor antagonist that inhibits the CysLT1 receptor, leading to a reduction in inflammation and bronchoconstriction. Its use as an add-on therapy typically spans both paediatric and adult populations in treating asthma, allergic rhinitis, and bronchial hyperactivity.¹ This is particularly relevant in the context of increasing SMOG levels in Pakistan, which can exacerbate respiratory symptoms. The potential adverse effects may include headaches, diarrhoea, pruritus, and mood changes. However, there is a rising concern about Montelukast causing significant neuropsychiatric adverse effects, such as aggression, depression, erratic behaviour, and suicidal ideation. Recently, in 2022, Paljarvi et al. found a compelling correlation between patients prescribed Montelukast and neuropsychiatric diagnoses.²

Out of 154,946 patients, 72,490 were diagnosed with asthma, 82,456 had allergic rhinitis, and 77,473 were exposed to Montelukast (the ICD-10-CM codes were followed). The odds ratio [OR] for neuropsychiatric incidence in patients with asthma was 1.11 (95% CI, 1.04-1.19), and in patients with allergic rhinitis was 1.07 (95% CI, 1.01-1.14) when compared to unexposed patients. Anxiety in asthma patients and insomnia in those with allergic rhinitis are the conditions with the highest odds ratios. The US Food and Drug Administration (FDA) mandated a black box warning for Montelukast in March 2020 as a result of severe neuropsychiatric adverse effects.³ These events have caused multiple countries to caution their healthcare professionals, advising that treatment with Montelukast should only be initiated after careful neuropsychiatric evaluation.⁴ Yet the knowledge of General Practitioners in Pakistan regarding the uses of Montelukast and its adverse

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effects remains a reason for concern. According to a study in 2013, 294 responses from 131 GPs from Pakistan were analysed about three drugs, one of them being Montelukast, with only 40.8% correct identification of the appropriate adverse effect caused by the drug. A Statistically significant ($p < 0.01$) knowledge deficit in ill-informed and inexperienced GPs was seen.⁵ In light of Pakistan's growing SMOG problem, the benefits of Montelukast in managing respiratory symptoms are evident. However, considering the vulnerability of Pakistan's population owing to various stressors, the potential for serious neuropsychiatric adverse effects cannot be ignored. Physicians must carefully weigh the pros and cons of this medication while conducting proper neuropsychiatric evaluation of patients before prescription.

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