

ASMA e ANAFILASSI

Caso clinico 1

Uomo 22 anni, si presenta in PS autonomamente per peggioramento del quadro asmatico cronico riferendo un utilizzo di più di 20 puff di salbutamolo al giorno

A: vigile, vie aeree pervie

B: tachipnoico con lieve broncospasmo ma SpO₂ 89-90%

C: cute calda, non sudata, PA 150/90, FC 110 r

D: GCS 15

E: nds

ASMA e ANAFILASSI

Caso clinico 1

O2 VM al 40%

Areosol con broncovaleas 20 gtt, atem 1 f + clenil 1 f con parziale miglioramento

Anamnesi: asmatico dall'infanzia, coinquilino da 2-3 mesi con un gatto, ha terminato lo steroide inalatorio e non lo ha ancora riacquistato. Non febbre o altri disturbi riferiti. Negli ultimi 2-3 mesi due recidive asmatiche trattate con steroide per os.

EGA arteriosa: pH 7,32, pO2 74, pCO2 50, bic 25, lat normali.

Prosegue areosol tp in continuo

ASMA e ANAFILASSI

Caso clinico 1

Rx torace: iperinflazione, no segni di pnx o pneumomediastino

Ricovero in medicina d'urgenza: prosegue areosoltp in continuo per 2 h poi ad orari, steroide ev.

Dimissione dopo 2 giorni con steroide per os e rivalutazione pneumologica ambulatoriale

ASMA

Definizione (GINA - Global INitiative for Asthma)

L'asma è una malattia eterogenea, caratterizzata generalmente da infiammazione cronica. È definita da una storia di sintomi respiratori quali respiro sibilante, dispnea, sensazione di costrizione toracica e/o tosse che variano nel tempo e in intensità, insieme a una variabile limitazione al flusso espiratorio.

Infiammazione cronica e iperreattività delle vie aeree

ASMA

Definizione (GINA - Global INitiative for Asthma)

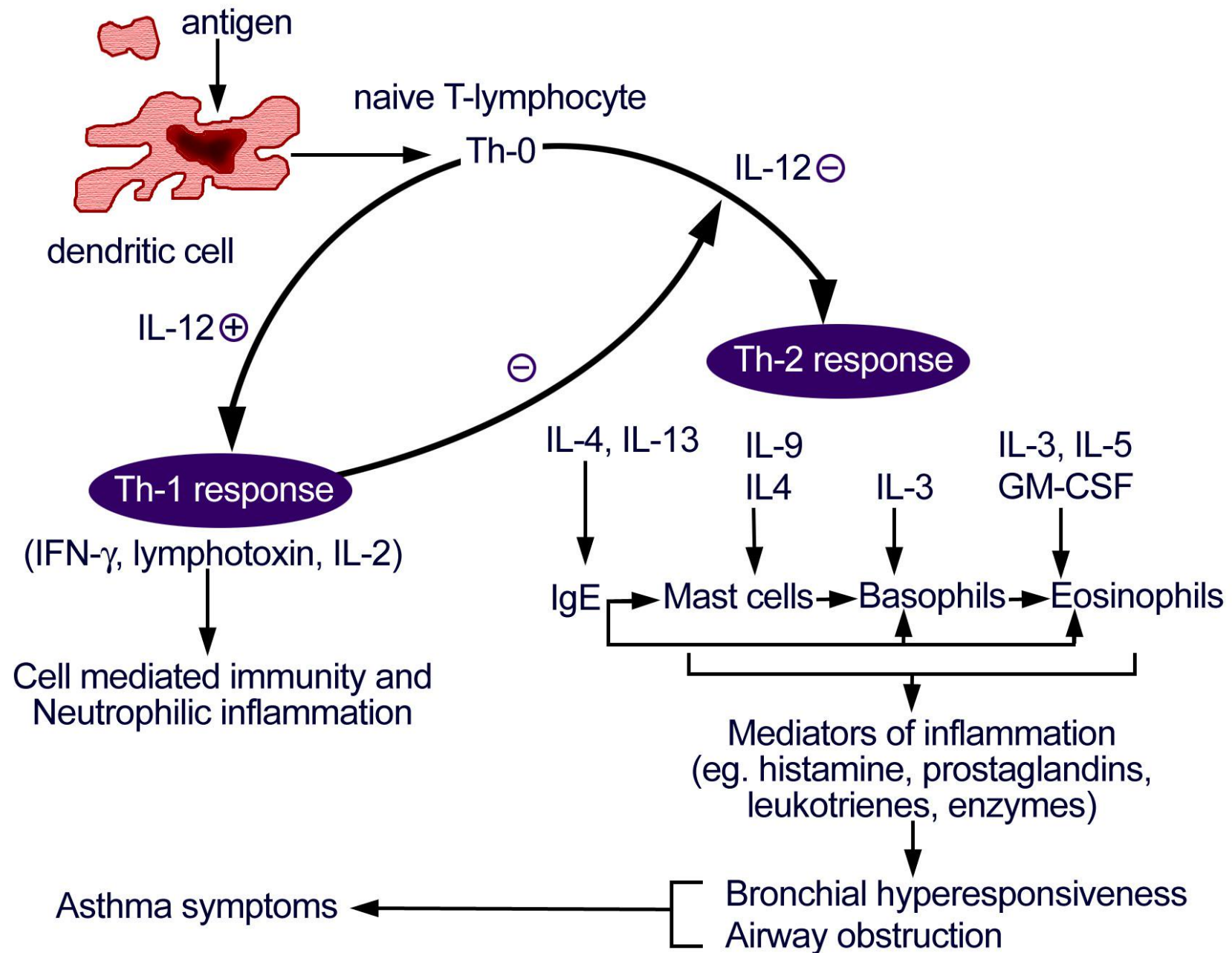
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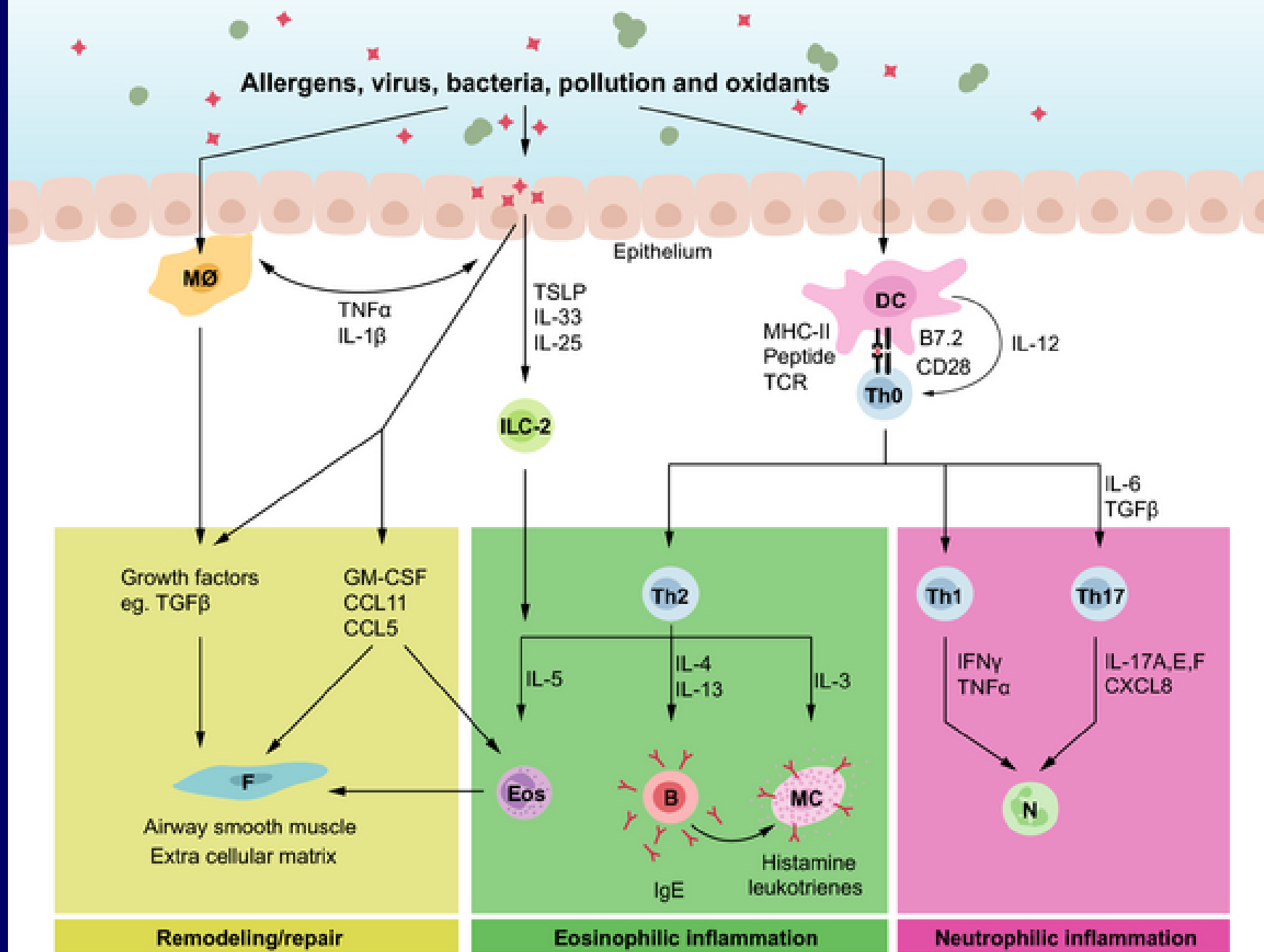
Diversi fenotipi di asma (allergico, non allergico, ad insorgenza tardiva...)

