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Salmeterol and Montelukast Use in the Treatment of Pediatric Asthma

Introduction

Because few primary prevention methods for asthma exist, appropriate treatment – including use of newer medications – assumes added importance. Salmeterol is a long acting beta-2 agonist and is available by itself or, more recently, in combination with fluticasone (an inhaled corticosteroid). Montelukast is a leukotriene inhibitor that may be used for long-term control of some types of asthma.

National guidelines suggest adding salmeterol for persons with moderate to severe persistent asthma not controlled with inhaled corticosteroids alone.¹ Use of salmeterol in the absence of inhaled corticosteroids, however, is contraindicated because of an increased risk of death and asthma exacerbation.^{2,3}

No data from Alaska have been published on use of newer treatments. The Section of Epidemiology conducted a retrospective review of Alaska Medicaid data to identify patterns of salmeterol and montelukast use. Asthma was defined as a claim for International Classification of Diseases, 9th Revision (ICD-9) codes 493.0x-493.9x plus a claim for asthma-associated medication during the same calendar year. Analysis was limited to persons <20 years of age enrolled in Medicaid during 1999-2003. Analysis was stratified by Alaska Native status and Anchorage residence.

Results

Among 3,631 Medicaid enrollees with asthma during 1999-2003, there was an increase in use of montelukast (14% to 22%; X^2 for trend, 29; $p < 0.001$) and salmeterol (16% to 22%; X^2 for trend, 34; $p < 0.001$). Use of non-steroidal long-term control medications rose during the study period for all subgroups; however, Alaska Natives, particularly those living outside of Anchorage, were less likely than non-Natives to use these medications. For brevity, only the results for salmeterol are presented (Figure) although results were similar for montelukast.

Of all filled prescriptions for salmeterol, the percentage filled in the absence of evidence for inhaled corticosteroid use during the same calendar year was 52%, 41%, 25%, and 14% for 1999, 2000, 2001, and 2002, respectively (X^2 for trend, 129; $p < 0.001$). During 2002, 6% of Alaska Natives and 6% of non-Natives in Anchorage used salmeterol without evidence for inhaled corticosteroid use compared to 24% of Alaska Natives and 14% of non-Natives living outside of Anchorage.

Conclusions

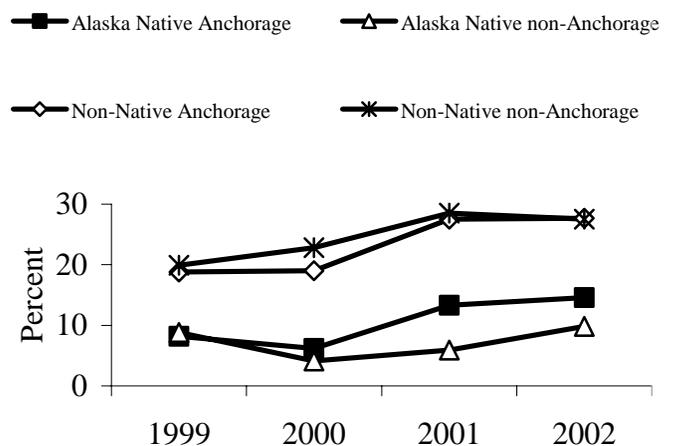
We found that Alaska Natives, especially rural residents, were less likely than non-Natives to receive salmeterol and montelukast, two relatively new medications. It is unknown if this lower rate of prescription filling was medically appropriate or not. Many patients appeared to

use salmeterol as a sole controller medication in the absence of inhaled corticosteroids despite this practice being associated with an increased risk of death and asthma exacerbation. This practice decreased concurrent with the availability of a combined fluticasone-salmeterol inhaler after the year 2000. Nevertheless, it continues to occur, particularly among persons not residing in Anchorage.

Recommendations

1. Alaska healthcare providers should review charts of their asthmatic patients to make sure that their treatment regimens include all appropriate and recommended medications, such as long-acting beta-agonists.
2. Alaska healthcare providers should review charts of their asthmatic patients who are taking long-acting beta-agonists to make sure that their treatment regimens also include inhaled corticosteroids.

Figure. The percent of persons with asthma who filled a prescription for salmeterol (either alone or in combination with fluticasone) among Medicaid recipients less than 20 years of age—Alaska, 1999-2002



References

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