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Title: *Montelukast inappropriate dosing and risk for asthma exacerbations*

Abstract

Objective

To 1. Assess the appropriateness of montelukast dosing based on age; and 2. Identify if montelukast dosing is related to asthma exacerbations.

Methods:

The study utilized data from the household and prescription medication components of the 2014-2016 Medical Expenditure Panel Survey. Inclusion criteria were participants aged 12 months to 18 years who had self-reported asthma and reported filling a prescription for montelukast during the period studied. Other variables included race/ethnicity, poverty level, prescription insurance status, asthma attack in the last 12 months, rescue inhaler use in the last 3 months, and additional inhaled corticosteroid use for asthma control. Descriptive statistics were used to assess sample characteristics. Chi-square test was used to assess the difference in asthma exacerbations based on montelukast dosing. Appropriate survey weights were used to account for the complex survey design.

Results:

The preliminary sample consisted of 210 eligible participants (Weighted: 548,472) aged 12 months to 18 years, mostly male (64.5%) and white (47.3%). Approximately 35% were middle income families and 48.4% reported having prescription insurance. A majority of the participants (77%) were found to be on the age-appropriate dose of montelukast. About 43% of participants had reported having an asthma attack in the previous 12 months and 56.4% had used a rescue inhaler in the previous 3 months. Approximately 50% of participants on montelukast were also prescribed an inhaled corticosteroid. Among those who used rescue inhalers in the previous 3 months, 71% were on the age-appropriate dose of montelukast and 29% were on inappropriate dose of montelukast ($p=0.025$). Among those who had an asthma attack in the last 12 months, 72% were on the age-appropriate dose of montelukast and 28% were on inappropriate dose of montelukast ($p=0.153$).

Conclusion:

Pharmacists should be aware of current montelukast dosing guidelines in order to make recommendations for age-appropriate dosing of patients treating persistent asthma.