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**Cromolyn sodium** is a medication used in maintenance therapy for asthma in children older than 2 years old. It stabilizes mast cell membranes; inhibits activation and release of mediators from eosinophil and epithelial cells; and inhibits the acute airway narrowing after exposure to exercise, cold dry air, and sulfur dioxide. It does not result in immediate relief of symptoms and has minimal side effects (occasional coughing on inhalation of the powder formulation). It is now only available as an oral preparation or via nebulizer. **Nedocromil sodium** inhibits the bronchoconstrictor response to inhaled antigens and inhibits the activity of and release of inflammatory cell types, such as histamine, leukotrienes, and prostaglandins. The drug has few side effects and is used for maintenance therapy in asthma; it is not effective for reversal of acute exacerbations and is not used in children younger than 5 years old. Cromolyn or nedocromil can be taken 10 to 20 minutes prior to exercise or other trigger exposure to help prevent an asthma exacerbation.

**Leukotrienes** are mediators of inflammation that cause increases in airway hyperresponsiveness. Leukotriene modifiers (e.g., zafirlukast [Accolate], zileuton [Zyflo], and montelukast sodium [Singulair]) block inflammatory and bronchospasm effects. These drugs are not used to treat acute episodes but are given orally in combination with  $\beta$ -agonists and steroids to provide long-term control and prevent symptoms in mild persistent asthma. Montelukast is approved for children 12 months old and older, zileuton is approved for children 12 years old and older, and zafirlukast is approved for children 5 years old and older.

**Anticholinergics** (atropine and ipratropium [Atrovent]) help relieve acute bronchospasm. However, these drugs have adverse side effects that include drying of respiratory secretions, blurred vision, and cardiac and CNS stimulation. The primary anticholinergic drug used is ipratropium, which does not cross the blood–brain barrier and therefore elicits no CNS effects. Ipratropium, when used in combination with albuterol, can be effective during acute severe asthma in improving lung function in children coming to the ED ([Liu, Covar, Spahn, et al, 2016](#)).

Omalizumab (Xolair) is a **monoclonal antibody** that blocks the binding of IgE to mast cells. Blocking this interaction inhibits the