

Classify allergic reactions. In this viva candidates were asked to explain and classify allergic reactions, the pharmacological basis to their treatment (eg what are the mechanisms by which adrenaline is used for anaphylaxis) and to list common agents (latex was commonly overlooked) in ICU practice that are associated with allergic reactions.

**Table 54.4** Classification of hypersensitivity reactions

Type	Name	Time	Mechanism	Manifestations
I	IgE mediated	20–30 min	Antigen binding to IgE induces release of vasoactive mediators	Systemic and local anaphylaxis
II	Antibody-mediated cytotoxic	5–8 h	Antibody to cell surface antigens activates complement and antibody-dependent cytotoxicity	Blood transfusion reactions, autoimmune hemolytic anemia
III	Immune-complex mediated	2–8 h	Immune-complex deposition induces complement activation	Systemic lupus erythematosus, rheumatoid arthritis, glomerulonephritis
IV (delayed reaction)	Cell mediated	24–72 h	Sensitized Tdth cells release cytokines	Contact dermatitis; graft rejection

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**“What are some of the more common agents for allergic reactions in the ICU unit”**

Drugs

- antibiotics - penicillin based, sulphur based
- muscle relaxants - suxamethonium
- anti-convulsants medications - phenytoin, carbamazepine
- analgesics - NSAIDs, codeine

Blood products

- ABO incompatibility
- plasma constituents

Equipment, dressings and protective barriers

- latex and rubber allergies
- tapes and adhesives

Cleaning and sanitisation products

- betadine, chlorhexidine

**“What is the treatment for allergic reactions”**

initial treatment

- Removal of the inciting antigen
- Intramuscular injection of epinephrine
- Placement of the patient semi-recumbent with lower extremities elevated
- Supplemental oxygen
- Volume resuscitation with intravenous fluids

**“How does adrenaline work in this setting?”**

Epinephrine, by increasing intracellular levels of cyclic adenosine monophosphate (cAMP) in leukocytes and mast cells, inhibits further release of histamine. It has beneficial effects on myocardial contractility, peripheral vascular tone and bronchial smooth muscle, and stabilises mast cells.