

Montelukast and Neuropsychiatric Events in Children with Asthma

J. Pediatr 2019, 209: 176-182

Background and Objective: To assess the association between montelukast prescription and neuropsychiatric events in children with asthma.

Study population: Ontario children aged 5-18 years with an index neuropsychiatric event between April 1, 2004, and March 31, 2016, were identified as cases within a study cohort of children with physician-diagnosed asthma prescribed an asthma maintenance medication. Patients with pre-existing mental health conditions or a dispensed prescription for zafirlukast were excluded.

Methods: Each case was matched based on sex, asthma diagnosis date, and birth date to a maximum of four control patients without a neuropsychiatric event from the same study cohort. Data regarding montelukast exposure was collected with exposure defined by at least one dispensed prescription for montelukast in the year prior to the index neuropsychiatric event. The number of dispensed pre-scriptions for montelukast was also assessed. The primary outcome was the first neuropsychiatric event following asthma diagnosis, with events categorized as schizophrenia, anxiety, sleep disturbance, mood and personality disorders, or agitation. Measures of asthma severity including number of dispensed prescriptions for asthma maintenance medications and systemic corticosteroids, hospitalizations, and emergency department (ED) visits were assessed as covariates. Information from an Ontario census-based data tool and health authority network was used to control for geographical and socio demographic factors.

ACADEMIC P.E.A.R.L.S

Pediatric Evidence And Research Learning Snippet

**Montelukast and Neuropsychiatric Events in Children with Asthma**

Results: 898 children with asthma with an index neuropsychiatric event were identified. 3497 controls were matched to these cases. The most common presentation of neuropsychiatric events was anxiety (48.6%) followed by sleep disturbance (26.1%). Exposure to montelukast was more common in the cases compared with the controls (cases: 8.1%, controls: 2.1, $P < .001$). Cases also had significantly more ED visits and hospitalizations for asthma, number of asthma maintenance medication prescriptions, and a greater proportion of dispensed prescriptions for systemic corticosteroids. Conditional logistic regression was statistically significant and showed that children with at least one dispensed prescription for montelukast had almost 2 times increased odds of a neuropsychiatric event after controlling for socio demographic factors, number of asthma maintenance medication prescriptions, systemic corticosteroid prescriptions, and number of hospitalizations and ED visits for asthma.

Conclusions: Exposure to montelukast was significantly associated with a nearly twofold increase in the odds of neuropsychiatric events compared with other asthma maintenance medications when controlled for socio demographic factors and measures of asthma severity.

EXPERT COMMENT

“Leukotriene Receptor Antagonist (LTRAs) have bronchodilator and targeted anti-inflammatory properties and are indicated for use in the management of asthma, exercise-induced bronchoconstriction, and allergic rhinitis. Two LTRAs are FDA –approved for use in children: montelukast and zafirlukast. Both medications improve asthma symptoms, decrease the need for rescue B-agonist use, and improve lung function. Montelukast is FDA –approved for use in children > 1 year of age. In March 2020, the US Food and Drug Administration issued a “black box warning” on montelukast, thereby strengthening existing warnings regarding behavior and mood-related changes. Current recommendations by the FDA include consideration of risks and benefits before prescribing montelukast for asthma and reservation of montelukast use for allergic rhinitis in patients not tolerating or not treated effectively by alternative therapy. The pathophysiology underlying the potential neuropsychiatric effects of montelukast remains poorly understood and warrants further study.”

DR. MANOJ RAWALASSOCIATE PROFESSOR & HOD
BPS GMC FOR WOMEN
KHANPUR KALAN, SONPAT

With warm regards,

**DR MANINDER S
DHALIWAL****DR. PIYUSH GUPTA**
IAP NATIONAL
PRESIDENT 2021**DR REMESH KUMAR R.**
IAP PRESIDENT
2022**DR BAKUL JAYANT
PAREKH**
IAP PRESIDENT
2020**DR G.V.
BASAVARAJA**
HON. SECRETARY
GEN. 2021 - 22**Reference**

Glockler-Lauf SD, Finkelstein Y, Zhu J, Feldman LY, To T. Montelukast and Neuropsychiatric Events in Children with Asthma: A Nested Case-Control Study. J Pediatr. 2019 Jun;209:176-182.e4. doi: 10.1016/j.jpeds.2019.02.009. Epub 2019 Mar 21