infiammazione cronica e iperreattività delle vie aeree

Diagnosi: sintomi + test di reversibilità al broncodilatatore

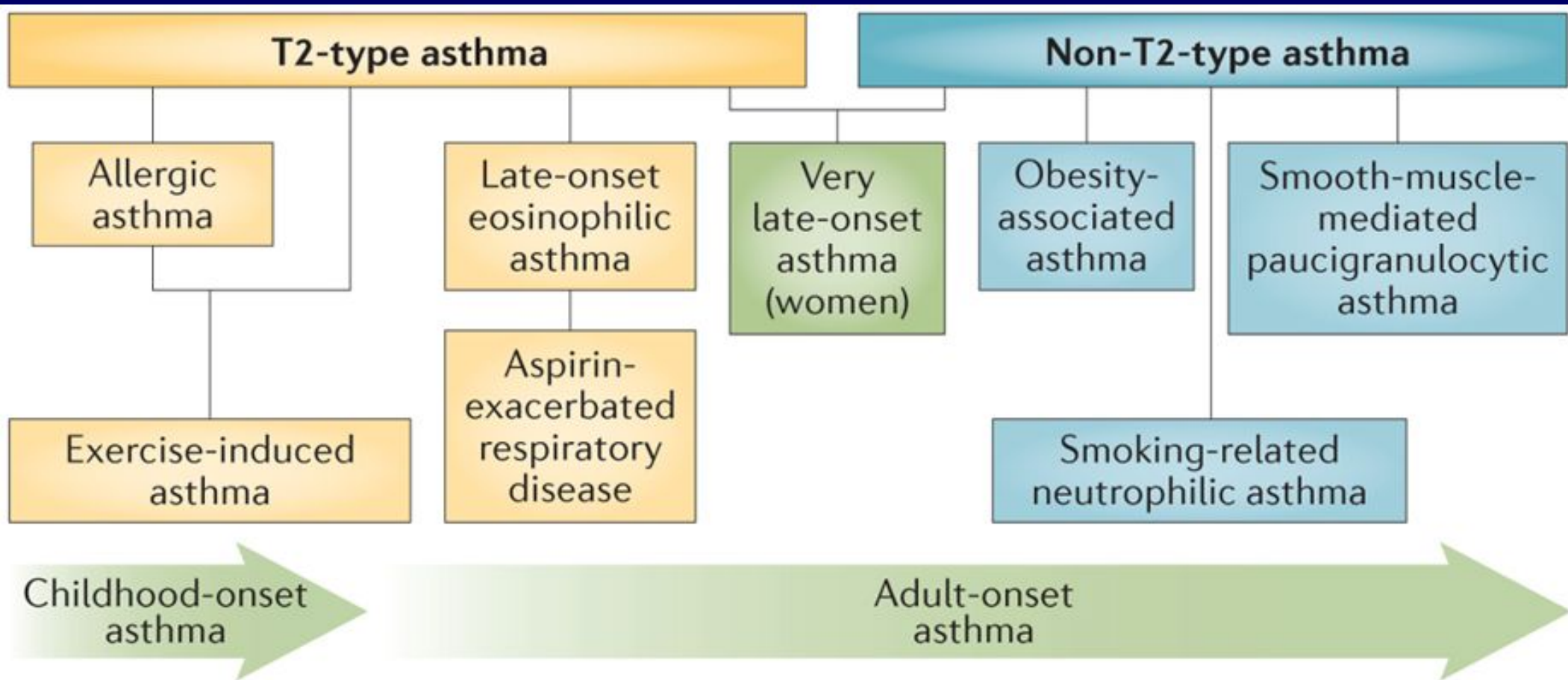
Pathogenesis of asthma

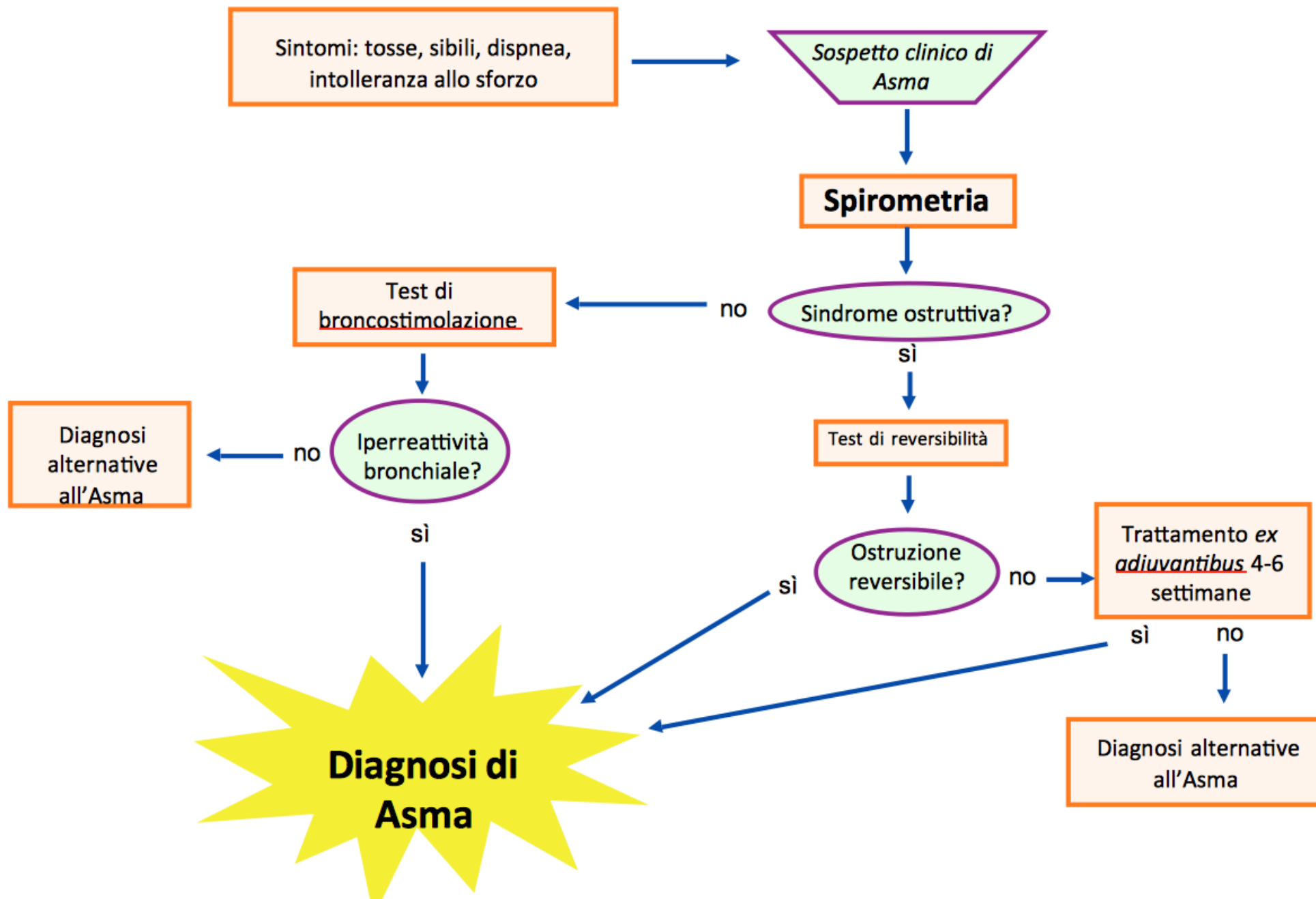




Poor asthma control
Chronic airflow obstruction
Poor response to corticosteroids

High treatment requirements
Recurrent exacerbations





	STEP 1	STEP 2	STEP 3	STEP 4	STEP 5
Opzione principale	β2-agonisti a breve azione al bisogno	<i>Scegliere uno:</i> CSI a bassa dose	<i>Scegliere uno:</i> CSI a bassa dose + LABA	<i>Aggiungere 1 o più:</i> CSI a media dose + LABA	<i>Aggiungere in progressione:</i> CSI a alta dose + LABA
<i>Altre opzioni (in ordine decrescente di efficacia)</i>		<u>Anti-leucotrieni *</u> <u>Cromoni</u>	CSI a bassa dose + <u>anti-leucotrieni *</u> CSI a dose medio-alta	<u>Anti-leucotrieni</u> <u>Teofilline-LR</u>	<u>Anti-leucotrieni</u> <u>Anti-IgE (omalizumab)</u> <u>Anti-IL5 (mepolizumab)</u> <u>Teofilline-LR</u> CS orali
		<i>β2-agonisti a rapida azione al bisogno ***</i>			
		Programma personalizzato di educazione			
		Controllo ambientale, Immunoterapia specifica **, Trattamento delle <u>comorbidità</u>			

CSI = corticosteroidi inalatori; LABA = long-acting β2-agonisti; LR = a lento rilascio

* i pazienti con asma e rinite rispondono bene agli anti-leucotrieni

** nei pazienti allergici ad acari, con rinite e asma lieve-moderata

*** la combinazione Budesonide/Formoterolo al bisogno può essere usata nell'ambito della strategia SMART

RIACUTIZZAZIONE ASMATICA

Le riacutizzazioni di asma consistono in un marcato, spesso progressivo deterioramento dei sintomi di asma e dell'ostruzione bronchiale, che compaiono nello spazio di ore o giorni, e che possono durare fino a settimane, e che in genere richiedono un cambiamento della attuale terapia

Trigger: allergeni ambientali e infezioni virali, inquinanti, stress, farmaci, alimenti

La maggioranza delle riacutizzazioni si risolve rapidamente con la terapia, meno del 10% richiede ricovero ospedaliero.

Mortalità bassa $< 0,1\%$ ma potenziale fatalità → Inquadrare potenzialità evoluzione fatale

RIACUTIZZAZIONE ASMATICA

Box 4-1. Fattori che aumentano il rischio di morte correlata ad asma

- Storia di asma quasi fatale che ha richiesto intubazione e ventilazione³⁵¹
- Ricovero³⁵¹ o accesso al Pronto Soccorso per asma negli ultimi 12 mesi
- Uso attuale o recente di corticosteroidi orali (indicatore di gravità dell'evento)³⁵¹
