URTICARIA& ANGIOEDEMA

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Urticaria is a major dermatological disease.

About 15-20% of general population are affected during their life

Urticaria is a vascular reaction of the skin characterized by the appearance of wheals surrounded by a red halo or flare, and associated with severe itching, stinging or pricking sensations.

Urticaria is often classified according to duration as

Acute (less than six weeks duration)

Chronic (more than six weeks duration)

Pathogenesis of wheal

IgE and Ag attach to mast cell then there are release of chemicals such as histamine from mast cells in the skin

↓

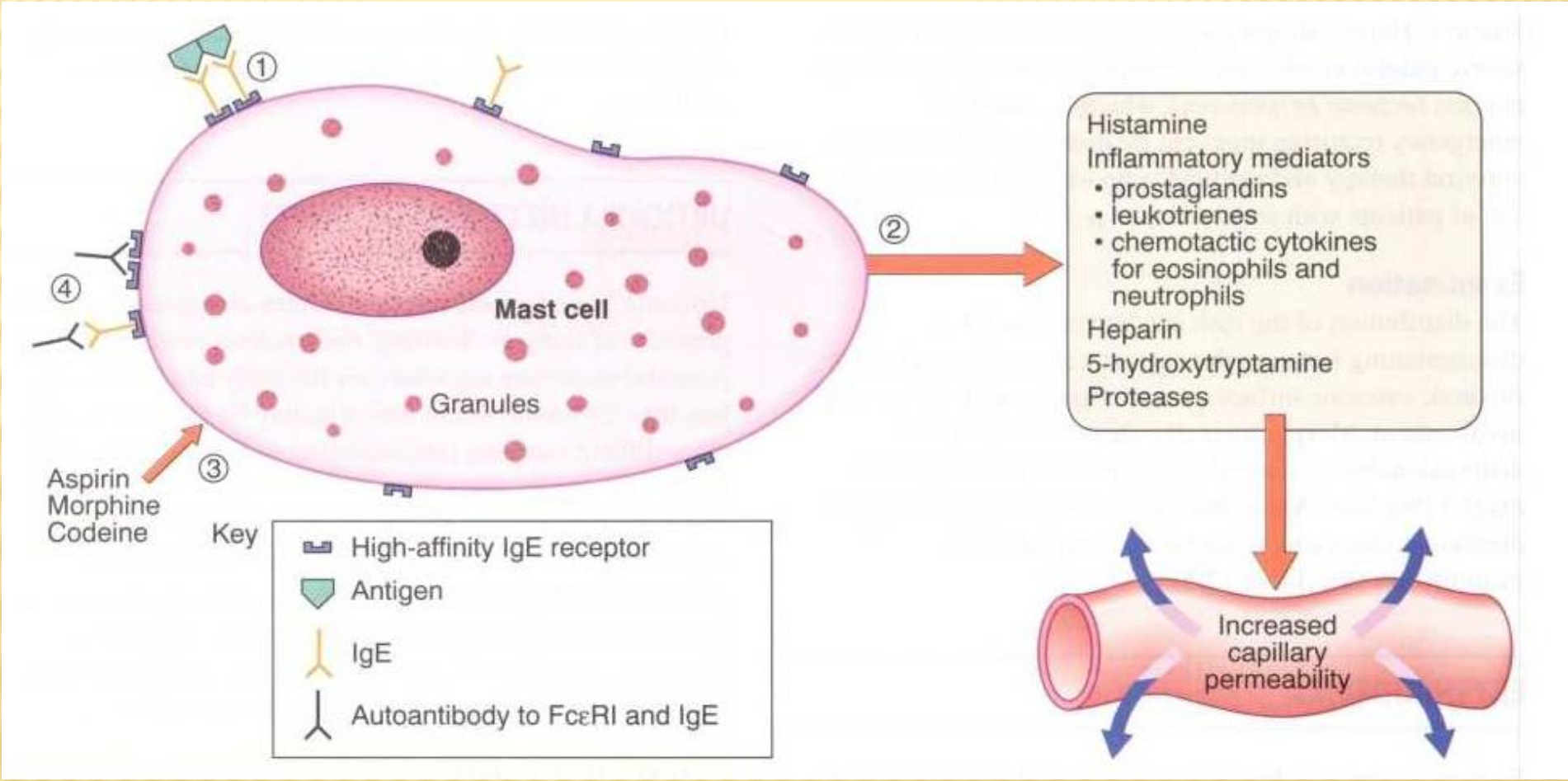
causes endothelial cells retraction and vasodilatations: - Red color

