# NURS 821 Advanced Pathophysiology
Margaret H. Birney PhD,RN

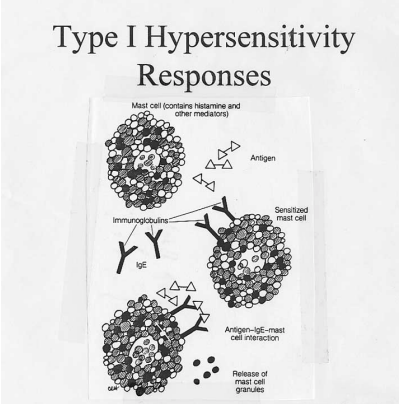
Lecture 3 Mechanisms and Manifestations of Disease (cont'd)

Part 1 Immune Hypersensitivity Reactions

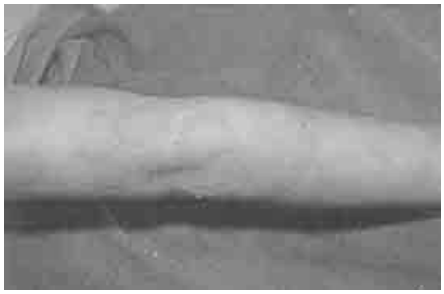
## Type I Hypersensitivity Response-Anaphylaxis

- Cause-foreign protein (antigen)
- IgE mediated
- Mechanism-IgE attaches to surface of mast cells and AG, triggering release of intracellular granules from mast cells
- Examples-Hay fever, allergies, eczema, asthma, hives, anaphylactic shock

## Type I Hypersensitivity Responses



## Urticaria

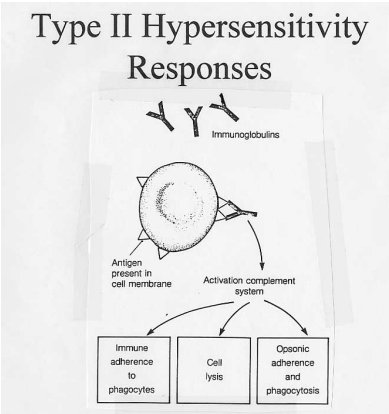


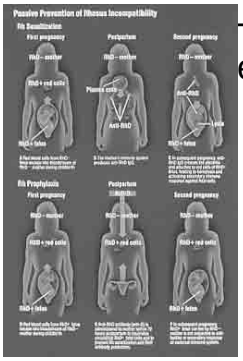
## Eczema

## Type II Hypersensitivity Response-Cytotoxic Hypersensitivity

- Cause-AG
- Antibody-IgG or IgM
- Mechanism-AB reacts with AG activating complement causing cytolysis or phagocytosis
- Examples-Transfusion reaction, hemolytic drug reactions, erythroblastosis fetalis, hemolytic anemia, vascular purpura, Goodpasture's syndrome

## Type II Hypersensitivity Responses



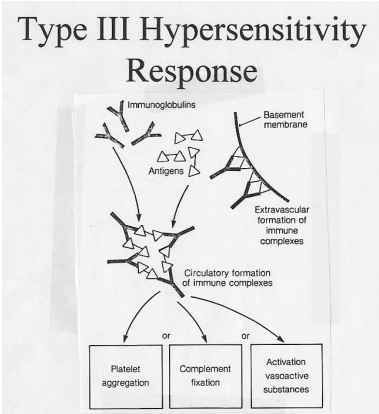

## Hypersensitivity Response

**Type II Hypersensitivity Response**
**Rh Incompatibility**

## Type III Hypersensitivity Response-Immune Complex Disease

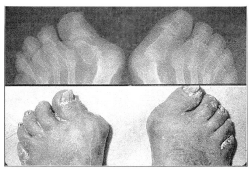
- Cause-AG
- Responsible Antibody-IgG
- Mechanism-AG-AB complexes precipitate in tissues, activating complement, causing inflammatory response
- Examples-Rheumatoid arthritis, systemic lupus erythematosus, serum sickness

## Type III Hypersensitivity Response




## Type III Hypersensitivity Response

Systemic Lupus Erythematosus



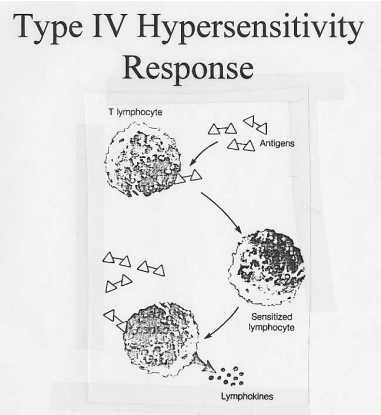
Distal Interphalangeal Predominant

Rheumatoid Arthritis

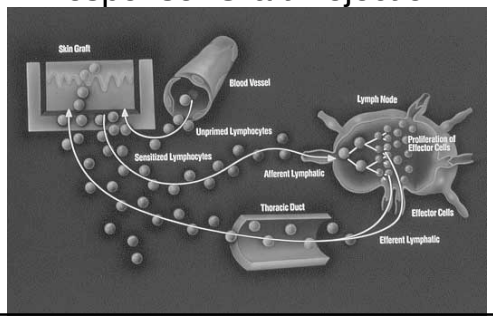
## Type IV Hypersensitivity Response-Delayed/Cell Mediated

- Cause-Foreign protein, cells, or tissue
- Mediated by T lymphocytes
- Mechanism-Sensitized T cells react with specific AG, inducing inflammatory response through direct cellular action or lymphokine activity
- Examples-Contact dermatitis, transplant graft reaction

## Type IV Hypersensitivity Response




## Type IV Hypersensitivity Response: Graft Rejection



Type IV Hypersensitivity Response: Contact Dermatitis