- Pazienti non in terapia con corticosteroidi inalatori^{81,351}
- Abuso di SABA, in particolare l'uso di più di una confezione di salbutamolo (o equivalente) al mese^{93,352}
- Storia di disordini psichiatrici o psicosociali⁸⁵
- Scarsa aderenza alla terapia antiasmatica e/o scarsa aderenza a (o mancanza di) un piano d'azione scritto per asma⁸⁵
- Allergie alimentari confermate e asma^{291,353}

Fattori di rischio per asma grave

Control and severity of asthma

Poor control of asthma^{27,36-43}

History of admission to hospital for asthma^{38,39,41,42,44,45}

Previous admission to an intensive care unit for asthma^{27,38,42}

Previous need for mechanical ventilation for asthma^{27,38}

History of multiple visits to the emergency department for asthma^{38,39,46}

Failure to consult family physician for worsening asthma^{27,29,40,42,47}

Pattern of sudden attacks^{29,30,48}

History of previous hypercapnic asthma attack^{2,49,50}

Psychosocial profile

Older age^{27,42}

Poor perception of breathlessness^{27,36,62-64}

Psychological dysfunction (psychosis, anxiety, depression, denial)^{36,37,43,46,63,65-69}

Socio-economic factors (family discord, low income, ethnicity)^{6,43,61,70,71}

Continued smoking^{38,72,73}

Failure to use a written asthma action plan⁷³

Poor understanding of asthma and its treatment

Frequent missed appointments

Substantial lifestyle alterations because of asthma

Self-discharge from hospital

Learning difficulties

Abuse of alcohol or drugs^{73,74}

Use of medications

Poor adherence with medications for asthma^{31,36,39,40,42}

Excessive or increasing reliance on short-acting β_2 -adrenergic bronchodilators^{38,51-53}

Underuse of inhaled corticosteroids^{27,31,54}

History of need for oral corticosteroids^{27,31,38,41,44,45}

Monotherapy with a long-acting β_2 -adrenergic bronchodilator⁵⁵⁻⁵⁸

Prescription of multiple types of asthma medications⁴⁴

Increased use of oral theophylline^{27,38,42}

Asthma that is worsened by acetylsalicylic acid or nonsteroidal anti-inflammatory drugs⁵⁹⁻⁶¹

Physician-related factors

Failure to initiate (or delay in initiating)
appropriately aggressive therapy^{40,47,75,76}

Failure to initiate mechanical ventilation when appropriate⁴⁷

Failure to objectively evaluate the severity of airflow obstruction⁴⁷

Failure to recommend appropriate strategies for avoidance of allergens, irritants and workplace-related factors

