

Allergy, Asthma, Clinical Immunology
Pre Test/Post Test Rotation Quiz

Matching:

1. Match the following allergens with the time of year they are most likely to cause symptoms of allergic rhinoconjunctivitis in the northern United States:

___1. Grass Pollen	A. Mid July to Early October
___2. Weed Pollen	B. May and June
___3. Alternaria Mold	C. Throughout the summer and fall
___4. House dust mite	D. Fall and winter

2. Match the immune deficiency with the appropriate lab test:

___1. Wiskott-Aldrich syndrome	A. Quantitative immunoglobulins
___2. Di George anomaly	B. CD11 by flow cytometry
___3. Bruton's disease	C. NBT test (nitroblue tetrazolium test, oxidated burst)
___4. Leukocyte Adhesion Defect	D. Serum calcium
___5. Chronic Granulomatous Disease	E. Platelet count and morphology

3. Match the immune deficiency with the microbial agent susceptibility:

___1. T-cell immune deficiency	A. High grade virulent bacteria, e.g. H. influenza type b, Strep pneumonia
___2. Common variable immunodeficiency	B. Viral infections, eg. Varicella, Herpes
___3. Chronic granulomatous disease	C. Both A and B
___4. Severe combined immunodeficiency disease	D. Neither A nor B

4. Match the symptoms with the diagnosis (Each option can be used more than once)

___1. Gritty sensation	A. Allergic conjunctivitis
___2. Photophobia	B. Glaucoma
___3. Pruritis	C. Sicca syndrome
	D. Intraocular inflammation

5. State whether each airborne substance listed below is a:

A. Seasonal allergen
B. Perennial allergen
C. Non-IgE mediated irritant.

___1. Dust mites
___2. Cat dander
___3. Ragweed
___4. Perfume
___5. Cigarette smoke

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6. In June, a 24 year old female presents with angioedema of the face, including eyelids and lips. She has had 2 previous similar episodes. Which diagnosis is suggested by each of the following additional information:

- ___1. Her father has also had recurrent angioedema of the face and extremities. Neither has associated pruritis with the angioedema.
- ___2. She always has associated gas and diarrhea with the angioedema. She was previously skin tested and found to have sensitivities to milk, ragweed, and molds.
- ___3. This episode, like the previous ones, occurred during the summer and was accompanied by diarrhea, low grade fever once, and classical urticarial lesions.

Possible responses:

- A. Hereditary angioedema
- B. Food allergy
- C. Enterovirus infection
- D. Idiopathic angioedema
- E. An ACE inhibitor was prescribed by her internist for hypertension

7. For each patient described below, select the appropriate diagnostic test.

- ___1. A 52 year old previously healthy woman has had recurrent episodes of pneumonia for 5 years. For the past two years she has had recurrent sinusitis with daily sputum production. She has not had fever. Most episodes occur in autumn. Chest roentgenogram shows perihilar thickening with no emphysematous changes; sinus roentgenogram shows mucosal thickening.
- ___2. A 25 year old woman presents with a long history of eczematous skin lesions, vaginal candidiasis, and three episodes of *Staphylococcus aureus* pneumonia with residual pneumatoceles. Physical examination shows eczematous lichenified skin and multiple scars from past furunculosis.
- ___3. A 4 month old male presents with oral candidiasis and failure to thrive.
- ___4. A 6 year old boy has had 3 weeks of fever, weight loss, and pain in the right leg; he is less than 5th percentile for his age. He has had three episodes of pneumonia, one of which was culture-positive for *Staphylococcus aureus*. Radiograph of his right proximal femur shows periosteal elevation over a lytic lesion. Biopsy specimen of the lesion shows septate hyphae with acute angle branching embedded in exuberant granulomatous inflammation

Possible responses:

- A. In vitro lymphocyte stimulation with antigens and CBC with diff
- B. Serum IgE concentration
- C. Quantitative immunoglobulins (IgG, IgA, IgM) and antibodies to specific antigens.
- D. Nitroblue tetrazolium test or oxidated burst

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8. A 19 year old male presents to your office as a new patient, having recently moved from another state. He has a history of recurrent sinusitis and has had sinus surgery at age 12 years and age 15 years. He has a history of pneumonia once and bronchitis at least annually since age 8. He and his family are nonsmokers. Match the additional history to the most likely diagnoses. (Each diagnosis can be used more than once)
- ___ 1. He had nasal polyps removed during both surgeries.
- ___ 2. He is infertile.
- ___ 3. He has chronic diarrhea with foul-smelling stools.
- ___ 4. He has severe allergic rhinitis symptoms and extrinsic asthma. He has been treated primarily with albuterol and over-the-counter antihistamines.
- ___ 5. He also had recurrent otitis as a young child. He often has high fever with infection. He improves slowly with antibiotics.

