Welcome to the FIT Board Review Corner, prepared by Miriam Samstein, MD, PhD, and Timothy Chow, MD, senior and junior representatives of the College’s Fellows-In-Training (FITs) to the Board of Regents. The FIT Board Review Corner is an opportunity to help hone your Board preparedness.

**Review Questions**

**Allergy and Immunology Review Corner:** Middleton’s Allergy Principles and Practice, 8th Edition

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**Chapter 79: Drug Allergy**

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1. What are examples of Type A and Type B reactions?
   a. Type A: Nausea from antibiotics, Type B: hepatic failure from acetaminophen
   b. Type A: headache from methylxanthines, Type B: anaphylaxis from beta lactams
   c. Type A: G6PD associated anemia, Type B: tinnitus from aspirin
   d. Type A: reaction after radiocontrast media, Type B: G6PD associated anemia

2. Which is the immunodominant epitope (major determinant) of penicillin?
   a. Penicilloyl epitope
   b. Penicillenic acid
   c. Penicillin
   d. Pen G

3. Minor determinants of penicillin are associated most commonly with what type of reactions?
   a. Urticaria
   b. AGEP
   c. DRESS
   d. Serum sickness
   e. Anaphylaxis

4. P-i mechanism explains for which of the following bizarre phenomenon?
   a. Delayed onset drug allergy
   b. Toxic epidermal necrolysis
   c. First encounter drug hypersensitivity
   d. Erythema multiforme

5. Type IVa reactions involve the secretion of large amounts of which cytokine?
   a. IL – 5
   b. IFN – γ
   c. IL – 13
   d. CXCL8
   e. IL – 4
6. Type IVc reactions activate cytotoxic T cells in which conditions?
   a. Hemolytic anemia
   b. Acute urticarial
   c. AGEP
   d. Contact dermatitis
   e. PPD (tuberculin skin test)
   f. Maculopapular exanthema with eosinophilia

7. Patients requiring taxanes can be treated for infusion reactions with which of the following?
   a. Increasing rate of infusion
   b. Increased rate of infusion, antihistamines, corticosteroids
   c. Decreasing the rate of infusion
   d. Decreasing the rate of infusion, antihistamines, corticosteroids

8. The definitive diagnosis of drug allergy involves…
   a. Skin prick testing
   b. Skin prick testing and intradermal testing
   c. Provocative drug testing
   d. Lymphocyte activation test
   e. Patch testing

9. How long should skin testing be delayed after an acute anaphylactic episode?
   a. No delay
   b. 4 weeks
   c. 3 months
   d. 6 months
   e. 12 months

10. Patients with a history of severe anaphylaxis the initial dose for drug sensitization should be?
    a. Between 1/1,000,000 and 1/10,000
    b. Between 1/10,000 and 1/100
    c. Between 1/10,000 and 1/1,000
    d. Between 1/1,000,000 and 1/1,000
Answers:

1. B. Table 79 – 1. Pg 1275. Type A reactions are reactions that occur in most normal patients when given a sufficient dose. They are predictable from known pharmacologic properties. Type B reactions are unpredictable or unexpected restricted to a vulnerable population.

2. A. Figure 79 – 2. Pg 1276. The major determinant AKA the immunodominant epitope of penicillin is the Penicilloyl.

3. E. pg 1276. The minor determinants of penicillin are of major clinical importance because they are generally associated with anaphylaxis.

4. C. Pg 1276. The P-i concept by Pichler and colleagues described the direct pharmacologic interaction of drugs with immune receptors. A chemically inert drug that is unable to covalently bind to peptides or proteins may activate the immune system by directing binding and reversibly to HLA molecules on APCs or TCRs on certain T cells.

5. B. Figure 79-7. Page 1281. Type IVa reactions involve Th1 type immune reaction that activates macrophages resulting in large amounts of IFN – γ.

6. C. Page 1282. Type IVd reactions are neutrophilic inflammation dominant resulting in AGEP, Bechet’s disease.

7. D. Page 1284. Taxanes can lead to mast cell degranulation by nonimmune mechanisms. Such infusions are common with the first immune. Slowing the infusion and pretreatment with antihistamines, steroids can prevent hypersensitivity reactions.

8. C. Page 1287. Intradermal and prick skin testing are one method of diagnosing drug allergies however the MOST definitive way is provocative drug challenge. Patients are given gradually increasing doses of the drug. Provocative drug tests should be done is there was a reaction within 4 – 6 weeks, patient used anti – histamines, steroids or has an underlying uncontrolled conditions (urticaria, asthma, URI, etc.).

9. B. Page 1288. Skin testing should be delayed by 4 weeks to avoid the refractory period and false negative testing.

10. A. Page 1289. Desensitization protocols for patients with severe anaphylaxis (hypotension, loss of consciousness, severe bronchospasm, etc.) should be started at a lower concentration than patients with milder symptoms.