Table 2: Signs and symptoms that may suggest a potentially fatal asthma attack

Sign or symptom	Level of evidence
Signs	
Use of accessory muscles	III
Heart rate > 120/min or increasing ^{2,6}	II-2
Respiratory rate > 25–30/min	III
Difficulty speaking because of dyspnea or fatigue	III
<u>Altered level of consciousness</u>	III
Quiet chest in a patient who has dyspnea or reduced level of consciousness	III
Diaphoresis ⁸²	II-2
Inability to lie in the supine position because of breathing distress ⁸²	II-2
Peak expiratory flow < 30% of predicted or forced expiratory volume in 1 second < 25% of predicted 1–2 h after initial therapy ^{83,84}	II-1
Oxygen saturation < 90%	III
Cyanosis	III
Symptoms	
Sense of progressive breathlessness or air hunger	III
Sense of fear or impending doom	III
Progressive agitation or anxiety	III

RIACUTIZZAZIONE ASMATICA

Esami diagnostici e monitoraggio

EGA generalmente non necessaria. Può essere sufficiente un'ega venosa per valutare la PCO₂

Pulsiossimetro

Rx torace: solo in casi gravi o che non rispondono a tp (per complicanze o dg di polmonite)

ECG non necessario

Misura funzione polmonare: sarebbe indicata (FEV₁/PEF)

RIACUTIZZAZIONE ASMATICA

TERAPIA

Ossigeno

Beta agonisti: salbutamolo (ventolin puff, broncovaleas gtt). Dose empirica (4-10 puff ogni 20'/nebulizzazione continua), somministrazione ev rari casi.

Anticolinergico: ipratropio, azione più lenta, sinergico

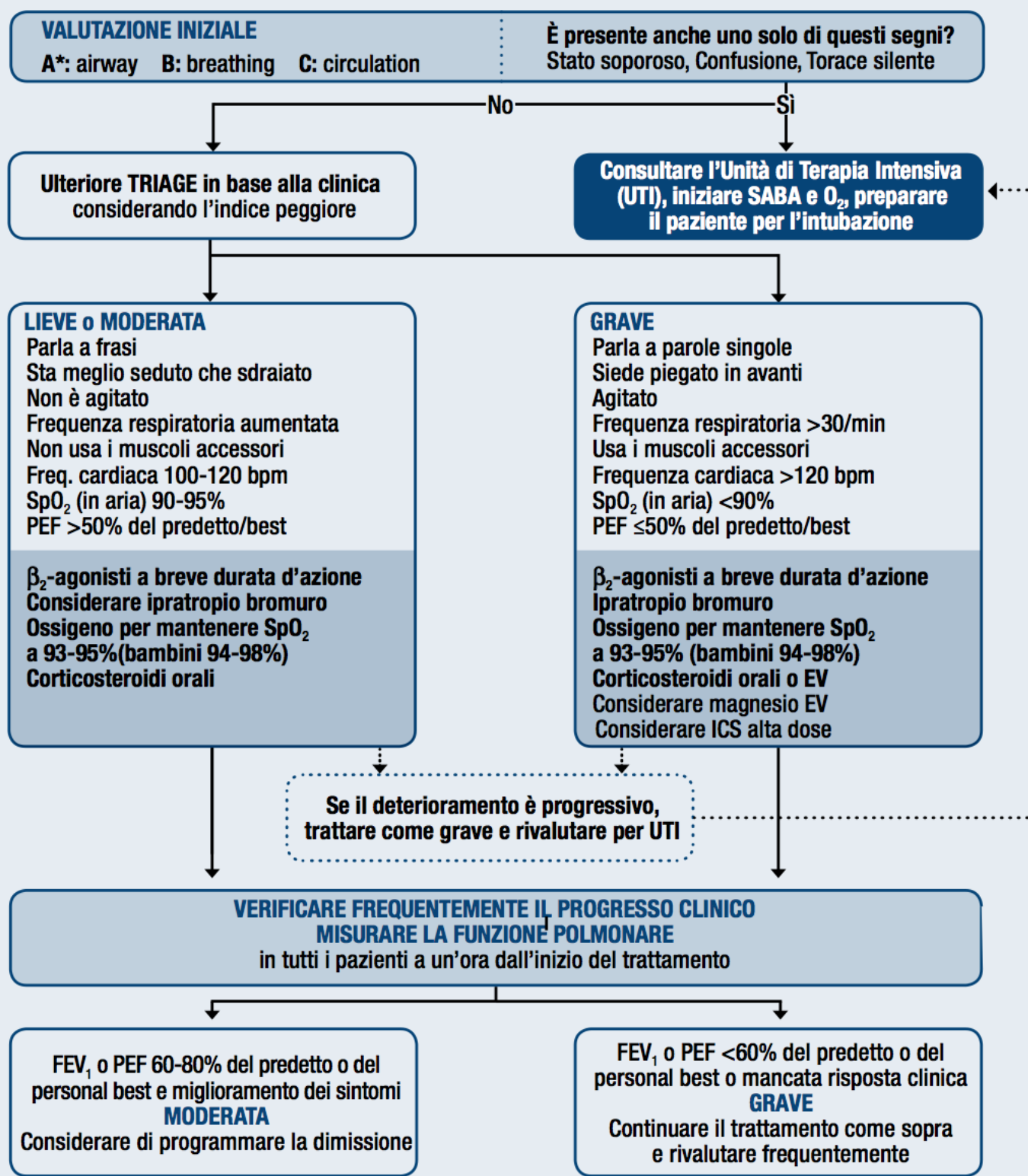
Steroidi: beclometasone, budenosine (clenil, prontinal, aircort), prednisone 1 mg/kg (os, ev o im)

Magnesio solfato: 2 g ev in 20'

Aminofillina, elio: non più raccomandati

Adrenalina: generalmente non indicata

NIV/IOT



MEDICO DI MEDICINA GENERALE

Il paziente è in esacerbazione acuta o subacuta

VALUTARE IL PAZIENTE

È asma? - Fattori di rischio per morte per asma? (Box 4-1) -
Gravità della riacutizzazione?

LIEVE O MODERATA

Parla a frasi, meglio seduto che sdraiato, non agitato
Frequenza respiratoria aumentata
Non usa i muscoli accessori
Freq. cardiaca 100-120 bpm
SpO₂ (in aria) 90-95%
PEF >50% del predetto/best

GRAVE

Parla a parole singole, siede piegato in avanti, agitato
Frequenza respiratoria >30/min
Usa i muscoli accessori
Frequenza cardiaca >120 bpm
SpO₂ (in aria) <90%
PEF ≤50% del predetto/best

A RISCHIO DI MORTE

Soporoso, confuso o torace silente

Urgente

INIZIARE IL TRATTAMENTO

SABA 4-10 puff
(spray+distanziatore), ripetere ogni 20 minuti per un'ora
Prednisolone: adulti 1 mg/kg, max 50 mg, bambini 1-2 mg/kg, max 40 mg
Ossigeno (se disponibile) per raggiungere SpO₂ di 93-95% (bambini 94-98%)

Peggiora

**TRASFERIRE IN UNITÀ
DI TERAPIA INTENSIVA**

Nell'attesa: somministrare SABA, O₂, corticosteroidi sistemici

CONTINUARE IL TRATTAMENTO con SABA al bisogno
VALUTARE LA RISPOSTA A UN'ORA (o prima)

Peggiora

Se migliora

VALUTARE PER LA DIMISSIONE

Sintomi migliorati, non bisogno di SABA
PEF in miglioramento, e >60-80% del personal best o del predetto
SpO₂ >94% in aria ambiente
Risorse a domicilio adeguate

PROGRAMMA ALLA DIMISSIONE

Farmaco di emergenza: continua al bisogno
Terapia di controllo: iniziare (Box 3-4) o aumentare (Box 4-2). Verificare tecnica inalatoria, aderenza
Prednisolone: continuare, in genere per 5-7 giorni (3-5 giorni per i bambini)
Follow-up: entro 2-7 giorni

FOLLOW-UP

Farmaco di emergenza: ridurlo al solo uso al bisogno
Terapia di controllo: continuare la dose più alta a breve (1-2 settimane) o lungo (3 mesi) termine, a seconda del rischio di riacutizzazioni
Fattori di rischio: verificare e correggere i fattori di rischio modificabili che possono avere contribuito alla riacutizzazione, incluse la tecnica inalatoria e l'aderenza (Box 2-2, Box 3-8)
Piano d'azione: è stato capito? È stato usato in modo appropriato? Necessita di modifiche?