Answer choices:

- A. Cystic fibrosis
- B. Primary ciliary dyskinesia
- C. Antibody immune deficiency.
- D. Uncontrolled asthma and allergies.
- E. Hyper IgE syndrome.

Multiple Choice: (Please choose the best answer for the following questions.)

9. A patient is referred with recurrent sinusitis and poorly controlled asthma. You decide to do an immune evaluation. Your workup should include:
- A. T-cell subsets
 - B. CH50
 - C. functional and quantitative immunoglobulins
 - D. NBT
10. Hereditary angioedema is:
- A. Inherited as an autosomal recessive disorder
 - B. Usually associated with urticaria
 - C. Usually responsive to antihistamines
 - D. Can be managed with Danazol (synthetic androgenic steroid).
11. Which of the following adverse drug reactions is believed to be due to IgE-mediated mechanisms?
- A. Aspirin induced anaphylaxis
 - B. Reaction to radiocontrast dye
 - C. Steven-Johnson's syndrome after a course of trimethoprim/sulfa
 - D. Wheezing, urticaria after administration of penicillin

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12. Which of the following food allergies is most likely outgrown?
- A. Milk
 - B. Peanut
 - C. Walnuts
 - D. Shellfish
13. Indications for immunotherapy for hymenoptera allergy:
- A. Children and adults with a history of a life-threatening reaction to a hymenoptera sting
 - B. People who have a history of a large local skin reaction that gets worse with each sting
 - C. Children with a history of generalized urticaria after a sting
 - D. Anyone with a family history of an allergic reaction to a hymenoptera sting
 - E. Patients with allergic rhinitis
14. Eczema in an infant most commonly occurs in/on the:
- A. Antecubital and Popliteal fossae
 - B. Perineal region
 - C. Scalp and flexural areas
 - D. Extensor surface of arm and legs
15. As part of the work up of adult asthma, which of the following reproducible, pre and post bronchodilator pulmonary function test results would be interpreted as showing significant reversibility?
- A. a 15% increase in FEF 25-75%
 - B. a 15% increase in FEV1 (425 ml improvement)
 - C. a 20% increase in FEV1 (180 ml improvement)
 - D. a 15% increase in FEV1/FVC ratio
16. All of the following medications can affect late phase (including by prophylaxis of the immediate allergic response) response in asthma **except**:
- A. Corticosteroids
 - B. Leukotriene modifiers
 - C. Cromolyn sodium
 - D. Albuterol
17. Drug of choice for uncomplicated acute urticaria is:
- A. corticosteroid
 - B. antihistamines (H2 type)
 - C. antihistamines (H1 type)
 - D. subcutaneous terbutaline

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18. Reasonable recommendations for a patient with moderate persistent asthma poorly controlled on low dose inhaled corticosteroids include all **except**:
- A. Add salmeterol inhaler BID
 - B. Double the dose of inhaled corticosteroid
 - C. Add a leukotriene modifier
 - D. Add nebulized cromolyn BID
19. Which of the following is a clear indication for penicillin allergy skin testing:
- A. A 40 year old patient with a history of anaphylaxis after ampicillin 10 years ago. The patient now has endocarditis. Culture is positive for a streptococcal organism sensitive only to penicillin
 - B. A 26 year old patient with a history of Steven-Johnson's Syndrome after receiving amoxicillin
 - C. A 65 year old ICU patient receiving penicillin and vancomycin with flushing and hypotension.
 - D. A 39 year old female, who 11 days after taking penicillin for a strep pharyngitis develops angioedema, arthralgias, urticaria and a low grade fever.
20. The major advantage of second generation antihistamines is:
- A. They do cross the blood brain barrier and help patients to relax
 - B. They are very long acting
 - C. They cause decongestion as well as decreasing rhinorrhea
 - D. They minimally cross the blood brain barrier and have a decreased sedation effect.
 - E. They decrease appetite
21. Which of the following types of infection are increased in patients with humoral or B-cell immune deficiencies?
- A. Sinusitis
 - B. Otitis media
 - C. Pneumonia
 - D. Meningitis
 - E. All of the above
22. The most common cause of chronic urticaria, especially in adults, is:
- A. Food allergy
 - B. Connective tissue disease
 - C. Drug allergy
 - D. Idiopathic
 - E. Viral infections
23. Congenital absence of the late complement components (C5, C6, C7, C8) is most often associated with:
- A. Viral infections
 - B. Recurrent Neisserial infections
 - C. Lupus-like disease
 - D. Candidiasis
 - E. Delayed separation of the umbilical cord

