Chapter 71: In Vivo Study of Allergy

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1. What are characteristics of the immediate reaction?
   A. The size of the wheal is correlated with the degree of allergy.
   B. Histamine and tryptase release begins about 5 minutes after allergen injection and peaks at 30 minutes.
   C. It is always followed by a late-phase reaction that starts between 1 and 2 hours later, peaks at 6–12 hours, and resolves in approximately 24–48 hours.
   D. The immediate reaction is mediated primarily by Substance P.

2. Precautions for skin testing include:
   A. Have emergency equipment readily available, including epinephrine.
   B. Include a positive and a negative control solution.
   C. Evaluate the patient for dermographism.
   D. Make sure a physician is available to treat systemic reactions.
   E. All of the above

3. Common errors in intradermal skin testing include:
   A. Volume injected too small
   B. Subcutaneous injection leading to false-positive test
   C. High concentration leading to false-negative results
   D. Test sites are too close together and false-positive results can be observed

4. Factors affecting skin tests include:
   A. Quality of the allergen extract
   B. Gender
   C. Circadian rhythm
   D. Short term administration of corticosteroids

5. When interpreting skin tests, which of the following considerations should be included?
   A. Skin prick testing is an expensive screening method for detecting allergic reactions in most patients.
   B. A positive skin test response confirms the presence of allergic disease.
   C. The presence of allergic sensitization with no correlative allergic disease is a common finding, occurring in 8–30% of the population when using a local standard panel of aeroallergens.
   D. Allergen-specific IgE testing is more sensitive than skin testing.

6. Infants have been shown to have positive wheal and flare reactions to prick-puncture tests with histamine or allergen extracts after what age?
A. 3 months
B. 6 months
C. 9 months
D. 12 months

7. Which of the following disorders can reduce the wheal and flare reaction following prick-puncture testing?
   A. Renal failure requiring dialysis
   B. Some patients with cancer
   C. Spinal cord injuries
   D. Diabetic neuropathy
   E. All of the above

8. Which of the following medications would have the longest suppression of IgE-mediated skin tests?
   A. Azelastine
   B. Chlorpheniramine
   C. Diphenhydramine
   D. Promethazine
   E. All of the above

9. Which of the following medications is most likely to suppress skin testing response?
   A. Cimetidine
   B. Imipramine
   C. Albuterol
   D. Montelukast

10. Which of the following medications is most likely to suppress skin testing response?
    A. Theophylline
    B. Cromolyn
    C. Ketotifen
    D. Dopamine

**Answers**
1. B, page 1267
   Histamine and tryptase release begins about 5 minutes after allergen injection and peaks at 30 minutes is the correct answer. The size of the wheal does not correlate with degree of allergy and the immediate reaction is primarily mediated by histamine. The presence of a late-phase reaction is variable.

2. E, page 1268
   All of the above are correct.

3. D, page 1269
   Test sites are too close together and false-positive results can be observed is correct. Subcutaneous injection can lead to false-negative and high concentration or a large volume can lead to false-positive results.
4. A, page 1272
Quality of the allergen extract is an important factor in skin testing. Gender, circadian rhythm, and corticosteroids do not affect the skin test results.

5. C, page 1277
The correct answer is the presence of allergic sensitization with no correlative allergic disease is a common finding, occurring in 8–30% of the population when using a local standard panel of aeroallergens. A positive test does not confirm allergic disease – only allergic sensitization. Skin prick testing is an inexpensive screening test and is more sensitive than allergen-specific IgE testing.

6. A, page 1272
Using prick-puncture tests it has been observed that a significant wheal was detectable after 3 months of age in most infants tested with either histamine, codeine phosphate, or allergen extracts.

7. E, page 1273
All of the above disorders can reduce the wheal and flare reaction with skin testing.

8. A, page 1274
Azelastine can suppress skin tests for 3-10 days. All of the others suppress skin tests for only 1-3 days.

9. B, page 1274
Imipramine, used commonly to treat bedwetting, can suppress skin test wheal and flare responses for more than 10 days. None of the other medications cause clinically significant suppression.

10. C, page 1274
Ketotifen can suppress skin test results for more than 5 days. None of the other medications cause clinically significant suppression.

