



Drug Treatment for Asthma

Agent	Notes
Inhaled corticosteroids	Anti-inflammatory, blocks late reaction to allergen, and reduces airway hyperresponsiveness. Improved airflow physiology, reduced need for rescue β -agonists), prevents exacerbations and hospitalizations. Inhaled corticosteroids are the most potent and effective anti-inflammatory medications available for asthma.
Short-acting β -agonists	Relaxes bronchial smooth muscle, improves airflow. Drug of choice for acute bronchospasm. Effective at preventing symptoms of asthma when used before exercise. The use of >1 canister during a 1-month period suggests inadequate control. Although oral preparations are available, inhaled is preferred due to a better side effect profile.
Systemic corticosteroids	Anti-inflammatory, blocks late reaction to allergen, and reduces airway hyperresponsiveness. Improved airflow physiology, reduced need for rescue β -agonists), prevents exacerbations and hospitalizations. Most effective medication for severe exacerbations and long-term control for patients with severe persistent asthma who are otherwise uncontrolled. Studies show that it is safe to give a short course of oral corticosteroids (7-10 days) without tapering.
Long-acting inhaled β -agonists	Smooth muscle relaxation. Improved a.m. peak flow, improved nocturnal symptoms. Effective at preventing symptoms of exercise-induced asthma for up to 12 hours after a single dose. Use only in conjunction with anti-inflammatory therapy. May provide more effective symptom control when added to standard doses of inhaled corticosteroids compared to increasing corticosteroid dosage.
Theophylline	Smooth muscle relaxation. May inhibit airway inflammation and enhance diaphragm contractility. Modest improvement in expiratory flow rates when added to inhaled corticosteroids with serum levels <10 μ g/mL.
Cromolyn Nedocromil	Anti-inflammatory, blocks early and late reaction to allergens, and stabilizes mast cell membranes; inhibits eosinophil activation and mediator release. Improved airflow physiology, reduced need for rescue medications (short acting β -agonists), prevents exacerbations. Less predictable than corticosteroids.

Anticholinergic agents	Bronchodilation mediated by antagonism of muscarinic receptors of airway smooth muscle. Improved airflow physiology. Treatment of choice in β -blocker induced bronchospasm; may give added bronchodilation to β -agonists.
Leukotriene modifiers	Inhibition of synthesis or antagonism of receptor site for cysteinyl leukotrienes. Improvements in symptoms and pulmonary function, decreased exacerbation rate, reduced need for rescue β -agonist. Less effective than inhaled corticosteroids. May benefit patients with aspirin intolerance and/or nasal polyps.
IV magnesium sulfate	Smooth muscle relaxation. Bronchodilatation in acute severe asthma failing to respond to nebulized bronchodilators.

IgE = immunoglobulin E; iv = intravenous.

Table adapted from *Physicians Information and Education Resource (PIER), Asthma* module.