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24. Congenital complement deficiencies are best screened by which of the following laboratory tests:
- A. Quantitative immunoglobulins
 - B. NBT
 - C. Total CH50
 - D. C3, C4 and properdin
 - E. Flow Cytometry
25. All of the following **except one** can be useful in managing atopic dermatitis:
- A. Skin lubrication/moisturization
 - B. Controlling pruritus to reducing scratching.
 - C. Immunotherapy (allergy injections)
 - D. Avoiding specific food allergy triggers
 - E. Topical therapy with steroid or non-steroid immune modulating agent (pimecolimus, tacrolimus)
26. All of the following statements regarding anaphylactoid reactions to radiocontrast agents are true **except:**
- A. Increased serum histamine levels are frequently observed following administration of contrast agents
 - B. Skin testing with radiocontrast agents is valuable in assessing who will have an anaphylactoid reaction
 - C. Use of the newer lower ionic agents will decrease the likelihood of an anaphylactoid reaction in a person with a history of a previous reaction
 - D. Beta blockers should be discontinued prior to a radiocontrast procedure in a patient with a history of a severe reaction
27. All of the following regarding aspirin intolerance are true **except:**
- A. Patients with asthma are at no greater risk for aspirin intolerance than the general population
 - B. A proposed mechanism of aspirin intolerance involves aspirin's effect on arachidonic acid metabolism
 - C. There is cross reactivity between aspirin and NSAID intolerance
 - D. Aspirin desensitization may be of benefit in a patient with aspirin intolerance who requires the drug
 - E. Leukotriene modifiers are particularly beneficial in most patients
28. Which of the following tests would be most useful in helping to diagnose asthma:
(Identify the **correct** choice)
- A. Frequency dependence of compliance
 - B. Pre and post bronchodilator FEV1
 - C. Arterial blood gases
 - D. Pulmonary functions pre- and post- methacholine challenge
 - E. Diffusing capacity

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29. Conditions which may worsen asthma include: (Identify the one **wrong** choice)
- A. Diabetes Mellitus
 - B. Sinusitis
 - C. Pregnancy
 - D. Cardiac disease
 - E. Gastro-esophageal reflux
30. Which of the following is the most common underlying cause of asthma:
(Choose the one **best** answer)
- A. Beta Blocker sensitivity
 - B. Aspirin sensitivity
 - C. Bronchitis
 - D. Sinusitis
 - E. Inhalant Allergies
31. Inhaled corticosteroids: (Choose the one **incorrect** answer)
- A. Can be useful in patients who have persistent asthma
 - B. Can be useful in patients who require rescue inhaler 1-2 times per week
 - C. Can be used in 6-12 year old children with asthma
 - D. Acutely increase peak flow rate, a measure of large airway function
 - E. Reduce airway hyper-reactivity
32. Immunotherapy has beneficial effects in the treatment of which of the following conditions?
(Choose the one **correct** answer)
- A. Peanut anaphylaxis, allergic rhinitis, allergic asthma
 - B. Penicillin sensitivity, allergic rhinitis, allergic asthma
 - C. Stinging insect anaphylaxis, allergic rhinitis, allergic asthma
 - D. Aspirin sensitivity, allergic rhinitis, allergic asthma
 - E. Atopic dermatitis, allergic rhinitis, allergic asthma
33. A 40 year old male presents to the Emergency Room complaining of hives, wheezing and difficulty breathing following an insect sting. Pulse is 120 beats/min. BP is 100/56.
1. Immediate therapy should include which one of the following:
- A. Diphenhydramine 50 mg IV
 - B. Methylprednisolone 100 mg IV
 - C. Epinephrine 0.3 ml (1:1000 aqueous) sub Q or IM
 - D. Chlorpheniramine 8 mg orally
 - E. None of the above

