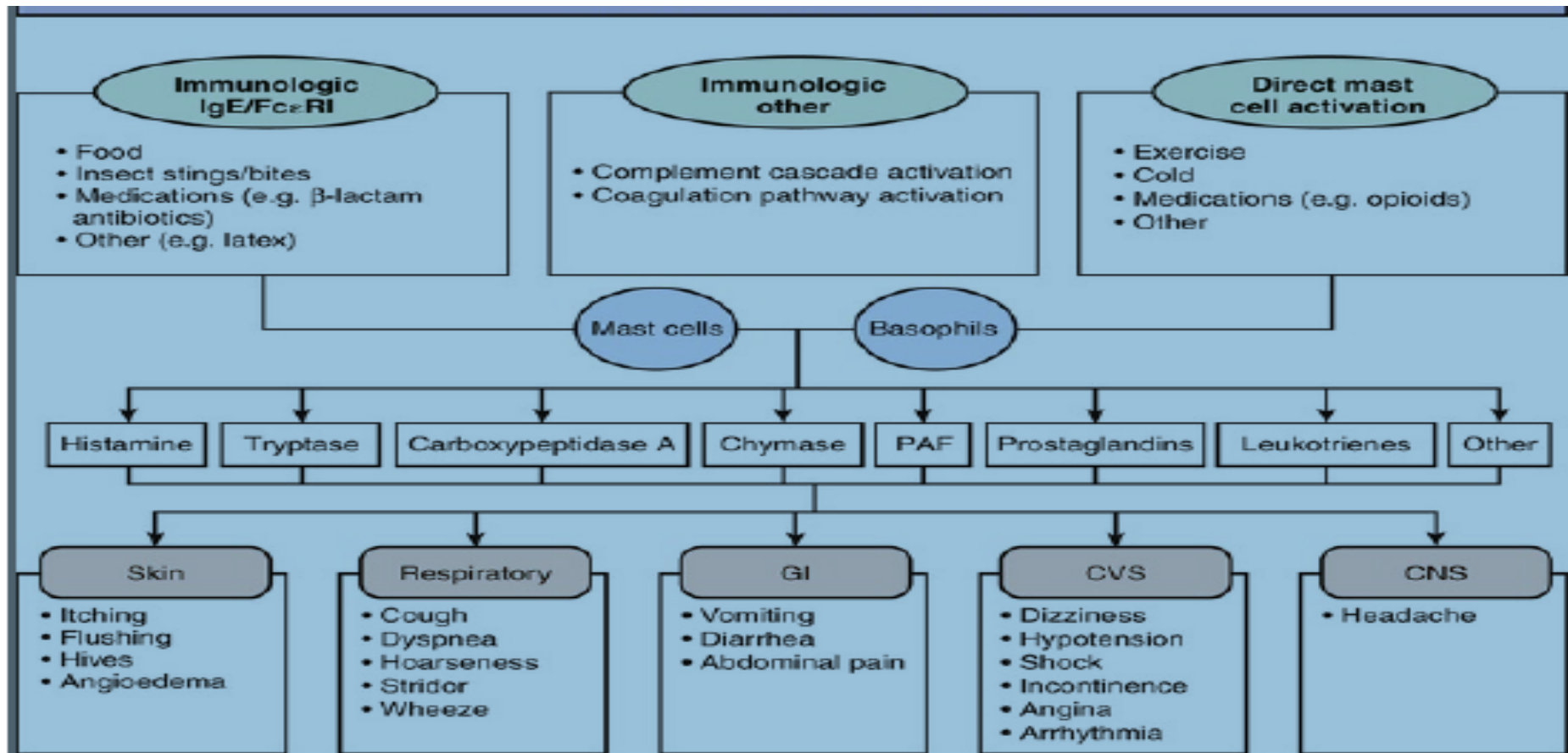


به نام خدا
Anaphylaxis

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- Anaphylaxis is defined as a serious allergic reaction that is rapid in onset
- may cause death.
- Anaphylaxis in children, particularly infants, is
- underdiagnosed.

