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INSTRUCTIONS FOR LEARNING SELF-ASSESSMENT CATEGORY 1 CREDIT

Please note. The answer sheets for receiving CME credit are no longer included with the self-assessment articles. The self-assessment questions and answers, however, are printed for those wishing to assess themselves. If CME credit is

required, participants can call the American Academy of Allergy and Immunology office (414/272-6071) for answer sheets that should be completed and returned for receipt of Category I credit.

CME examination

Identification No. 128734

Platts-Mills TAE, Chapman MD. Dust mites: Immunology, allergic disease, and environmental control. *J ALLERGY CLIN IMMUNOL* 1987;80:755-75.

Questions 1-5

Match each of the five species with the most accurate of the four descriptions:

Species of mites in relation to human allergy:

- | | |
|------------------------------------|--|
| 1. <i>Euroglyphus maynei</i> | a. A predator mite that lives on other mites and is often found with |
| 2. <i>Acarus siro</i> | |
| 3. <i>Dermatophagoides farinae</i> | <i>Dermatophagoides</i> |
| 4. <i>Tyrophagus putrescentiae</i> | b. A "pyroglyphid" |

5. *Cheyletus eruditus*

- mite that is a close relative of *Dermatophagoides*
- c. Storage mite found in stored grain and barn dust
 - d. A common dust mite originally reported in flour

Questions 6-9

Match each purified allergen with the correct source:

Terminology of major purified allergens:

- | | |
|-------------------|-----------------|
| 6. <i>Amb a</i> I | a. Mite |
| 7. <i>Lol p</i> I | b. Ragweed |
| 8. <i>Der f</i> I | c. Cat |
| 9. <i>Fel d</i> I | d. Grass pollen |

Questions 10-13

Select either true (a) or false (b) for the following statements about mite allergens:

10. Stable to high pH, heat, and acetone
11. Glycoproteins of molecular weight 10,000 to 30,000
12. Can be purified by use of Mab affinity chromatography
13. Extensive structural homology between group I and group II allergens

Question 14

14. Which two of the following statements about dust mites are most correct?
 - (i) Major mite allergens (*Der p* I and *Der f* I) are not present in mite bodies.
 - (ii) Mites grow optimally at a relative humidity >60%.
 - (iii) *D. farinae* is more important than *D. pteronyssinus* in the United States.
 - (iv) Dust mites can only be grown successfully on human skin scales.
 - (v) Mites can be killed by dehydration, heat, or the chemical pirimiphos methyl.
 - a. (i) and (iv)
 - b. (iii) and (iv)
 - c. (ii) and (v)
 - d. (i) and (iii)

Question 15

15. Which two of the following statements about house dust extracts are incorrect?
 - (i) Contain easily detectable quantities of dust mite and cat allergen
 - (ii) May be declared "ineffective" by the Food and Drug Administration because they vary in content and contain human proteins
 - (iii) Routinely standardized by measurement of specific allergen content
 - (iv) Have been demonstrated to be less effective than other allergens, for example, dust mite or cat dander, in desensitization treatment
 - (v) Routinely made from house dust collected outside the pollen season
 - a. (i) and (iii)

- b. (iv) and (v)
- c. (iii) and (iv)
- d. (i) and (v)

Question 16

16. Mite fecal particles range from 10 to 30 μ m in diameter and become airborne only during domestic disturbances. Which two of the following statements are most correct?
 - (i) Airborne fecal particles are an important cause of asthma because they are smaller than pollen grains.
 - (ii) Both pollen grains and mite fecal particles are approximately tenfold greater in size than the droplets produced by a Wrights nebulizer.
 - (iii) Allergens produced by domestic and laboratory animals, for example, cat and rat, may produce a more rapid onset of symptoms because the size of particles is smaller and the number of particles carrying allergen is greater.
 - (iv) High efficiency particulate air type filters are not helpful in reducing exposure to mite allergens because they only remove a proportion of particles as small as 10 μ m in diameter.
 - a. (i) and (ii)
 - b. (ii) and (iii)
 - c. (iii) and (iv)
 - d. (i) and (iv)

