

*Idaho Drug Utilization Review Program  
Educational Leaflet*

**Leukotriene Inhibitors in Allergic Rhinitis**

**Background**

Allergic rhinitis is the sixth most common medical condition in the United States, affecting approximately 40 million people. While not life-threatening, the condition is associated with lost work days and productivity as well as significant quality of life issues for allergy sufferers with total direct and indirect costs estimated at more than \$5 billion annually.<sup>1</sup> Historically, allergic rhinitis has been treated predominantly with antihistamines and nasal corticosteroids, but recent FDA approval of montelukast (Singulair) for this indication has led to large increases in spending for this agent and clinical debate regarding the most effective treatment.<sup>1,2</sup>

Montelukast was the second drug in a new class of agents called 'leukotriene inhibitors' approved in February 1998 as a long-term control medication for the prevention of asthma exacerbations. That year the cost of montelukast to Idaho Medicaid totaled \$49,000. By the end of 2002, spending had reached \$1 million. In January 2003, montelukast received FDA approval for the treatment of seasonal allergic rhinitis and spending increased to over \$1.6 million. By the end of 2004, montelukast cost Idaho Medicaid approximately \$2.3 million.

**Comparison of Allergic Rhinitis Treatments**

| <b>Class</b>   | <b>Medication</b>                               | <b>Dosing Interval</b>                                 | <b>Monthly cost*</b> |
|--|---|--|----------------------|
| Sedating Antihistamines (1 <sup>st</sup> generation)     | Diphenhydramine (Benadryl <sup>®</sup> )        | 3-4 times daily  | \$12.99              |
|  | Clemastine (Tavist <sup>®</sup> )               | Twice daily  | \$18.99              |
|  | Chlorpheniramine (Chlor-Trimeton <sup>®</sup> ) | Twice daily  | \$7.99               |
| Non-sedating antihistamines (2 <sup>nd</sup> generation) | Cetirizine (Zyrtec <sup>®</sup> )               | Once daily   | \$58.99              |
|  | Desloratadine (Clarinex <sup>®</sup> )          | Once daily   | \$68.99              |
|  | Fexofenadine (Allegra <sup>®</sup> )            | Once daily   | \$68.99              |
|  | Loratadine (Claritin <sup>®</sup> )             | Once daily   | \$19.99**            |
| Nasal Steroids   | Beclomethasone (Beconase AQ <sup>®</sup> )      | 1-2 inhalations each nostril daily                     | \$76.68              |
|  | Budesonide (Rhinocort <sup>®</sup> )            | 1 spray/nostril once daily                             | \$69.99              |
|  | Flunisolide (Nasarel <sup>®</sup> )             | 2 sprays in each nostril twice daily                   | \$37.99              |
|  | Fluticasone (Flonase <sup>®</sup> )             | 2 sprays/nostril daily or 1 spray/nostril twice daily, | \$61.99              |
|  | Mometasone (Nasonex <sup>®</sup> )              | 2 sprays per nostril daily                             | \$67.99              |
|  | Triamcinolone (Nasacort <sup>®</sup> )          | 1 spray in each nostril daily                          | \$67.99              |
| Mast Cell Stabilizer                                     | Cromolyn sodium (NasalCrom <sup>®</sup> )       | 2 puffs 3-4 times/day                                  | \$65.39              |
| Leukotriene Inhibitor                                    | Montelukast (Singulair <sup>®</sup> )           | Once in the evening                                    | \$89.99              |

\* Per Drugstore.com located at: <http://www.drugstore.com/default.asp?catid=60&trx=28098> cited 6/02/05

\*\*OTC generic available

*Idaho Drug Utilization Review Program  
Educational Leaflet*

## Literature Review

The use of montelukast in the treatment of allergic rhinitis has been evaluated in approximately 27 clinical trials. **The four most recent double-blind, randomized, controlled trials summarized in the table below showed that montelukast is more effective than placebo, as effective as loratadine, and less effective than a nasal steroid in the treatment of seasonal allergic rhinitis.** It was likewise less effective than a nasal steroid when used in combination with loratadine. Available data do suggest, however, that montelukast alone or in combination with antihistamines is perhaps more effective for alleviating congestion symptoms than antihistamines alone.<sup>3,4,6</sup>

| Reference                           | Duration | Treatment  | Patients | Results   |
|-------------------------------------|----------|--|----------|---|
| Lis et al. 2001 <sup>4</sup>        | 2 weeks  | MTK 10 mg<br>LTD 10 mg<br>PBO                    | 907      | MTK + LTD was equivalent to monotherapy with either agent<br>Both superior to PBO |
| Philip et al. 2002 <sup>4</sup>     | 2 weeks  | MTK 10 mg<br>LTD 10 mg<br>PBO                    | 1,302    | LTD = MTK<br>Both superior to PBO   |
| Pulleritis et al. <sup>3</sup> 2002 | 7 weeks  | FP 200 mcg<br>MTK 10 mg<br>MTK 10 mg + LTD 10 mg | 62       | FP superior to either MTK + LTD or MTK alone                                      |
| Ratner et al. 2003 <sup>4,6</sup>   | 15 days  | FP 200 mcg<br>MTK 10 mg<br>PBO                   | 705      | FP superior to MTK<br>MTK superior to PBO   |

MTK= Montelukast LTD= Loratadine FP= Fluticasone Propionate PBO= placebo

## Recommendations

- ❖ For most patients, 2<sup>nd</sup> generation antihistamines (loratadine, fexofenadine) remain the best first-line treatment; 1<sup>st</sup> generation agents (diphenhydramine, chlorpheniramine) are equally effective and less expensive; however, the drowsiness associated with them may limit their utility
- ❖ *Over-the-counter loratadine is a cost-effective option that is covered by Idaho Medicaid with a written prescription, provided that the patient has a diagnosis of allergic rhinitis coded prior to filling the prescription.*
- ❖ Nasal corticosteroids alone or in combination with antihistamines are appropriate for individuals with an inadequate response or contraindications to antihistamine therapy
- ❖ Montelukast may be useful for a subset of patients with significant congestive symptoms; however, combination antihistamine decongestants (loratadine-D) are likely equally effective
- ❖ Clinical trial data does not support the use of montelukast over antihistamines or nasal steroids and this agent is best reserved for patients who fail other treatment modalities

## References

1. Javed Sheikh. "Allergic Rhinitis." *eMedicine*; located at [http://www.emedicine.com/med/topic104.htm#section~author\\_information](http://www.emedicine.com/med/topic104.htm#section~author_information) last updated Aug 7 2004, cited [6/02/052].
2. Jeanenne Valli. "The Use of Leukotriene Receptor Antagonists to Treat Allergic Rhinitis." *PharmaNote* 2003;18:9
3. Pulleritis T et al. Comparison of nasal glucocorticoid, antileukotriene, and a combination in the treatment of allergic rhinitis. *J Allergy Clin Immunol.* 2002; 109(6): 949-955.
4. Nathan RA et al. Pharmacotherapy for allergic rhinitis: A critical review of leukotriene receptor antagonists compared with other treatments. *Ann Allergy Asthma Immunol.* 2003; 90: 182-189.
5. Drugstore.com located at: <http://www.drugstore.com/default.asp?catid=60&trx=28098> cited [6/02/05].
6. Ratner PH et al. Fluticasone propionate aqueous nasal spray provided significantly greater improvement in daytime and nighttime nasal symptoms of seasonal allergic rhinitis compared with Montelukast. *Ann Allergy Asthma Immunol.* 2003 May;90(5): 466-8.