

CADTH RAPID RESPONSE REPORT: REFERENCE LIST

## Montelukast for Patients with Rhinitis or Chronic Urticaria: Clinical Effectiveness

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## Research Question

What is the clinical effectiveness of montelukast for patients with allergic or chronic rhinitis or chronic idiopathic urticaria?

## Key Findings

Six systematic reviews (three with meta-analyses and two with network meta-analyses) and twenty-two randomized controlled trials were identified regarding the clinical effectiveness of montelukast for patients with allergic or chronic rhinitis or chronic idiopathic urticaria.

## Methods

A limited literature search was conducted by an information specialist on key resources including Medline, the Cochrane Library, the University of York Centre for Reviews and Dissemination (CRD) databases, the websites of Canadian and major international health technology agencies, as well as a focused internet search. The search strategy was comprised of both controlled vocabulary, such as the National Library of Medicine's MeSH (Medical Subject Headings), and keywords. The main search concepts were montelukast and (rhinitis OR urticaria). No search filters were applied to limit retrieval. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 01, 2010 and July 07, 2020. Internet links were provided, where available.

## Selection Criteria

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

**Table 1: Selection Criteria**

<b>Population</b>	Patients any age with allergic rhinitis (seasonal or non-seasonal); chronic rhinosinusitis (also known as chronic sinusitis); or chronic urticaria (also known as chronic idiopathic urticaria)
<b>Intervention</b>	Montelukast (i.e., Singulair) as an add-on therapy or monotherapy
<b>Comparator</b>	Placebo; or <ul style="list-style-type: none"> <li>• First generation H1 antihistamines (diphenhydramine, hydroxyzine, chlorpheniramine, cyproheptadine)</li> <li>• Second generation H1 Antihistamines (loratadine, desloratadine, fexofenadine, cetirizine, levocetirizine)</li> <li>• H2 antihistamines (cimetidine, famotidine, ranitidine)</li> <li>• Corticosteroids (prednisone, prednisolone)</li> <li>• Nasal corticosteroids (beclomethasone [Beconase], budesonide [Rhinocort], ciclesonide [Omnares], fluticasone [Avamys], mometasone [Nasonex], triamcinolone [Nasacort])</li> <li>• Other (doxepin, xylometazoline, pseudoephedrine)</li> </ul>
<b>Outcomes</b>	Clinical effectiveness: resolution of symptoms (e.g., hives) symptom relief (e.g., as measured by total nasal symptom score or total 5 symptoms score), quality of life, adverse events (e.g., infection, rash, mortality)
<b>Study Designs</b>	Health technology assessments, systematic reviews, randomized controlled trials

## Results

Six systematic reviews<sup>1-6</sup> (three with meta-analyses<sup>1-3</sup> and two with network meta-analyses<sup>4,5</sup>) and twenty-two randomized controlled trials<sup>7-28</sup> were identified regarding the clinical effectiveness of montelukast for patients with allergic or chronic rhinitis or chronic idiopathic urticaria. No relevant health technology assessments were identified.

References of potential interest that did not meet the inclusion criteria are provided in the appendix.

## Health Technology Assessments

No literature identified.

## Systematic Reviews and Meta-analyses

### Allergic Rhinitis

1. Wei C. The efficacy and safety of H1-antihistamine versus Montelukast for allergic rhinitis: A systematic review and meta-analysis. *Biomed Pharmacother*. 2016 Oct;83:989-997.  
[PubMed: PM27522261](#)
2. Lu Y, Yin M, Cheng L. [Meta-analysis of leukotriene receptor antagonist montelukast in the treatment of allergic rhinitis]. *Zhonghua Er Bi Yan Hou Tou Jing Wai Ke Za Zhi = Chinese Journal of Otorhinolaryngology Head & Neck Surgery*. 2014 Aug;49(8):659-667.  
[PubMed: PM25351124](#)
3. Glacy J, Putnam K, Godfrey S, et al. Treatments for Seasonal Allergic Rhinitis [Internet] *Agency for Healthcare Research and Quality (US)*. 2013 07:07.  
[PubMed: PM23946962](#)