↓

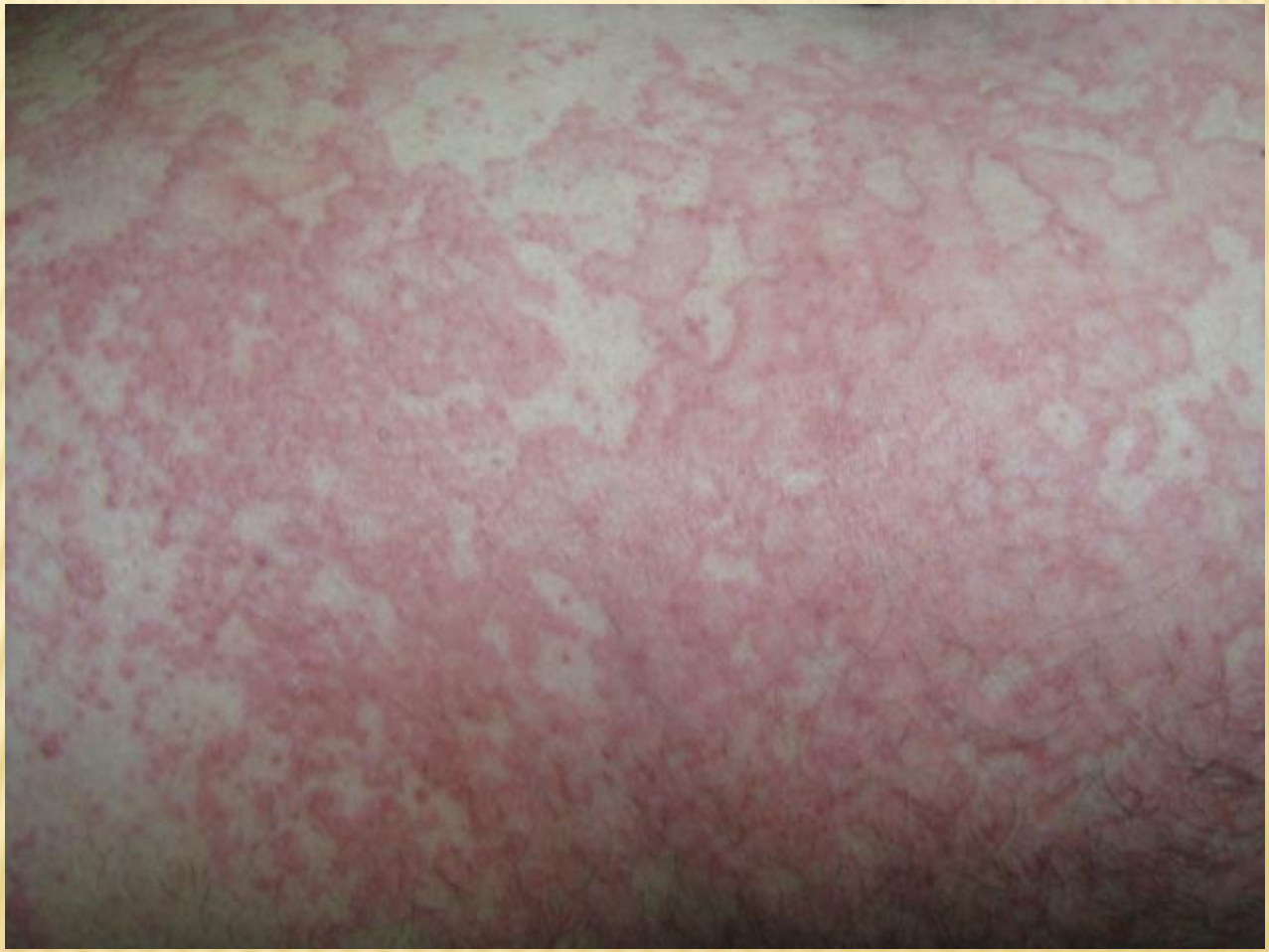
this lead to leaking fluid:- white color

The wheal can be a few millimeters or several centimeters in diameter, and frequently itchy.

