Anticholinergics for Treatment of Asthma

Instructions for obtaining 1.4 Continuing Medical Education Credits

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CME Items

1. Which of the following is not a LAMA?
   a. Glycopyrronium
   b. Tiotropium
   c. Aclidinium
   d. Ipratropium

2. Antagonism of which type of muscarinic receptor is most important for the bronchodilator effect of anticholinergics?
   a. M₁
   b. M₂
   c. M₃
   d. M₄

3. Which of the following LAMA have been approved for the treatment of chronic obstructive pulmonary disease in Spain?
   a. Tiotropium
   b. Glycopyrronium
   c. Aclidinium
   d. All of the above

4. Which of the following long-acting muscarinic antagonists was recently approved in the European Union for the treatment of some patients with persistent asthma?
   a. Aclidinium
   b. Tiotropium
   c. Glycopyrronium
   d. Ipratropium

5. In patients with moderate severe asthma who are not adequately controlled by ICS or ICS/salmeterol, the addition of tiotropium resulted in
   a. An increase in lung function
   b. A reduction in severe asthma exacerbations
   c. No significant increase in severe adverse events
   d. All of the above

6. Which of the following statements is correct?
   a. Patients with severe asthma showed an additional improvement in quality of life when tiotropium was administered
   b. Patients with severe asthma showed an additional improvement in lung function when tiotropium was administered in addition to combination therapy (ICS/LABA)
   c. In patients with severe asthma on maintenance treatment with ICS, the addition of tiotropium was superior to salmeterol
   d. Tiotropium is not indicated in patients with severe asthma

7. In the treatment of acute asthma with anticholinergics, which of the following is correct?
   a. Short-acting anticholinergics are effective as bronchodilators, usually when they are combined with inhaled β₂-agonists
   b. Inhaled ipratropium bromide added to β₂-agonists is indicated as standard treatment in children with moderate to severe exacerbations of asthma in the emergency setting
   c. Anticholinergics are not indicated as standard treatment in hospitalized children for acute asthma
   d. All of the above

8. Which of the following sentences regarding cost-effectiveness of asthma treatment is false?
   a. Hospitalization and medications have been found to be the most important drivers of direct costs, while work/school absenteeism accounts for the greatest percentage of indirect costs
   b. Patients with difficult-to-treat or suboptimally controlled asthma consume a large part of asthma health care resources
   c. The addition of tiotropium to the maintenance treatment of asthmatic patients not controlled with high-dose ICS/LABA leads to a gain in quality-adjusted life years
   d. Addition of tiotropium to the regular treatment of asthmatic patients not controlled with high-dose ICS/LABA is not considered cost-effective

9. Which of the following have not been associated with a better response to anticholinergics?
   a. Patients with chronic asthma and concurrent fixed airway obstruction
   b. Older patients with a longer duration of asthma
   c. Patients with frequent use of β₂-agonists after allergen exposure
   d. Patients with intrinsic asthma

10. Which of the following sentences on the safety profile of anticholinergic drugs is correct?
    a. The most commonly reported adverse event was dry mouth
    b. Tiotropium (Respimat) was associated with a significantly increased risk of mortality in mild to moderate asthma
    c. In the TIOSPIR study (patients with chronic obstructive pulmonary disease), tiotropium (Respimat) was associated with higher mortality and a higher incidence of arrhythmias than HandiHaler among patients with previous heart disease
    d. Considering the overall incidence of adverse events in a meta-analysis of patients with asthma, anticholinergics were associated with significantly more adverse events than placebo