ANAPHYLAXIS PATHOGENESIS



Etiology

- Foods (e.g., peanut, tree nuts, shellfish, fish, milk, egg, wheat, soy, sesame,
meat [galactose- α -1,3-galactose])

Food additives (e.g., spices, colorants, vegetable gums, contaminants)

- Stinging insects: Hymenoptera species (e.g., bees, yellow jackets, wasps, hornets, fire ants)

Etiology ادامه

- Medications (e.g., β -lactam antibiotics, ibuprofen)
- Biologic agents (e.g., monoclonal antibodies [infliximab, omalizumab])
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- allergens [challenge tests, specific immunotherapy])
- Natural rubber latex

Etiology ادامہ

- Vaccines
- Inhalants (rare) (e.g., horse or hamster dander, grass pollen)
- Previously unrecognized allergens (foods, venoms, biting insect saliva, medications, biologic agents)

Etiology ادامه

- other Immune Mechanisms (IgE Independent):
- IgG mediated (infliximab, high-molecular-weight dextrans)
- Immune aggregates (IVIg)
- Drugs (aspirin, NSAID, opiates, contrast material, ethylene oxide/dialysis tubing)

Etiology (IgE Independent) ادامہ

- Complement activation(cancer nanomedicine)
- Physical factors (e.g., exercise, cold, heat, sunlight/ultraviolet radiation)
- Ethanol
- Idiopathic (no inciting agent is identified and other disorders have been excluded. Symptoms are similar to IgE mediated causes of anaphylaxis; episodes often recur.) ,more common in adult,female,atopic

clinical manifestations of anaphylaxis

- reactions are the same for children and adults.
- The signs and symptoms vary and can range from mild skin findings to a fatal reaction.
- Ninety percent of patients present with cutaneous symptoms, including urticaria, angioedema, flushing, and warmth
- the absence of dermal symptoms does not exclude the diagnosis of anaphylaxis

clinical manifestations of anaphylaxis ادامه

- **r**espiratory tract : rhinorrhea, oropharyngeal edema, laryngeal edema, hoarseness, stridor, wheezing, dyspnea, and asphyxiation
- **c**ardiovascular system :tachycardia, hypotension, shock, syncope, and arrhythmias
neurological system (syncope, seizure, dizziness, and a sense of impending doom).
- **g**astrointestinal tract: nausea, abdominal pain, diarrhea, and vomiting

The severity of an anaphylactic reaction is often proportionate to the speed of symptom onset.

LABORATORY STUDIES

- Measurement of the mast cell mediators, histamine and tryptase, may be helpful when the diagnosis of anaphylaxis is in question.
- tryptase level is a more useful test because histamine is released quickly, has a very short half-life, and is often difficult to detect in the serum.

LABORATORY STUDIES ادامه

- Serum tryptase levels peak 1-1.5 hours after anaphylaxis. Elevated levels may be helpful in establishing the diagnosis
- It is best to measure a serum tryptase level 1-2 hours after the onset of symptoms. It also can be measured retrospectively on stored serum that is less than 2 days old.
- normal tryptase levels do not rule out the diagnosis.

DIAGNOSIS

- Anaphylaxis is highly likely when any 1 of the following 3 criteria is fulfilled:

1. Acute onset of an illness (minutes to several hours) with involvement of the skin and/or mucosal tissue (e.g., generalized hives, pruritus or flushing, swollen lips/tongue/uvula)

DIAGNOSIS ادامه

AND at least 1 of the following :

- a.** Respiratory compromise (e.g., dyspnea, wheeze/bronchospasm, stridor, reduced peak PEF, hypoxemia)
- b.** Reduced BP or associated symptoms of end-organ dysfunction (e.g., hypotonia [collapse], syncope, Incontinence).