RIACUTIZZAZIONE ASMATICA

Dimissione e follow-up

Steroide per os (o im, associato eventualmente a steroide inalatorio), 5-7 giorni, non necessario scarlo

Eventuale associazione ICS+LABA (foster)

Action plans/educazione del paziente

Followup dal curante o specialistica ambulatoriale

RIACUTIZZAZIONE ASMATICA

Conclusioni

Punti cardini della terapia: beta agonisti e steroidi

Valutazione della risposta al primo trattamento

Inquadramento del paziente

Educazione del paziente

ASMA e ANAFILASSI

Caso clinico 2

Attivazione ambulanza 118 per un uomo di 32 anni che ha un malore durante attività fisica (corsa)

A: vigile, vie aeree pervie

B: non dispnea ma SpO2 91%

C: cute fredda, pallida e sudata, polso periferico flebile, PA 60/40, FC 110 r

D: GCS 15

E: angioedema del volto senza orticaria, lamenta intenso dolore addominale, non segni di trauma né punture di insetto

ASMA e ANAFILASSI

Caso clinico 1

- Adrenalina 0,5mg im
- 1000cc di soluzione fisiologica
- Metilprednisolone 200mg ev

In anamnesi:

Pregressi episodi anafilattici. Non ha allergie note e non assume farmaci in cronico, ultimo pasto 4 ore prima

Portato in PS

ASMA e ANAFILASSI

Caso clinico 1

H 18,00 in PS: PA 70/30

→ Adrenalina 50mcg ev + Clorfenamina 10mg im

h 18:15 in PS: PA 90/40 FC 104R SpO2 100% in ossigeno.

Riferisce pregressi episodi di *anafilassi da sforzo* per cui di solito assume antistaminico prima di fare attività sportiva, che stavolta ha dimenticato.

H 21,00 in OBI: PA 115/50, FC 105R SpO2 98% in AA.

Asintomatico, angioedema in riduzione.

Giorno successivo h 9: sta bene, viene dimesso con steroide ed antistaminico per alcuni giorni

ANAFILASSI

Definizione: reazione allergica severa che ha rapida insorgenza e può portare a morte

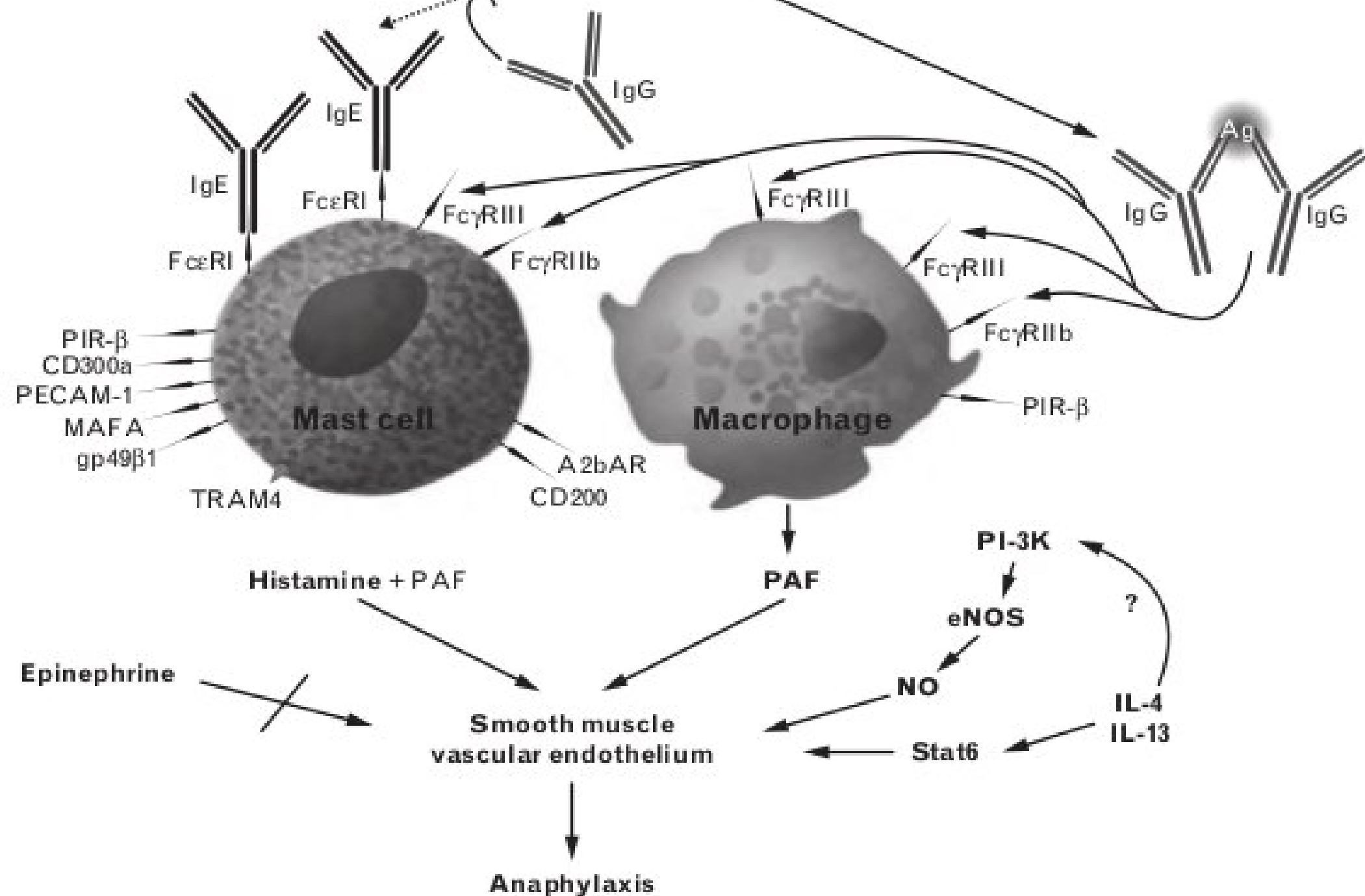
Incidenza: 4-50 casi / 100.000 persone / anno

Sottodiagnosticata: - confusione anafilassi / shock anafilattico;
- criteri non uniformi fino al 2011;