Each wheal may last a few minutes or several hours, and may change shape.


①
②
③
④
Mast cell
Granules
Histamine
Inflammatory mediators
• prostaglandins
• leukotrienes
• chemotactic cytokines for eosinophils and neutrophils
Heparin
5-hydroxytryptamine
Proteases
Increased capillary permeability
Aspirin
Morphine
Codeine
Key
High-affinity IgE receptor
Antigen
IgE
Autoantibody to FcεRI and IgE

HIVES –WHEAL



Histamine is the most important mediator in all types of urticaria.

Other mediators release from mast cells and may play a role in urticaria are leukotrienes, prostaglandin, kinins, substance b, (this explain why the antihistamines alone may not give complete cure)

The factors responsible of release of histamine from mast cells to the surrounding tissue and circulation either immunological or non immunological reaction

IN GENERAL WHAT ARE THE TYPES OF IMMUNE REACTIONS?

Immunological (IgE mediated) causes of acute urticaria :

- Druges: most often an antibiotic, vaccines.
- Food allergy: tiny amounts of fish, eggs, nuts and kiwifruit
- Bee or wasp stings.
- injection or inhalation of the allergen
- Serum sickness, ((due to blood transfusion, viral infection or drugs)); C/F:- urticaria, fever, lymphadenopathy, painful joints and nausea. It is thought to result from immune complexes of the allergen and antibodies lodging in small blood vessels.

Non Immunological causes of acute ordinary urticaria :

- Infection, including sinusitis, helicobacter, dental abscess, viral hepatitis, Giardia, chronic UTI, mycoplasma penumonia, infectious mononuclosis and candidaiasis (thrush).
- Drugs, especially morphine, codeine, other opiates, and radiocontrast agents.
- Non-allergic food reactions: spices, salicylates in fruit, food coloring agents, benzoate preservatives and other food additives.
- Hormones: Pregnancy, premenstrual flare.
- Psychological stress
- Internal disease: tumor, liver, renal diseases and others

CLASSIFICATION OF URTICARIA

Ordinary urticaria (recurrent or episodic urticaria not in the categories below)
Physical urticaria (defined by the triggering stimulus)
Adrenergic urticaria
Aquagenic urticaria
Cholinergic urticaria
Cold urticaria
Delayed pressure urticaria
Dermographism
Exercise-induced anaphylaxis
Localized heat urticaria
Solar urticaria
Vibratory angioedema
Contact urticaria (induced by biologic or chemical skin contact)
Urticarial vasculitis (defined by vasculitis as shown by skin biopsy specimen)
Angioedema (without wheals)