Question 17

17. Bronchial provocation with allergen extracts produces bronchospasm in most patients who have IgE abs to the allergen. Which of the following statements are true of bronchial provocation with dust mite extracts?
 - (i) The droplets used for bronchial provocation are similar in size to pollen grains or mite fecal particles.
 - (ii) Dust mite extracts have been reported to produce immediate (10-15 min.) and late (6-8 hour) responses to bronchial provocation.
 - (iii) Bronchial provocation with mite extracts has been shown to induce production of Prostaglandin D₄ and eosinophil products in the lung.
 - (iv) Bronchial provocation produces prolonged increases in bronchial reactivity to histamine in those patients who have immediate reactions.
 - (v) Bronchial provocation with histamine can also produce prolonged increases in bronchial reactivity.

- a. (i) and (ii)
- b. (iv) and (v)
- c. (iii) and (iv)
- d. (ii) and (iii)

Questions 18-21

Match the following statements with the best answer:

- a. (i) is true and (ii) is true
 - b. (i) is true and (ii) is false
 - c. (i) is false and (ii) is true
 - d. (i) is false and (ii) is false
18. Many adults with AD:
- (i) Have IgE ab to dust mite allergens
 - (ii) Will produce an eczematous reaction on the skin if mite allergen is applied for 48 hours
19. Exacerbations of AD:
- (i) Have been reported to follow desensitization or skin testing with house dust extract
 - (ii) Reactions due to impurities in the house dust and do not occur with dust mite extract
20. Patients with AD:
- (i) Often improve rapidly on hospitalization
 - (ii) Improvement may be due to reduced exposure to dust mite allergens
21. Patients with AD:
- (i) Only have IgE ab to inhalants if they also have asthma
 - (ii) More commonly have IgE ab to food if they are less than 7 years of age

Questions 22-26

Match each of the following statements with the best one answer:

- a. False
 - b. Correct
 - c. Correct only in specific climatic conditions
22. Mite numbers on carpeting can be controlled by regular shampooing.
23. Symptoms of mite allergy are maximum during July and August because this is the time when mite numbers peak.
24. Indoor humidity is primarily created by imperceptible loss from humans and can be controlled by adequate ventilation.
25. During the winter, humidity inside houses falls so low that no further measures are necessary to control mite growth.
26. Mites survive prolonged periods of dry weather because their eggs do not hatch in dry conditions.

Question 27

27. Which of the following statements is true?
- a. Regular vacuum cleaning of carpets will progressively reduce colonization with mites.
 - b. Pillows can be filled with feathers, provided the outer cover is washed regularly.
 - c. Treating new carpets with an acaricide can prevent mite growth for 6 months or more.
 - d. Polyester-filled pillows should be washed in hot cycle ($>130^{\circ}\text{F}$) on a regular basis.
 - e. Removal of carpets and replacement with polished wooden floors is sufficient to prevent mite growth in the living room.

Answers for August CME examination*

Identification No. 088733

Townley RJ, Hopp RJ. Inhalation methods for the study of airway responsiveness. *J ALLERGY CLIN IMMUNOL* 1987;80:111-24.

Answer 1

1. b (p. 120)

Those suspected of having any type of significant heart disease should not be tested unless a stress test is performed before the challenge. EKG monitoring should be done continuously, and blood pressure should be checked intermittently throughout the test.

Answer 2

2. a (p. 120)

Although hypocapnia may produce bronchoconstriction, the use of a compressed air mixture of

5% CO_2 , 21% O_2 , and 74% N_2 , or breathing 5% CO_2 at 2 L/min into the inspiratory line will maintain eucapnia over a wide range of $\dot{V}_E$; end tidal CO_2 does not need to be measured.

Answers 3-4

3. d (p. 119)

With exercise testing, bronchodilation occurs first and is believed to be due to increased sympathetic drive. This is followed immediately by a gradual bronchoconstriction, resulting possibly from events surrounding the hyperosmolar environment produced through heat and water loss of the bronchial mucosa. The bronchoconstriction peaks

*P refers to journal pages.