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2. After the medication above is administered and quick assessment of the patient is done, you determine that the patient is moving air adequately and is not in shock. The next medication to give the patient immediately is:
- A. Diphenhydramine 50 mg IV
 - B. Methylprednisolone 100 mg IV
 - C. Epinephrine 0.3 ml (1:1000 aqueous) sub Q or IM
 - D. None of the above
34. Which of the following symptoms is **least** common in patients with sinusitis?
- A. Nasal congestion
 - B. Cough
 - C. Fever
 - D. "Post-nasal" drip
 - E. Mucopurulent rhinorrhea
35. Which of the following would not suggest a FISH (Fluorescence In Situ Hybridization) test to identify DiGeorge syndrome?
- A. Recurrent otitis media in a 3 year old
 - B. Neonatal tetany
 - C. Pervasive developmental delay in a 6 year old female
 - D. Recurrent/persistent otitis and diarrhea in a 6 month old
36. Hereditary angioedema (C1 inhibitor deficiency) is characterized by all of the following, **except**:
- A. Frequent abdominal pain.
 - B. Urticaria or hives.
 - C. Low C4 levels during and between attacks.
 - D. Family history of swelling.
 - E. Absence of symptoms before puberty
37. Common causes of acute urticaria include all of the following **except**:
- A. Food allergy.
 - B. Drug allergy.
 - C. Viral infection.
 - D. Inhalant allergy.
38. The two most common superinfections in atopic dermatitis are due to
- A. Staph epidermidis and Herpes simplex
 - B. Staph aureus and cutaneous viral infections
 - C. Staph aureus and Candida
 - D. Staph epidermidis and Candida

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39. The most common cause of contact dermatitis in general is
- A. Latex
 - B. Poison ivy, poison oak, and poison sumac
 - C. Nickel
 - D. Dark-colored pigments in shoes and clothing
40. The most common cause of hand dermatitis in health care workers is
- A. Latex
 - B. Additives to soaps and hand creams
 - C. Irritant dermatitis due to soap, water, and waterless cleansers
 - D. Irritant dermatitis due to sweating in non-latex containing gloves
41. A 2 year old with wheezing, persistent cough, a history of vomiting with cough, as well as hives and angioedema and increased cough after milk products comes to your office for evaluation. He drinks soy and grandma is not feeding him any milk products. He has been treated with prn albuterol nebulizer treatments with benefit in the past. On exam he has frequent congested cough, p = 112, r = 26, shiners and Dennies lines. On chest exam he has transmitted upper airway rhonchi and coarse breath sounds but no wheezes or rales. Nasal exam reveals swollen pale nasal mucosa without any visible discharge. CXR shows increased bronchovascular markings without infiltrate but with hyperexpansion. What diagnostic lab information do you want to obtain?
- A. cbc and diff, IgE and IgG Rast to milk and soy
 - B. cbc and diff, total IgE, IgG RAST to milk
 - C. cbc and diff, total IgE, and skin or RAST testing to milk, casein and soy
 - D. cbc, milk precipitins, IgE RAST to milk and casein
42. The one **true** statement about anaphylaxis is
- A. There are always skin findings—rash, angioedema, etc.
 - B. People with recurrent anaphylaxis with no identifiable cause (idiopathic) are the most likely to carry adrenalin.
 - C. After adrenalin, the most important medication to administer immediately is steroids.
 - D. After adrenalin, the most important medication to administer promptly is an H2 blocker.
 - E. The most likely patient to die of anaphylaxis has underlying asthma.
43. A five year old boy lives in a smoking household and has a history of RSV bronchiolitis in infancy. He has been diagnosed with bronchitis at least once, and sometimes twice, every winter. He has sneezing and allergic salute in spring and fall. When he runs in kindergarten he often coughs but has no obvious shortness of breath. He wakes at night coughing only when he has bronchitis. He is unable to do full pulmonary functions. The historical information most suggestive of asthma in this child is
- A. Cough at night when ill.
 - B. His allergic symptoms.
 - C. RSV bronchiolitis in infancy.
 - D. Cough with exercise.
 - E. He has been living in a smoking household.

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44. A 45 year old woman with a strong family history of both allergies and glaucoma presents with frequent red eyes that sometimes itch, sometimes feel dry, and sometimes water. On exam, bulbar conjunctivae are injected, palpebral conjunctiva are normal in color. Nasal mucosa is moderately swollen and pale. Which of the following is the most likely diagnosis?
- A. Vernal conjunctivitis
 - B. Allergic conjunctivitis
 - C. Glaucoma
 - D. Dryness from hormone replacement
 - E. Behcet's disease
45. A 4 year old white male presents with recurrent otitis requiring PE tubes x 3. With otitis he has a high fever that responds over 2-3 days to antibiotics, green nasal discharge, irritability and decreased appetite. Infections are worse in winter but may occur at any time of year. Symptoms often recur in 1-2 weeks after discontinuing antibiotics. There is no smoking in the household. Immunoglobulin levels are normal. The most helpful test is:
- A. Total IgE level
 - B. Specific antibodies to Streptococcus pneumoniae and Hemophilus influenza B
 - C. CBC & diff
 - D. Allergy skin testing
46. An 8 year old male has asthma symptoms about three times per month requiring the use of an albuterol inhaler, despite adequate inhaled steroid treatment. These episodes typically occur at night. The child is not allergic to his guinea pig or dust mites, and there is no smoking in the home. He has no problems with exercise and rarely needs albuterol during the day except when he has an upper respiratory tract viral infection. His FEV1 and PEFr are both >80% predicted. Based on this history, the most likely trigger for his nighttime asthma is:
- A. Allergic Rhinitis
 - B. Obstructive sleep apnea
 - C. Gastro-esophageal reflux disease (GERD)
 - D. Drop in endogenous corticosteroid levels at night
47. A 10 year old girl has had asthma for 18 months. She typically complains of asthma symptoms 3 times per week on the average, with daily symptoms when she has a URIs. She has never been hospitalized for asthma but has had 2 ED visits for wheezing with URIs. She complains of cough and shortness of breath with strenuous exercise. Her FEV1 and PEFr are both >80% predicted. Her treatment to date has been an albuterol inhaler prn. At this point, the one **clearly inadequate** therapy for this patient is:
- A. Start a leukotriene antagonist daily, albuterol inhaler prn and before exercise
 - B. Start an inhaled corticosteroid at low to moderate dose, continue albuterol prn and before exercise
 - C. Start the patient on a combined controller inhaler with inhaled steroid and long acting bronchodilator
 - D. Start the patient on an inhaled steroid and leukotriene antagonist, and albuterol inhaler before exercise and prn