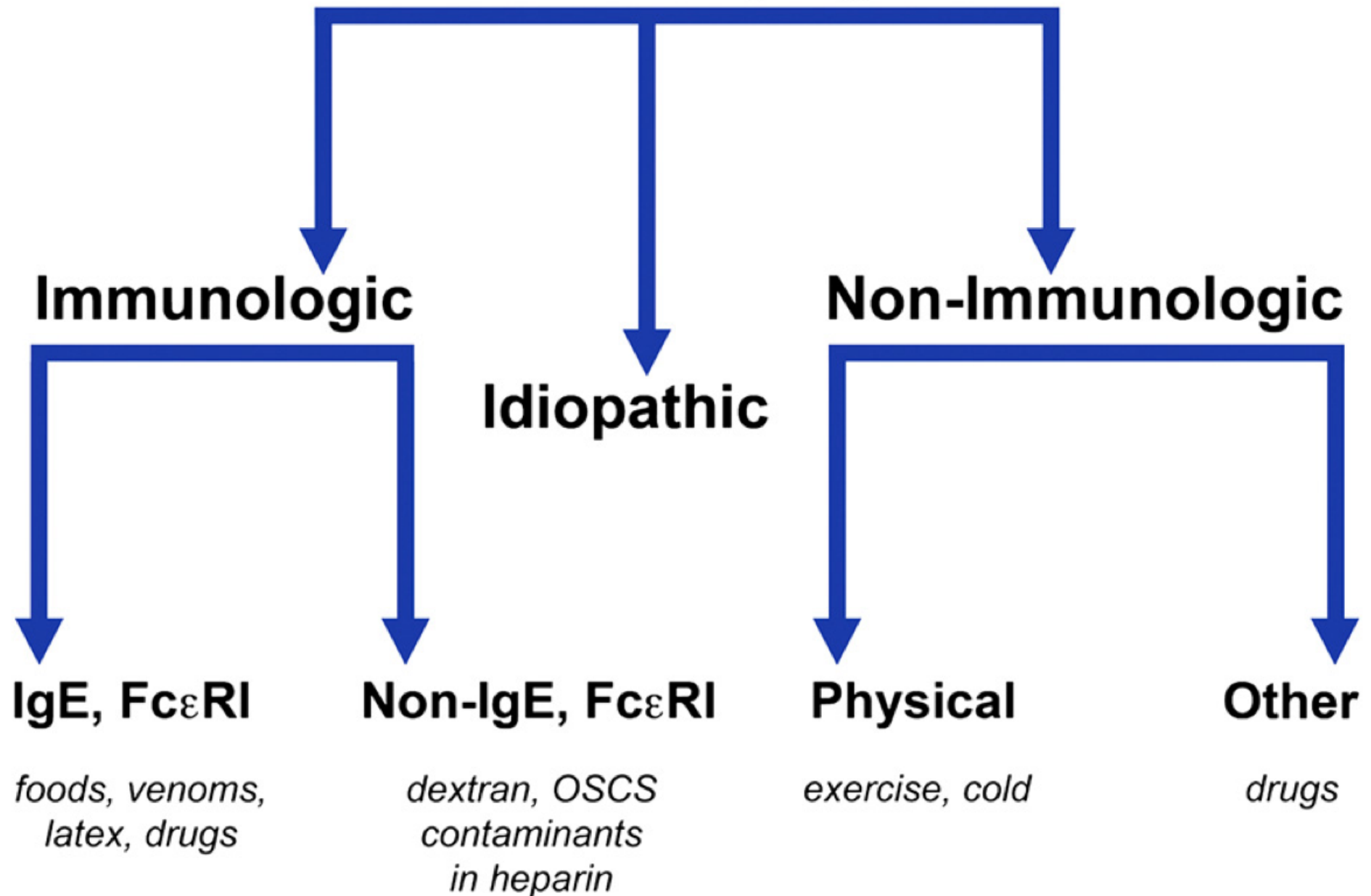
Classic pathway

Alternative pathway

Antigen

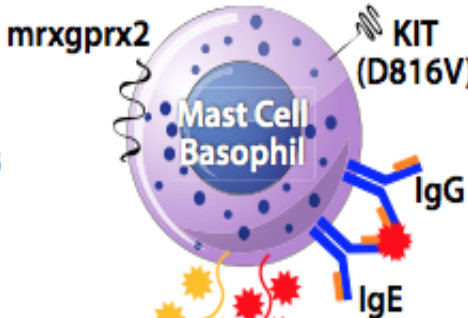
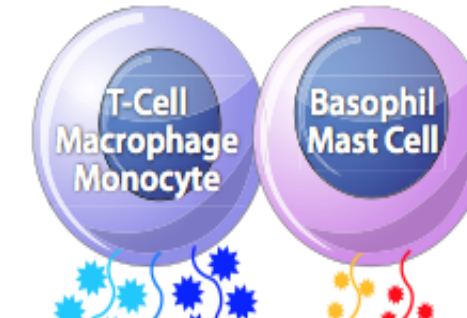
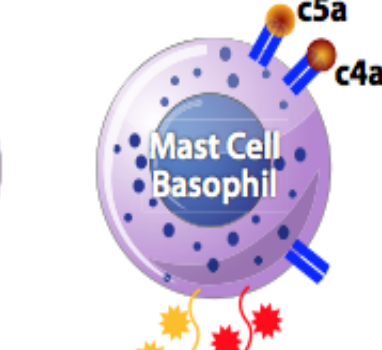


Human Anaphylaxis



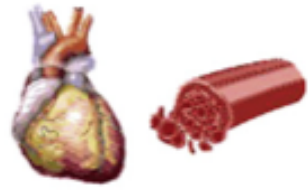
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Pathways of Anaphylaxis

Triggers	Environmental Allergens Food Allergens Antibiotics Chemotherapy Monoclonal Antibodies Other Drugs Hymenoptera Venom	Chemotherapy Monoclonal Antibodies	Chemotherapy Monoclonal Antibodies	Contrast Dyes Oversulfated chondroitin sulfate Glycosaminoglycans Dialysis Membranes
Phenotype	Type I IgE/non-IgE	Cytokine-release	Mixed	Complement
Endotypes				
Biomarkers	Histamine Tryptase	TNF- α IL-6 IL-1 β	TNF- α IL-6 IL-1 β Histamine Tryptase	Histamine Tryptase
Symptoms	Flushing, Pruritis, Urticaria, Throat Tightness Shortness of Breath, Back Pain, Nausea, Vomiting, Diarrhea, Cardio Vascular Collapse	Fever+Chills/Rigors, Nausea, Pain, Headache, Hypotension, Oxygen desaturation	Fever+Chills/Rigors, Nausea, Pain, Headache, Flushing, Pruritis, Rash, Urticaria, Throat Tightness, Shortness of Breath, Nausea, Vomiting, Diarrhea, Cardio Vascular Collapse	Hypotension Oxygen desaturation
Treatment	Epinephrine			

Biomarkers: Skin Test
Tryptase

Mediators of Anaphylaxis

- Histamine → Skin + Blood vessels 
- PGD₂ → Brain + Flushing
Vasodilation 
- Tryptase → Fibrinogen αchain
C3a + C5a 
- Bradykinin → Hypotension + Swelling 
- Leukotrines → Bronchospasm + Swelling 
- PAF → Vasodilation 

ANAFILASSI

TRIGGERS

TABLE III. Mechanisms and triggers of anaphylaxis in the community

Immunologic mechanisms (IgE dependent)

Foods, such as peanut, tree nut, shellfish, fish, milk, egg, sesame, and food additives*

Medications, such as β -lactam antibiotics and NSAIDs, and biological agents†

Venoms, such as stinging insects (Hymenoptera)

Natural rubber latex

Occupational allergens

Seminal fluid (prostate-specific antigen)

