

Epidemiology of asthma exacerbations

Instructions for category 1 Continuing Medical Education credit

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Learning objectives: "Epidemiology of asthma exacerbations"

1. To identify trends in the epidemiology of asthma exacerbations.
 2. To recognize the risk factors associated with increased frequency and severity of asthma exacerbations.
 3. To identify common infectious and environmental triggers of asthma and biomarkers under investigation for guiding asthma management.
 4. To identify the pharmacologic and educational interventions that have been shown to be effective in reducing asthma exacerbations.
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CME items

Question 1. Which of the following statements best describes gender differences in the prevalence and incidence of asthma exacerbations?

- A. They are higher for females than males before puberty.
- B. They are higher for females than males during young adulthood.
- C. There is no difference among males and females during childhood or young adulthood.
- D. Up to 60% of women with asthma experience perimenstrual asthma worsening.

Question 2. Which statement best describes the "September epidemic" of asthma exacerbations and hospitalizations?

- A. There is a substantial increase in emergency room visits in children, but hospital admission rates remain stable.
- B. The most striking peak in asthma exacerbations is seen in younger children between the ages of 2 and 4 years old.
- C. Older adolescents and young adults show an increase in asthma exacerbations, but the peak is approximately 1 week later than in younger school-age children.
- D. Adults above the age of 50 years demonstrate a striking increase in rate of hospitalizations during September.

Question 3. Which of the following statements most appropriately describes the association of upper respiratory tract viral infections with asthma exacerbations?

- A. Viral infections are found in approximately 40% of 9- to 11-year-olds experiencing exacerbations with reduced peak flows and wheezing.
- B. Viral infections are found in only approximately 20% of adults experiencing exacerbations.
- C. Influenza viral infection is the most common trigger in children.
- D. Viral-mediated exacerbations less commonly occur in patients on regular controller medications.

Question 4. Which of the following etiologic conditions has been shown in clinical studies to be the most significant risk for hospital admission due to asthma exacerbations?

- A. virus detection
- B. allergen sensitization
- C. allergen sensitization and viral exposure
- D. allergen sensitization and exposure plus viral infection

Question 5. Which of the following triggers of acute exacerbations is most commonly associated with a delay between peak exposure and symptom onset?

- A. thunderstorm and extreme weather
- B. fungal spores
- C. cat and dog danders
- D. pollution and psychologic stress

Question 6. The independent risk factors for frequent acute exacerbations identified by Griswold et al and ten Brinke et al include —

- A. psychologic dysfunction, severe sinus disease, no insurance, and non-white race.
- B. gender, severe sinus disease, no primary care provider, and recent exacerbation.
- C. gender, age less than 17 years, no primary care provider, and white race.
- D. none; there are no independent risk factors, and multiple are required for increased risk.

Question 7. Which of the following best describes the risk factors for severe and near-fatal asthma exacerbations?

- A. any prior emergency department visit for asthma
- B. increased β -agonist use
- C. inhaled corticosteroid use
- D. (all of the above)

Question 8. Monitoring biomarkers such as sputum eosinophil counts and/or exhaled nitrogen oxide have been shown to be clinically beneficial in which of the following?

- A. guiding asthma management with decreased frequency of exacerbations
- B. identifying patients at risk for asthma exacerbations
- C. providing an indication of airway inflammation
- D. (all of the above)

Question 9. The optimal management strategy discussed in this review to prevent exacerbations in an adult patient with uncontrolled asthma on low-dose inhaled corticosteroids and as-needed short-acting β -agonist is —

- A. to double the baseline inhaled corticosteroid dose.
- B. to substitute a long-acting β -agonist for the patient's current inhalers.
- C. to increase inhaled corticosteroid to a high dose (and/or add a long-acting β -agonist).
- D. to add a leukotriene receptor antagonist in the peak exacerbation months.

Question 10. Which of the following is the most appropriate statement regarding asthma mortality?

- A. Among hospitalized patients with acute exacerbations, mortality is increased for African Americans compared to whites.
- B. Asthma mortality has increased over the last 2 decades
- C. Asthma mortality is decreased among patients treated with a long-acting β -agonist alone.
- D. Asthma mortality disparity among socioeconomic classes may not be primarily due to income.