Hypersensitivity Reactions

A PowerLinks Page Presented By

You will likely be asked at least a few questions on immunology, immune mediated diseases and hypersensitivity reactions. A brief review of the types of hypersensitivity can be helpful in solving these questions. It is more likely that you will be asked about the related diseases than about the specific type of hypersensitivity involved, so pay attention to the specific diseases within each hypersensitivity type and how they relate to clinical manifestation and management. Overall, this topic is a low- or low-medium study priority. Therefore, we have carefully restricted our links so that it will be thorough enough but also organized for efficient review. In addition, a reference table with the basic information and veterinary examples is included because the links are to human medical resources and do not have the common veterinary examples.

Immunology Review Table

Type I: Immediate	**Type II: Cytotoxic**	**Type III: Immune Complex**	**Type IV: Delayed**
• Mediated by IgE on mast cells. • Associated with skin, intestines & lung • Specific antigen binds with IgE resulting in degranulation and release of histamine and other substances • Reaction noted within 15-30 minutes	• Cell destruction mediated by antibodies (IgM and IgG) and complement • Example is RBC hemolysis of transfused RBCs due to incompatibility of red cell antigens	• Mediated by soluble immune complexes; mainly IgG and exogenous (bacterial, viral) or endogenous antigens • Damage caused by complement activated immune complexes deposited in tissues resulting in migration of neutrophils subsequently resulting in tissue destruction	• Mediated by interaction between antigen, antigen-presenting cell, and T cells • 48-72 hours before reaction observed
Examples: Atopy, flea allergy dermatitis (FAD), urticaria, and anaphylaxis from penicillin, bee stings, etc	**Examples**: Immune-mediated hemolytic anemia, transfusion reactions and neonatal isoerythrolysis	**Examples**: Glomerulonephritis, Systemic Lupus Erythematosis	**Examples**: Allergic contact dermatitis (poison ivy), tuberculin reaction

Hypersensitivity PowerLinks

http://www1.cleveland.edu/Davis/Notes%20immuno%20unit%203a.ppt
This is a brief Powerpoint (only 17 slides) that nicely reviews the types of hypersensitivity and the common clinical examples, manifestations, and a little bit about treatment. If you review and feel that you have a good grasp of the items here, you should move on to other topics. If you want additional detail or find that the slides do not explain quite enough, we recommend the second PowerLink.

http://www.bums.ac.ir/shares/education/education/DrNaseri/Hypersensitivity.pdf
These are notes from a human medical microbiology class but are excellent for reviewing the types of hypersensitivity. We recommend the tables (especially Table 5) for a nice comparison of the antibodies involved, response times, appearance, and examples with the various hypersensitivity reactions.