Inhalants, such as horse, hamster, and other animal danders and grass pollen (rare)

Radiocontrast media‡

Immunologic mechanisms (IgE independent, formerly classified as anaphylactoid reactions)

Dextran, such as high-molecular-weight iron dextran†

Infliximab†

Radiocontrast media‡

Nonimmunologic mechanisms

Physical factors, such as exercise,§ cold, heat, and sunlight/UV radiation

Ethanol

Medications, such as opioids†

Idiopathic anaphylaxis

Consider the possibility of hidden or previously unrecognized allergens||

Consider the possibility of mastocytosis/clonal mast cell disorder

ANAFILASSI

Definizione: reazione allergica severa che ha rapida insorgenza e può portare a morte

2011: CRITERI DIAGNOSTICI WAO

Anaphylaxis is likely when any one of the three criteria is fulfilled:

1

Acute onset of an illness (minutes to several hours) with involvement of:

Skin and/Or Mucosa

Pruritus
Flushing
Hives
Angioedema

And either

Respiratory Compromise

Dyspnea
Wheeze-bronchospasm
↓ Peak expiratory flow
Stridor
Hypoxemia

Or

↓ BP Or end-organ Dysfunction

Collapse
Syncope
Incontinence

2

2 or more of the following that occur rapidly after exposure to a likely allergen for that patient:

Skin and/Or Mucosa

Pruritus
Flushing
Hives
Angioedema

Respiratory Compromise

Dyspnea
Wheeze-bronchospasm
↓ Peak expiratory flow
Stridor
Hypoxemia

↓ BP Or end-organ Dysfunction

Collapse
Syncope
Incontinence

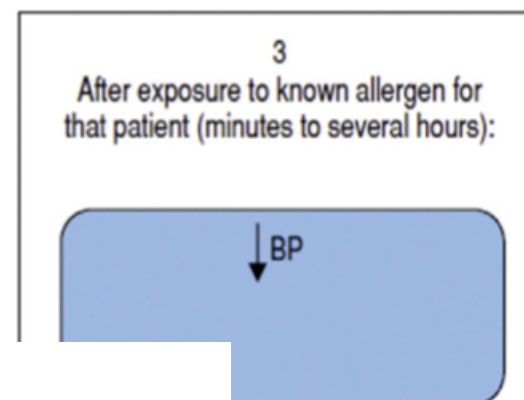
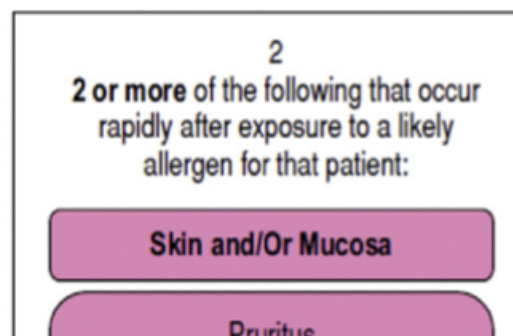
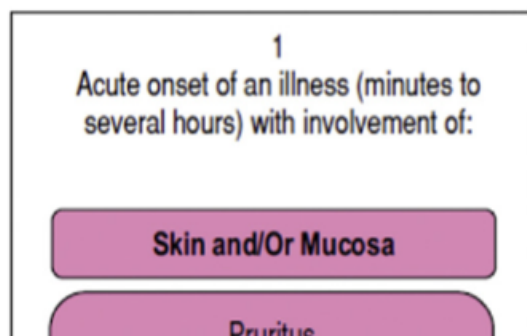
Persistent GI Symptoms

Vomiting
Crampy Abdominal Pain
Diarrhea

3

After exposure to known allergen for that patient (minutes to several hours):

↓ BP



LOW SYSTOLIC BP MEANS:

Anaphylaxis is likely when any one of the three criteria is fulfilled:

< 70 mmHg

< 1 yo

< 70 mmHg + (2 x age)

1 - 10yo

< 90 mmHg

> 10 yo and adult

or

greater than 30% decrease from person baseline

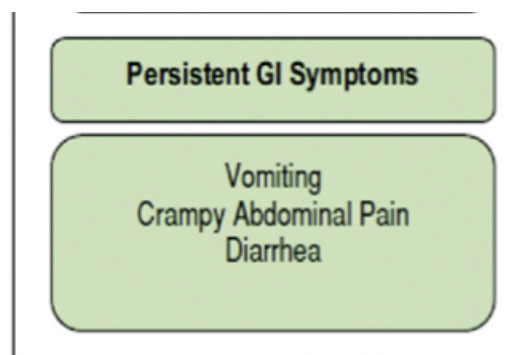
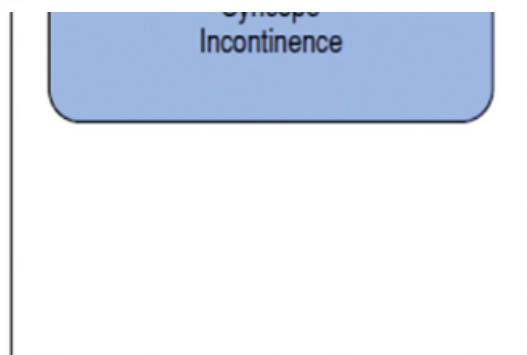


TABLE 2. Symptoms and Signs of Anaphylaxis

Skin, subcutaneous tissue, and mucosa^{a,b,c}

Flushing, itching, urticaria (hives), angioedema, morbilliform rash, pilor erection

Periorbital itching, erythema and edema, conjunctival erythema, tearing

Itching of lips, tongue, palate, and external auditory canals; and swelling of lips, tongue, and uvula

Itching of genitalia, palms, and soles

Respiratory^a

Nasal itching, congestion, rhinorrhea, sneezing

Throat itching and tightness, dysphonia, hoarseness, stridor, dry staccato cough

Lower airways: increased respiratory rate, shortness of breath, chest tightness, deep cough, wheezing/bronchospasm, decreased peak expiratory flow

Cyanosis

Respiratory arrest

Gastrointestinal^a

Abdominal pain, nausea, vomiting (stringy mucus), diarrhea, dysphagia

Cardiovascular system^a

Chest pain

Tachycardia, bradycardia (less common), other arrhythmias, palpitations

Hypotension, feeling faint, urinary or fecal incontinence, shock

Cardiac arrest

Central nervous system^a

Aura of impending doom, uneasiness (in infants and children, sudden behavioral change, eg. irritability, cessation of play, clinging to parent); throbbing headache (pre-epinephrine), altered mental status, dizziness, confusion, tunnel vision

Other^a

Metallic taste in the mouth

Cramps and bleeding due to uterine contractions in females

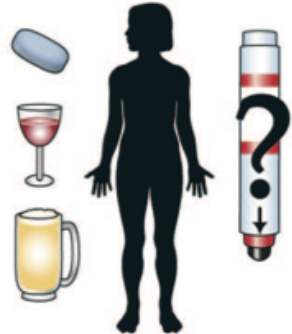
TABLE VI. Differential diagnosis of anaphylaxis

Common entities	Nonorganic disease
Acute generalized hives	Vocal cord dysfunction
Acute asthma	Munchausen syndrome
Syncope (faint, vasovagal episode)	
Panic attack	
Aspiration of a foreign body	Shock
Cardiovascular event (myocardial infarction, pulmonary embolus)	Hypovolemic
Neurologic event (seizure, stroke)	Cardiogenic
	Distributive (eg, spinal cord injury)
	Septic (might involve all of the above)
Postprandial syndromes	Other
Pollen-food syndrome*	Nonallergic angioedema
Scombroidosis†	Red Man syndrome (vancomycin)
Monosodium glutamate	Urticarial vasculitis
Sulfites	Hyper-IgE urticaria syndrome
	Progesterone anaphylaxis
	Pheochromocytoma
	Idiopathic systemic capillary leak syndrome
Excess endogenous histamine	
Mastocytosis/clonal mast cell disorders‡	
Basophilic leukemia	
Flush syndromes	
Perimenopause	
Carcinoid	
Autonomic epilepsy	
Medullary carcinoma thyroid	