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Chapter 74: Oral Food Challenge Testing

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1. An open oral food challenge will result in what percent false positive results?
   A. 5%
   B. 10%
   C. 15%
   D. 30%
2. Several adverse reactions can occur during an oral food challenge. Which of the following, according to a study performed by Perry et al, was the most common reaction seen?
   A. Gastrointestinal
   B. Cutaneous
   C. Oral
   D. Lower respiratory

3. There are several dosing strategies that can be adopted for an oral food challenge, but for most IgE-mediated reactions typical total doses administered are _____ for dry foods and _____ for wet foods?
   A. 5g, 200ml
   B. 10g, 50ml
   C. 8g, 100ml
   D. 10g, 300ml

4. Double-blind placebo-controlled food challenge is the gold standard for the diagnosis of food allergy. However, this is not perfect. What are the estimated false positive and false negative rates?
   A. 1% and 3%
   B. 3% and 5%
   C. 5% and 10%
   D. 10% and 15%

5. Which of the following clinical scenarios is an oral food challenge not necessary?
   A. A patient has urticaria several hours after eating peanut butter for the first time and PST is negative to peanut
   B. A patient with chronic eczema has a suspected egg allergy, but the history provided is unclear. RAST level was screened for egg and was below the predictive level
   C. A patient experiences anaphylaxis 15 minutes after ingesting raw unseasoned shrimp, however patient had eaten raw unseasoned shrimp several times prior without a reaction.
   D. A patient has a known history of egg allergy. PST upon reevaluation was negative.

6. Which of the following can be used to predict the severity of the reaction in a positive food challenge?
   A. Type of food
   B. Specific IgE level
   C. Dose ingested
   D. None of the above

7. An IV should be placed for food challenges in which of the following conditions?
   A. Previous mild reaction
   B. Food dependent, exercise-induced anaphylaxis
   C. Food-protein induced enterocolitis
   D. History of asthma

8. Which of the following is required prior to starting an oral food challenge?
A. Informed consent
B. Properly trained personnel
C. Accessible medications and equipment for resuscitation
D. Normal baseline physical exam
E. All of the above

9. Some suggest the false-positive rate for open challenges could be as high as what?
   A. 10%
   B. 20%
   C. 30%
   D. 40%

10. What can be done to minimize challenge risks?
    A. Use standard starting dose and challenge protocol in patients with a history of severe reactions
    B. Give Benadryl as soon as a reaction is occurring
    C. Continue the challenge for mild symptoms
    D. Re-examine the patient at regular intervals

Answers
1. D, page 1310
   Limitations of open challenges relate to the chance of bias on the part of both the patient and the observer. The bias will most often result on false positive challenge results.

2. B, pages 1314-1315
   Of the 584 challenges, 43% resulted in an allergic reaction. 78% cutaneous, 43% GI, 26% oral, 26% lower respiratory, 25% upper respiratory.

3. C, page 1313
   Typical total doses administered for most IgE-mediated reactions are 8-10 grams of the dry food or 100 mL of wet food, doubling the amounts for meat or fish.

4. A, page 1311
   Although DBPCFC is the best available test, the false-positive and false-negative rates have been estimated to be between 1% and 3%.

5. C, pages 1309-1310
   When a patient has an acute reaction of urticaria or anaphylaxis, a convincing history, and/or confirmation by PST and or sIgE.

6. D, page 1314
   There are no differences in the type of food and the severity of the reaction. No relationship was detected between specific IgE levels or the dose ingested and the severity of the reaction.

7. C, page 1312
Reactions in Food-protein-induced enterocolitis generally involve hypotension and require fluid resuscitation.

8.  E, page 1312
Oral food challenges should be performed in a setting that maximizes comfort and safety.

9.  C, page 1312
Some suggest that the false positive rate for open challenges could be as high as 30%, particularly when there is significant anxiety.

10.  D, page 1316
Challenges should be performed by experienced personnel who continually interact with and re-examine the patient at regular intervals. Food challenges should be stopped as soon as a reaction begins. Benadryl is not appropriate for stopping a severe reaction. Starting dose and challenge protocol may need to be adjusted for patients with a history of a severe reaction.