ORDINARY URTICARIA

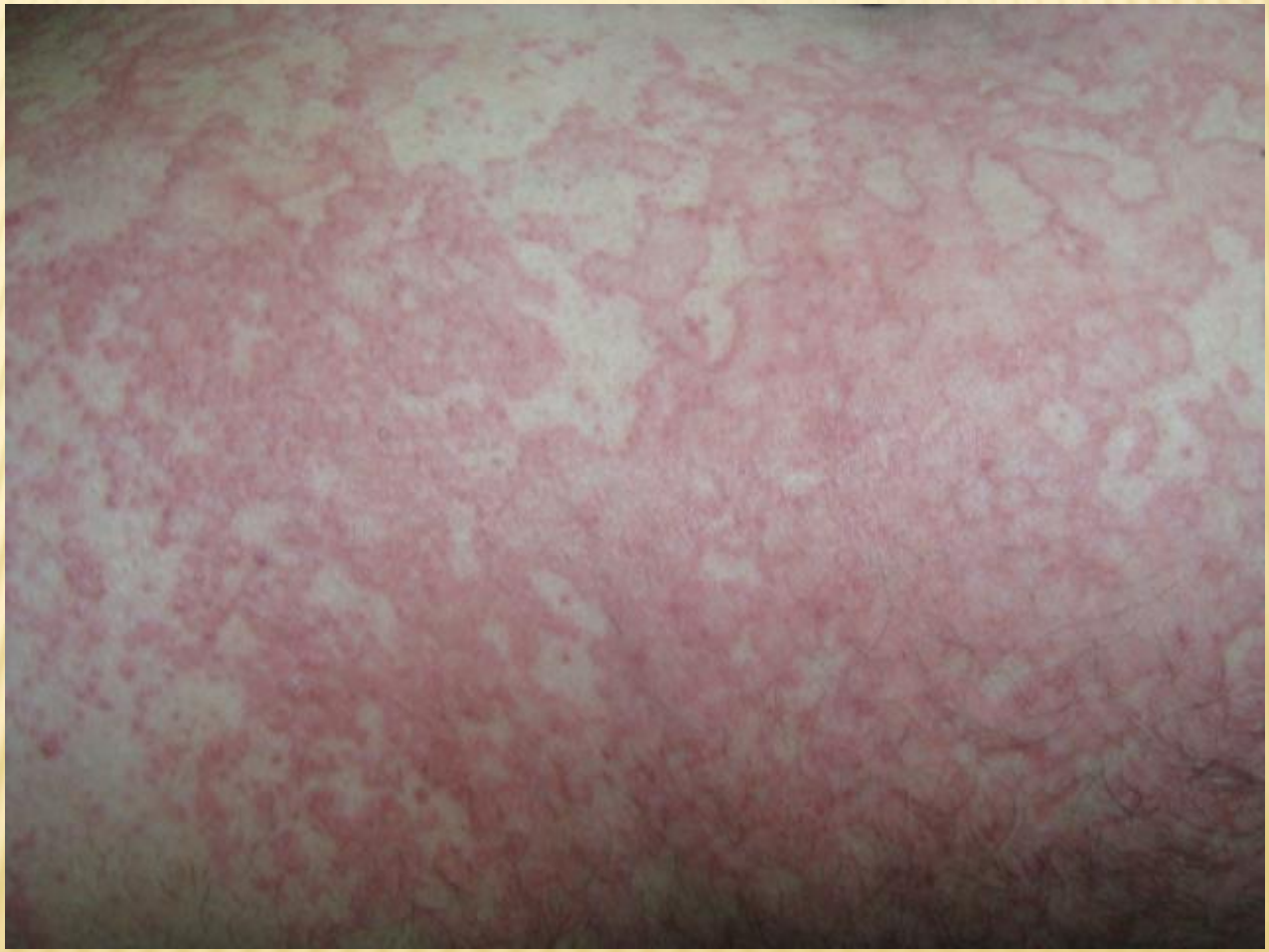
Presents with spontaneous wheals anywhere on the body.

It is often classified according to how long it has been present:

Acute urticaria is of recent onset, less than 6 weeks (hours, days or a few weeks).

Episodic urticaria describes intermittent attacks of urticaria, which may last a few days or a few weeks.

Chronic urticaria has persisted for several months or years. More than 6 weeks.



PHYSICAL URTICARIA

Physical urticaria refers to urticaria induced by external physical influences.

The wheals take about 5 minutes to develop, and last 15 to 30 minutes.

Some people suffer from different types of physical urticaria, and the cause is unknown.

- Dermographism

means ‘skin writing’, the stroking the skin causes it to weal in the line of the stroke. This is very itchy, but scratching causes more whealing.

usually starts suddenly. Wheals come up where clothes or furniture touch, especially when the affected person is hot or upset.

A warm shower followed by rubbing with a towel can result in wheals all over.

DERMOGRAPHISM

- Cold urticaria Wheals can be widespread and may cause fainting attacks. Affected individuals should not expose large areas of the skin to the cold or wind. They should be advised never to swim alone.

- Contact urticaria results from absorption of an eliciting substance (eg. cosmotics)through the skin.