DIAGNOSIS ادامه

2. Two or more of the following that occur rapidly after exposure to a likely allergen for that patient (minutes to several hours):

- a.** Involvement of the skin/mucosal tissue (e.g., generalized hives, itch/flush, swollen lips/tongue/uvula)
- b.** Respiratory compromise (e.g., dyspnea, wheeze/bronchospasm, stridor, reduced PEF, hypoxemia)

DIAGNOSIS ادامه

c. Reduced BP or associated symptoms (e.g., hypotonia [collapse], syncope, incontinence)

d. Persistent gastrointestinal symptoms (e.g., crampy abdominal pain, vomiting)

DIAGNOSIS ادامه

- **3.** Reduced BP following exposure to known allergen for that patient (minutes to several hours):
 - a. Infants and children: low systolic BP (age specific) or >30% drop in systolic BP
 - b. Adults: systolic BP <90 mm Hg or >30% drop from patient's baseline

DIFFERENTIAL DIAGNOSIS

- other forms of shock (hemorrhagic, cardiogenic, septic);
- vasopressor reactions(\uparrow SVR \rightarrow \uparrow organ perfusion) including flushing syndromes (e.g., carcinoid syndrome)
- ingestion of monosodium glutamate(flavor enhancer):
Nausea,flushing,palpitation,....
- Scombroidosis

DIFFERENTIAL DIAGNOSIS ادامه

- hereditary angioedema.
- panic attack
- vocal cord dysfunction
- pheochromocytoma(vasopressor reactions)
- red man syndrome (caused by vancomycin).

ASSESSMENT

- Airway
- Breathing
- Circulation
- Orientation
- Skin
- Weight

TREATMENT

- Anaphylaxis is a medical emergency. Prompt recognition and **immediate treatment** are crucial
- Early administration of intramuscular **epinephrine** is the **mainstay** of therapy and should be given at the same time that basic measures of cardiopulmonary resuscitation are being performed.
- Dosage: 0.01mg/Kg or epipen IM
- If the child is not in a medical setting, emergency medical services should be activated.

TREATMENT ادامه

- the child lying in Trendelenburg
- An airway : intubation or tracheotomy
- Oxygen
- bronchodilators
- intravenous fluid
- corticosteroids
- antihistamines H1, H2-receptor antagonists

TREATMENT ادامه

- Up to 30% of people with anaphylaxis have biphasic or protracted anaphylaxis.
- biphasic anaphylaxis has both early- and late-phase reactions.

biphasic reaction : recurrence of anaphylactic symptoms after an initial remission, within 8-72 hours after the initial reaction.

TREATMENT ادامه

- More than 90% of biphasic responses occur within 4 hr, so patients should be observed for at least 4 hr before being discharged from the emergency department.(Nelson)
- protracted anaphylaxis : signs and symptoms that persist for hours or even days despite treatment, although this is rare

PREVENTION

- Skin testing and serum IgE-specific testing are available for foods, inhalants, insect venoms, drugs (penicillin), vaccines, and latex.
- triggering agent should be avoided
- food ingredient labels

PREVENTION ادامه

- oral medications instead of injected forms
- Low-osmolarity radiocontrast dyes and pretreatment
- in children with exercise-induced anaphylaxis, should exercise with a friend
- In cases of food-associated exercise-induced anaphylaxis, children must not exercise within 2-3 hr of ingesting the triggering food

PREVENTION ادامه

- Educating the patient and family members about the signs and symptoms of symptoms of anaphylaxis
- to wear medical identification jewelry.
- proper administration of medications and a written emergency plan in case of accidental exposure

PREVENTION ادامه

- using auto-injectable epinephrine
- Medications such as β -blockers, angiotensin-converting enzyme inhibitors, and **monoamine oxidase inhibitors** should be discontinued
- insect sting should be evaluated and treated with **immunotherapy**, which is >90% protective.