### Network Meta-Analyses

4. Xiao J, Wu WX, Ye YY, Lin WJ, Wang L. A Network Meta-analysis of Randomized Controlled Trials Focusing on Different Allergic Rhinitis Medications. *Am J Ther*. 2016 Nov/Dec;23(6):e1568-e1578.  
[PubMed: PM25867532](#)
5. Devillier P, Dreyfus JF, Demoly P, Calderon MA. A meta-analysis of sublingual allergen immunotherapy and pharmacotherapy in pollen-induced seasonal allergic rhinoconjunctivitis. *BMC Med*. 2014 May 01;12:71.  
[PubMed: PM24885894](#)

### Chronic Urticaria

6. Mitchell S, Balp MM, Samuel M, McBride D, Maurer M. Systematic review of treatments for chronic spontaneous urticaria with inadequate response to licensed first-line treatments. *Int J Dermatol*. 2015 Sep;54(9):1088-1104.  
[PubMed: PM25515967](#)

## Randomized Controlled Trials

### Allergic Rhinitis

7. Chen H, Zhang L, Lou H, Wang Y, Cao F, Wang C. A Randomized Trial of Comparing a Combination of Montelukast and Budesonide With Budesonide in Allergic Rhinitis. *Laryngoscope*. 2019 Nov 29;29:29.  
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[PubMed: PM30144304](#)
9. Hashiguchi K, Okubo K, Inoue Y, et al. Evaluation of Montelukast for the Treatment of Children With Japanese Cedar Pollinosis Using an Artificial Exposure Chamber (OHIO Chamber). *Allergy Rhinol (Providence)*. 2018 Jan-Dec;9:2152656718783599.  
[PubMed: PM30027002](#)
10. Dalgic A, Dinc ME, Ulusoy S, Dizdar D, Is A, Topak M. Comparison of the effects of nasal steroids and montelukast on olfactory functions in patients with allergic rhinitis. *Eur Ann Otorhinolaryngol Head Neck Dis*. 2017 Sep;134(4):213-216.  
[PubMed: PM28109729](#)
11. Jia MH, Chen XY, Zhang Y, Liao ZS. [Effect of nasal glucocorticoid combined with loratadine or montelukast on allergic rhinitis]. *Lin Chuang Er Bi Yan Hou Tou Jing Wai Ke Za Zhi = Journal Of Clinical Otorhinolaryngology, Head, & Neck Surgery*. 2017 Mar 05;31(5):369-373.  
[PubMed: PM29871264](#)
12. Andhale S, Goel HC, Nayak S. Comparison of Effect of Levocetirizine or Montelukast Alone and in Combination on Symptoms of Allergic Rhinitis. *Indian J Chest Dis Allied Sci*. 2016 Apr-Jun;58(2):103-105.  
[PubMed: PM30182671](#)
13. Jindal A, Suriyan S, Sagadevan S, et al. Comparison of Oral Montelukast and Intranasal Fluticasone in Patients with Asthma and Allergic Rhinitis. *J Clin Diagn Res*. 2016 Aug;10(8):OC06-10.  
[PubMed: PM27656477](#)
14. Wang R, Zhang C. [Clinical evaluation of Montelukast plus Budesonide nasal spray and Desloratadine citrate disodium in treating moderate and severe persistent allergic rhinitis]. *Lin Chuang Er Bi Yan Hou Tou Jing Wai Ke Za Zhi = Journal Of Clinical Otorhinolaryngology, Head, & Neck Surgery*. 2015 Dec;29(23):2041-2043.  
[PubMed: PM27101674](#)
15. Goh BS, Ismail MI, Husain S. Quality of life assessment in patients with moderate to severe allergic rhinitis treated with montelukast and/or intranasal steroids: a randomised, double-blind, placebo-controlled study. *J Laryngol Otol*. 2014 Mar;128(3):242-248.  
[PubMed: PM24618303](#)