  The IgE antibodies on mast cells react to chemicals in cosmetics,

CHOLENERGIC URTICARIA

A rise in core body temperature resulting in sweating, causes the rash.

Common triggers include:

- Exercise
- Hot baths/showers
- Fever
- Occlusive dressings
- Eating spicy foods
- Emotional stress

The rash appears rapidly, within a few minutes of sweating, and can last from 30 minutes to an hour or more before fading away.

Typical signs and symptoms of the rash include:

Itching, burning, tingling, warm sensation preceding the onset of numerous small wheals with surrounding bright red flares

Rash is often very itchy

Rash may appear anywhere on the body but is more prominent on the upper trunk and arms. It does not affect the palms or soles and rarely the armpits.

Sometimes the tiny wheals join together to form a large swelling.

Patients who are more severely affected may experience systemic symptoms such as headaches, salivation, palpitations, fainting, shortness of breath, wheezing, abdominal cramps and diarrhoea.

Rarely, patients with cholinergic urticaria can have more severe reactions such as anaphylaxis, so should probably not exercise alone.

IN MOST CASES OF URTICARIA, THERE IS NO NEED FOR SPECIFIC INVESTIGATIONS.

- Full blood count to identify eosinophilia caused by allergy or parasitic infestation, and low white blood count from systemic lupus erythematosus.
- Thyroid antibodies and function in chronic urticaria if autoimmune origin is considered likely.
- Skin prick testing and blood tests for specific allergy (RAST, or radiollergosorbent tests, or CAP fluoroimmunoassay).
- Complement tests in case of angioedema without urticaria or urticarial vasculitis.
- Skin biopsy if wheals are prolonged, to identify vasculitis.

ANGIOEDEMA

Edema or hive like, involving deep dermis and/or subcutaneous tissue.

Characterized by:

- involve any part of the body especially at mucocutanous junction.

Usually face, lips, eyes, tongue, larynx and genitalia.

- Burning more than itching.

May **include systemic anaphylaxis.**

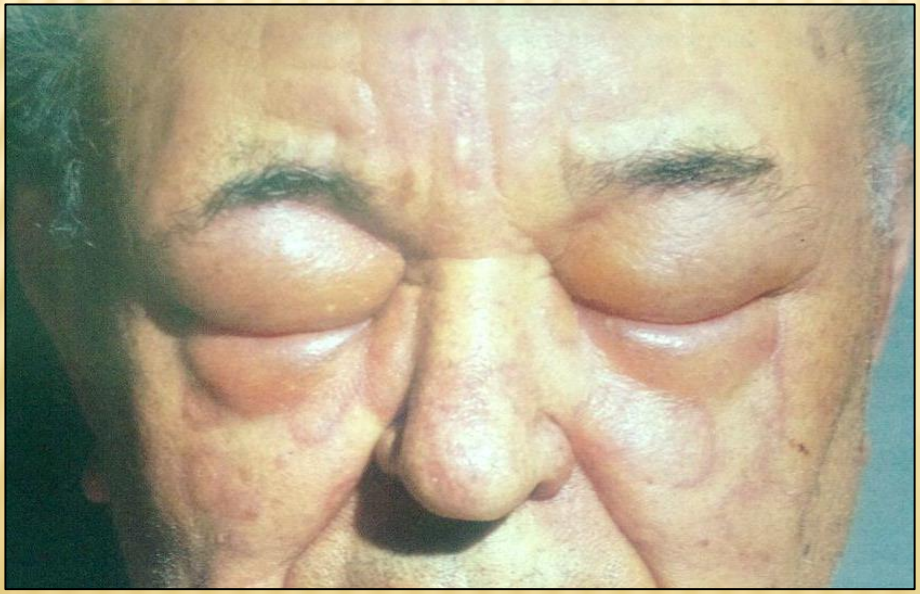
Its of **three types**:

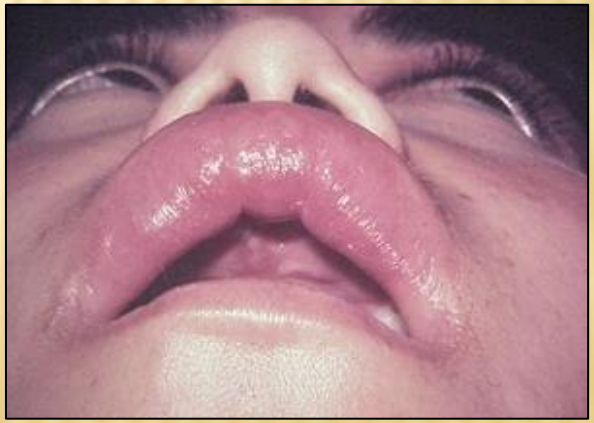
1- Idiopathic (most common).

2- drug induced/allergic.

3- Hereditary (HAE).

ANGIOEDEMA





Management of angioedema

Treatment is largely supportive

- **Airway patency** must be ensured if the respiratory system is involved.
- Cool, moist compresses and antihistamines can be used to **control local burning**.
- **Avoidance** of known triggers, such as associated medications.
- **ACE inhibitors are contraindicated** in patients with C1 estrase inhibitors deficiency.
- **Attenuated androgens** danazol and stanozolol increase the amount of active C1 estrase inhibitors. Used for the prevention of hereditary angioedema.
- **Antifibrinolytic agents (tranexamic acid)**
- **C1 esterase inhibitor concentrate or fresh frozen plasma: in emergency situations**

SYSTEMIC ANAPHYLAXIS

Urticaria, angioedema associated with bronchospasm, nausea, vomiting and headache with pallor, sweating, hypotension and collapse.

Treatment:

