



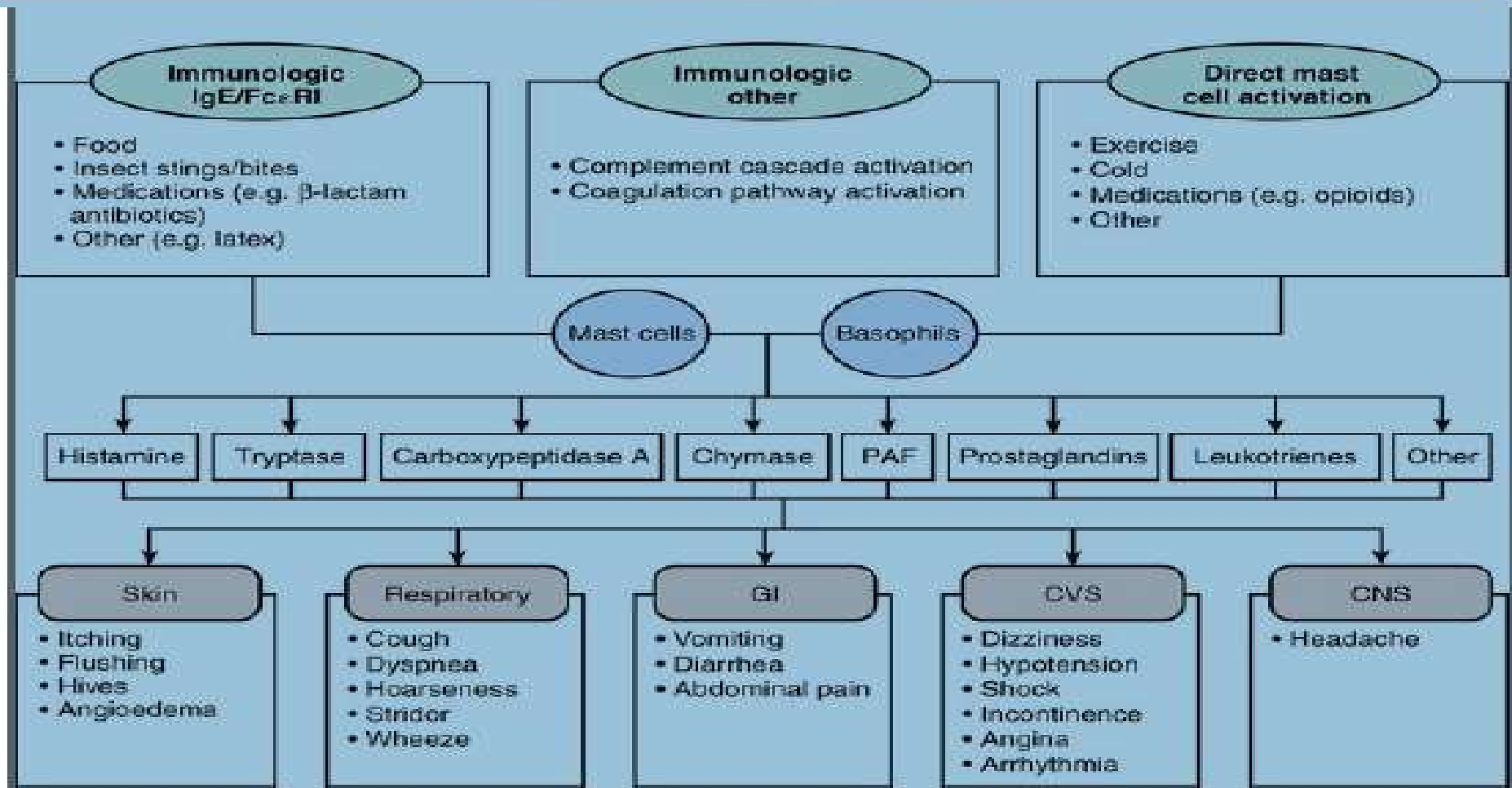
به نام خدا
Anaphylaxis

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درس اینترنتی

- 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

- Common Foods (e.g., peanut, tree nuts, shellfish, fish, milk, egg, wheat, soy, sesame, meat [galactose- α -1 \rightarrow 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 ادامہ

- Medications (e.g., β -lactam antibiotics, ibuprofen)
- Biologic agents (e.g., monoclonal antibodies [infliximab, omalizumab])
- 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) ادامه

- Complement activation(cancer nano medicine)
- Physical factors (e.g., exercise, cold, heat, sunlight/ultraviolet radiation)
- Ethanol
- Idiopathic anaphylaxis: (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 (the most common symptom), 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 Study

- 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 ادامہ

- Serum tryptase levels peak ۱-۱/۵ hours after anaphylaxis. Elevated levels may be helpful in establishing the diagnosis
- It is best to measure a serum tryptase level ۱-۲ hours after the onset of symptoms. It also can be measured retrospectively on stored serum that is less than ۲ 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

٢. **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

- ۳. Reduced BP following exposure to known allergen for that patient (minutes to several hours):
 - a. Infants and children: low systolic BP (age specific) or $>۳۰\%$ drop in systolic BP
 - b. Adults: systolic BP <۹۰ mm Hg or $>۳۰\%$ 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 (tumors secreting serotonin)
(فلاشینگ، اسهال، تپش قلب)
- 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: $0.1-0.5 \text{ mg/Kg}$ 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 H_1 , H_2 -receptor antagonists

TREATMENT ادامه

- Up to ۳۰% 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 ۸-۷۲ hours after the initial reaction.

TREATMENT ادامہ

- More than ۹۰% of biphasic responses occur within ۴ hr, so patients should be observed for at least ۴ 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 ۲-۳ 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.

خلاصه و نتیجه گیری

آنافیلاکسی

یک ری اکشن آلرژیک

سیر حاد (چند دقیقه تا چند ساعت)

علل ایمونولوژیک و غیر ایمونولوژیک

تشخیص : کلینیکی

بر اساس مشخص بودن یا نبودن عامل شروع کننده سه دسته کرایتریای تشخیصی (بر اساس
علائم بالینی)

برای تشخیص گاهی از پاراکلینیک هم کمک می گیریم

با کمک شرح حال، یافته های بالینی، پاراکلینیک کنار گذاشتن تشخیصهای افتراقی

با تشکر از توجه شما