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48. A 52 year old male with known asthma for 27 years is seen in your office for a follow up of his asthma. He states his asthma has been in good control on his low dose of inhaled corticosteroid. But when asked about albuterol use, he says he uses it 2-3 times daily. When asked about nighttime awakening due to asthma, he states he awakes because of asthma 3 times per month. He also tells you his asthma has been in good control and that he has not missed a day of work. A PFT indicates he has an FEV1 of 81% predicted. You would characterize his asthma as:
- A. Mild intermittent
 - B. Mild persistent
 - C. Moderate persistent
 - D. Severe persistent
 - E. Well controlled asthma
49. A 19 year old female undergraduate student is transported to a local emergency room for the management of anaphylactic shock. She has a significant past medical history of peanut allergy. Apparently, she ingested a dessert at a party that did contain peanuts as one of its ingredients. All of the following are identified risk factors for fatalities resulting from an anaphylactic reaction to a food allergen **except**:
- A. Previous or current medical history of severe atopic dermatitis
 - B. History of previous severe reactions secondary to food allergy
 - C. Denial of symptoms or failure to recognize an allergic reaction
 - D. Lack of use and/or delay in use of injectable epinephrine
 - E. Concomitant history of asthma and food allergy
50. In treating Allergic Rhinitis the following medication or medications control the symptoms of congestion, rhinorrhea and itching.
- A. Antihistamine
 - B. Anticholinergic
 - C. Decongestant
 - D. Nasal corticosteroid
 - E. Anti-leukotriene receptor antagonist
 - F. B and E
51. An 18 year old teenager with a history of asthma as a young child, which she “outgrew” by the time she was in first grade, presents to her primary care physician in November, 4 months pregnant, with wheezing and cough for the last one month. On questioning, she admits to ragweed hayfever and frequent heartburn. On exam, she is coughing at frequent intervals. Chest is clear to auscultation with fair breath sounds throughout. There is slightly prolonged expiratory phase. What is the most appropriate treatment for this patient:
- A. Prn albuterol inhaler, loratadine, and calcium carbonate antacid.
 - B. Prn albuterol inhaler, beclomethasone inhaled corticosteroid, and ranitidine.
 - C. Prn albuterol inhaler, budesonide inhaled corticosteroid, ranitidine, and oral steroid burst.
 - D. Prn albuterol inhaler, oral steroid burst, and proton pump inhibitor.
 - E. Prn albuterol inhaler, course of erythromycin for possible mycoplasma infection, calcium carbonate antacid.

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True and False

53. Which of the following are associated with potentially life-threatening reactions if the patient is re-exposed to the drug? (Answer each line true or false by putting "T" or "F" in the blank)
- ____A. Positive skin test to penicillin; history of anaphylaxis 10 years ago after treatment with penicillin
 - ____B. History of bullous rash with sulf___
 - ____C. Morbilliform rash with amoxicillin
 - ____D. Nausea and vomiting with erythromycin
54. Measures to control dust mite exposure in the home include: (Answer each line true or false by putting "T" or "F" in the blank)
- ____A. Frequent dusting and vacuuming using a vacuum without a HEPA filter
 - ____B. Keeping humidity levels in the "comfort zone" of 40-60%
 - ____C. Washing bedding in hot water
 - ____E. Keeping humidity levels in the 40-45% range or lower
 - ____F. Using a mite proof mattress cover