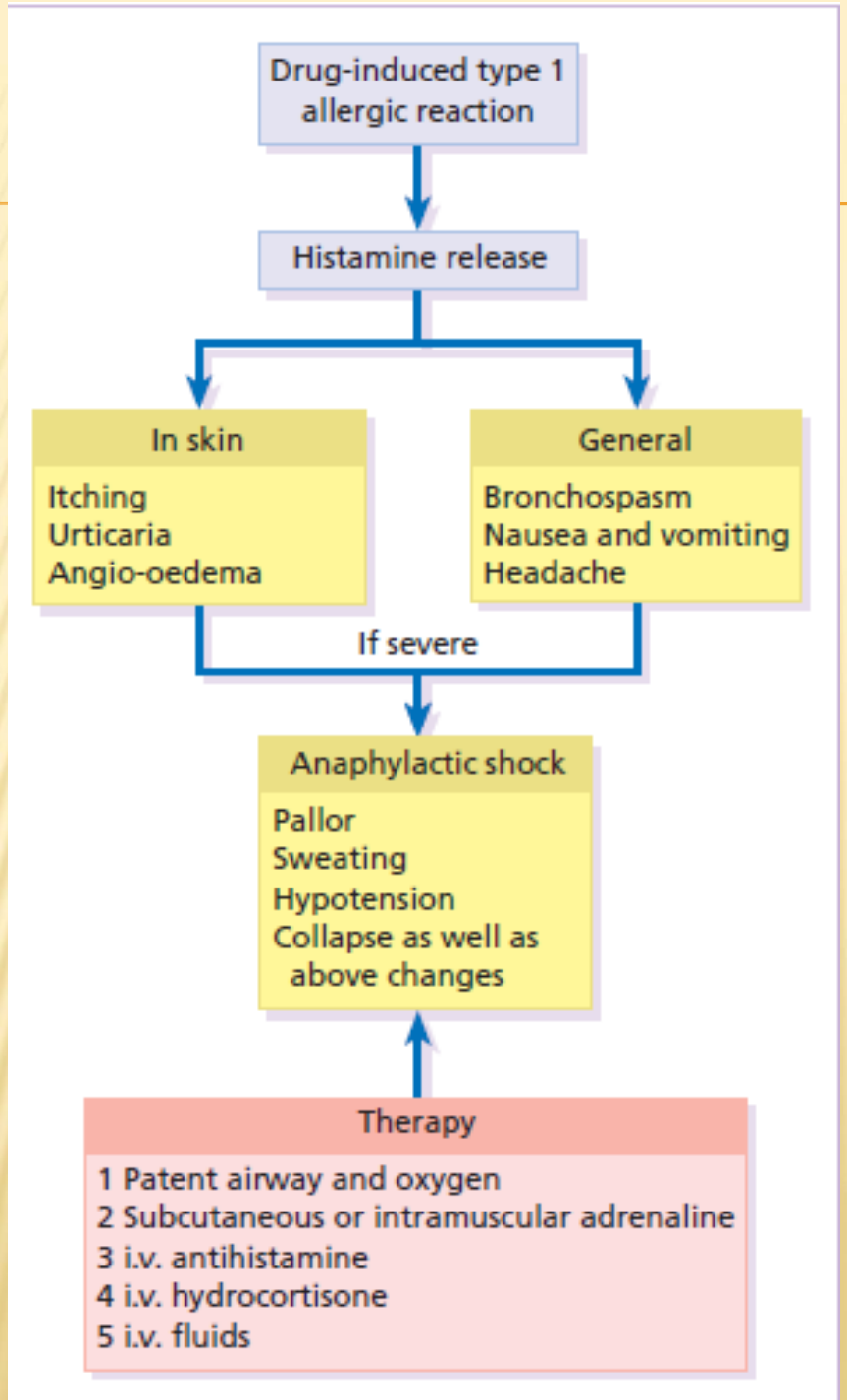
1- airway and oxygen

2- I.V fluid

3- Antihistamine

4- systemic corticosteroid

5- subcutaneous or intramuscular epinephrine(1:1000) 0.3cc/dose


Drug-induced type 1 allergic reaction
Histamine release
In skin
Itching
Urticaria
Angio-oedema
General
Bronchospasm
Nausea and vomiting
Headache
If severe
Anaphylactic shock
Pallor
Sweating
Hypotension
Collapse as well as above changes
Therapy
1 Patent airway and oxygen
2 Subcutaneous or intramuscular adrenaline
3 i.v. antihistamine
4 i.v. hydrocortisone
5 i.v. fluids

TREATMENT OF URTICARIA

Treatment depends on the type of urticaria, its severity and how long it has been present.

If a medicine is thought to be the cause, it should be stopped.

Avoid specific allergens or provoking factors

Drugs

Oral antihistamines

Control whealing and itching for the majority of patients with urticaria.

Antihistamines do not affect the underlying cause of the rash.

They may need to be taken intermittently or continuously until the underlying tendency to urticaria disappears.

There are H1, H2, H3 receptor antagonist

H1 receptor antagonist ((either sedating or nonsedating antistamaine))

Sedating antihistamines such as:

chlorpheniramine (Histadine

Hydroxyzine (Atarax)

diphenhydramine(Allermine).

Non-sedating H1 antihistamines include:
loratadine
Desloratadine, the most long-lasting.
fexofenadine
levocetirizine
cetirizine. the quickest acting

H2 receptor antagonist (blockers):

Cimetidine (tagemet),

famotidine (pepcid)

Ranitidine(zentac)

H1 &H2 receptor antagonist : Doxepin

Response and tolerance varies, so if the first antihistamine is not effective:

- increase the dose,
- use another antihistamine.
- A combination of antihistamines works better than a single type alone.

H2 receptor blockers:

can also reduce urticaria, because the histamine will attach to H2 which represent about 10% of histamine receptors in cutaneuos blood vessels, but these medications are more often prescribed to reduce stomach acidity.

Oral steriod (prednisone 20mg/day)

in moderate dose for a few days are useful for severe acute urticaria.

Leukotriene antagonist such as montelukast, zafirlukast occasionally help; they are usually prescribed for asthma

Antimalarials such as hydroxychloroquine may be used.

Immunosuppressive medications.

Cyclosporin

Methorexate

IV immunoglobulins

Plasmapheresis

UVB

Antibiotics, dapsone, sulfasalazine, mesalazine and antifungal agents are used to clear an assumed underlying infection or for their presumed anti-inflammatory action.