Continuing Medical Education examination

Asthma and obesity: Common early-life influences in the inception of disease

Instructions for category 1 Continuing Medical Education credit

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Learning objectives: "Asthma and obesity: Common early-life influences in the inception of disease"

1. To review the epidemiology of asthma and obesity.
2. To recognize shared genetic contributions to asthma and obesity.
3. To understand the role of prenatal diet on the development of asthma and obesity.
4. To survey the impact of intestinal microflora on the development of asthma and obesity.

CME items

Question 1. Throughout the 1980s and 1990s, the prevalence of asthma and obesity —

A. increased and decreased, respectively.
B. decreased and decreased, respectively.
C. increased and increased, respectively.
D. decreased and increased, respectively.

Question 2. The risk for developing asthma is —

A. inversely proportional to body mass index (BMI).
B. directly proportional to BMI.
C. unrelated to BMI.
D. greatest in patients with a BMI of 25 to 29.9.

Question 3. Which of the following statements is true?

A. Obesity appears to worsen asthma control.
B. Quality of life scores are similar between obese and nonobese patients with asthma.
C. Studies of morbidly obese patients who have undergone bariatric surgery fail to show objective improvements in asthma exacerbations or hospitalizations.
D. Studies of obese patients who have undergone dietary modification have failed to show objective improvements in asthma exacerbations or hospitalizations.

Question 4. Several candidate genes have been associated with obesity and asthma. Which of the following genes has/have been associated with both obesity and asthma?

A. TNF-α and vitamin D receptor
B. CD14 and IL-13
C. ADAM-33 and IFN-γ
D. IL-4 receptor

Question 5. Maternal intake of which of the following nutrients in the prenatal diet has been shown to reduce the risk of childhood wheeze?

A. vitamins E, C, and D and zinc
B. vitamins E and D, zinc, and selenium
C. vitamins E, D, and C and n-3 fatty acids
D. vitamin D, magnesium, and selenium

Question 6. Which of the following prenatal exposures has been associated with both asthma and obesity?

A. low levels of antioxidants, such as vitamin E
B. high or low birth weight
C. fatty acids
D. low levels of vitamin D

Question 7. Intervention studies using fatty acids to prevent asthma or allergies have shown which of the following?

A. Among children at risk for atopic disease, dietary intake of 500 mg of daily n-3 polyunsaturated fatty acid–rich fish oil, in addition to n-3 rich oils and spreads for the family, was associated with reduced total IgE levels at age 3 and 5 years.
B. Among children at risk for atopic disease, dietary intake of 500 mg of daily n-3 PUFA rich fish oil, in addition to n-3 rich oils and spreads for the family, was associated with reduced food allergen-specific IgE levels at age 3 and 5 years.
C. Supplementation of the diets of pregnant atopic women with n-3 PUFA fish oil was associated with a reduction in cord blood mononuclear cell cytokine responses (IL-5, IL-10, IL-13, IFN-γ).
D. Maternal supplementation during pregnancy with fish oil was associated with a sustained reduction in allergic sensitization to milk in children through age 5 years.

Question 8. Which of the following statements is true?

A. Compared with nonatopic infants, atopic infants have higher counts of lactobacilli, bifidobacteria, and *Bacteroidetes* in the gut flora.
B. A low level of *Bacteroidetes* is associated with asthma and obesity.
C. A low level of *Firmicutes* in the gut microflora is associated with obesity.
D. Although several studies point to the role of the intestinal microbiota in both allergy and obesity, the natural history of microbial colonization of the human gut remains incompletely understood.

Question 9. Which of the following statements is true?

A. Adiponectin and leptin levels do not vary significantly in cord blood and breast milk.
B. Cord blood adiponectin levels are associated with wheezing disorders in 2-year-old children of atopic mothers.
C. Cord blood leptin levels are associated with wheezing disorders in children of nonatopic mothers.
D. Cord blood leptin levels are associated with lower birth weight.

Question 10. Which of the following statements regarding the mechanistic links between obesity and asthma is the most accurate?

A. Substantial evidence suggests that dietary behaviors and allergen exposure during adolescence are most predictive of risk for both current obesity and asthma.
B. To date, there is little evidence to suggest that genetic predispositions confer an increased risk for obesity.
C. Gene-gene interactions, gene-environment interactions, and epigenetic mechanisms have the potential to clarify the link between asthma and obesity.
D. Birth weight does not seem to influence the risk for obesity or any other metabolic condition in later life.