16. Krug N, Gupta A, Badorrek P, et al. Efficacy of the oral chemoattractant receptor homologous molecule on TH2 cells antagonist BI 671800 in patients with seasonal allergic rhinitis. *J Allergy Clin Immunol*. 2014 Feb;133(2):414-419.  
[PubMed: PM24332218](#)
17. Ciebiada M, Barylski M, Gorska Ciebiada M. Nasal eosinophilia and serum soluble intercellular adhesion molecule 1 in patients with allergic rhinitis treated with montelukast alone or in combination with desloratadine or levocetirizine. *Am J Rhinol Allergy*. 2013 Mar-Apr;27(2):e58-62.  
[PubMed: PM23562192](#)
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[PubMed: PM24427672](#)
19. Yamamoto H, Yamada T, Sakashita M, et al. Efficacy of prophylactic treatment with montelukast and montelukast plus add-on loratadine for seasonal allergic rhinitis. *Allergy Asthma Proc*. 2012 Mar-Apr;33(2):e17-22.  
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[PubMed: PM20717951](#)
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[PubMed: PM20674827](#)
24. Katial RK, Oppenheimer JJ, Ostrom NK, et al. Adding montelukast to fluticasone propionate/salmeterol for control of asthma and seasonal allergic rhinitis. *Allergy Asthma Proc*. 2010 Jan-Feb;31(1):68-75.  
[PubMed: PM20167147](#)
25. Modgill V, Badyal DK, Verghese A. Efficacy and safety of montelukast add-on therapy in allergic rhinitis. *Methods Find Exp Clin Pharmacol*. 2010 Nov;32(9):669-674.  
[PubMed: PM21225018](#)

## *Chronic Urticaria*

26. Korczynska-Krawczyk P, Kuprys-Lipinska I, Kupczyk M, et al. The effect of levocetirizine and montelukast on clinical symptoms, serum level and skin expression of COX-1 and COX-2 enzymes in patients suffering from chronic autoimmune urticaria - a pilot study. *Postepy Dermatol.* 2020 Feb;37(1):73-80.  
[PubMed: PM32467688](#)
27. Sarkar TK, Sil A, Pal S, Ghosh C, Das NK. Effectiveness and safety of levocetirizine 10 mg versus a combination of levocetirizine 5 mg and montelukast 10 mg in chronic urticaria resistant to levocetirizine 5 mg: A double-blind, randomized, controlled trial. *Indian J Dermatol Venereol Leprol.* 2017 Sep-Oct;83(5):561-568.  
[PubMed: PM28656910](#)

## *Chronic Rhinosinusitis*

28. Van Gerven L, Langdon C, Cordero A, Cardelus S, Mullol J, Alobid I. Lack of long-term add-on effect by montelukast in postoperative chronic rhinosinusitis patients with nasal polyps. *Laryngoscope.* 2018 08;128(8):1743-1751.  
[PubMed: PM29114894](#)

## Appendix — Further Information

### Systematic Reviews and Meta-analyses

#### *Unclear Methodology*

29. Durham SR, Creticos PS, Nelson HS, et al. Treatment effect of sublingual immunotherapy tablets and pharmacotherapies for seasonal and perennial allergic rhinitis: Pooled analyses. *J Allergy Clin Immunol*. 2016 10;138(4):1081-1088.e1084.  
[PubMed: PM27527264](#)

### Randomized Controlled Trials

#### *Comparative Information Not Specified*

30. Erdogan BA, Sanli A, Paksoy M, Altin G, Aydin S. Quality of life in patients with persistent allergic rhinitis treated with desloratadine monotherapy or desloratadine plus montelukast combination. *Kulak Burun Bogaz Ihtis Derg*. 2014 Jul-Aug;24(4):217-224.  
[PubMed: PM25046070](#)

### Review Articles

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[PubMed: PM31837440](#)
32. Pacheco Y, Freymond N, Devouassoux G. Impact of montelukast on asthma associated with rhinitis, and other triggers and co-morbidities. *J Asthma*. 2014 Feb;51(1):1-17.  
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