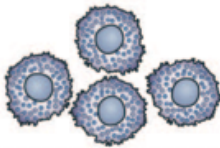
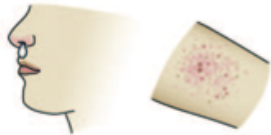
ANAFILASSI

Fattori di rischio per anafilassi
severa

AGE-RELATED FACTORS*

			
Infants Cannot describe their symptoms	Adolescents and young adults Increased risk-taking behaviors	Labor and delivery Risk from medications (e.g. antibiotic to prevent neonatal group B strep infection)	Elderly Increased risk of fatality from medication or venom-triggered anaphylaxis

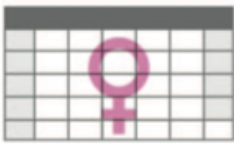
CONCOMITANT DISEASES*

				
Asthma and other respiratory diseases	Cardiovascular diseases	Mastocytosis/clonal mast cell disorders	Allergic rhinitis and eczema**	Psychiatric illness (e.g. depression)

CONCURRENT MEDICATIONS/ETHANOL/RECREATIONAL DRUG USE*

	
β-adrenergic blockers and ACE inhibitors***	Ethanol/sedatives/hypnotics/antidepressants/recreational drugs (potentially affect recognition of anaphylaxis triggers and symptoms)

CO-FACTORS THAT AMPLIFY ANAPHYLAXIS*

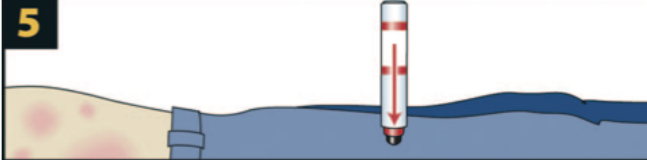
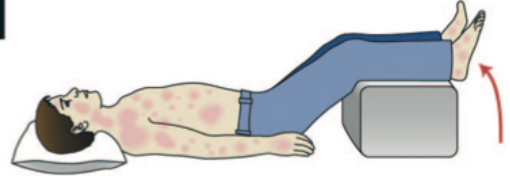
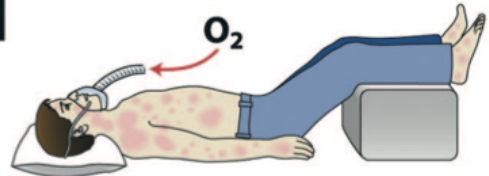
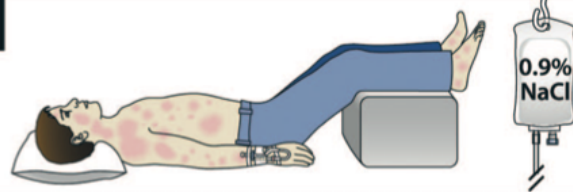
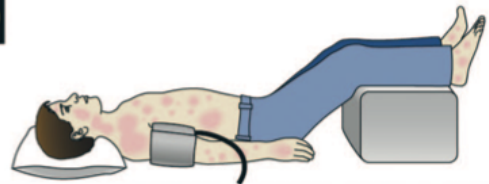
				
Exercise	Acute infection (e.g. a cold or fever)	Emotional stress	Disruption of routine (e.g. travel)	Premenstrual status (females)

ANAFILASSI

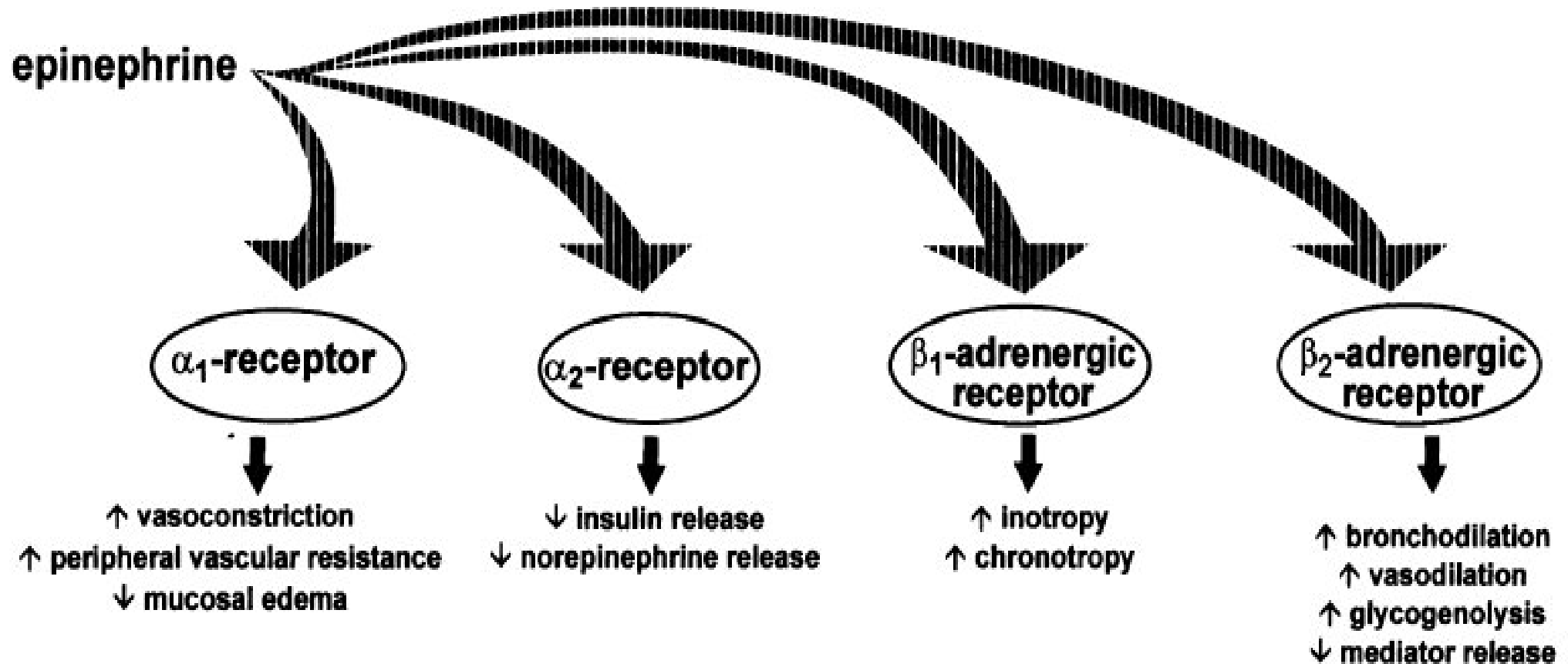
Test diagnostici

ANAFILASSI

Terapia

1	Have a written emergency protocol for recognition and treatment of anaphylaxis and rehearse it regularly.
2	Remove exposure to the trigger if possible, eg. discontinue an intravenous diagnostic or therapeutic agent that seems to be triggering symptoms.
3	 Assess the patient's circulation, airway, breathing, mental status, skin, and body weight (mass).
4	 Promptly and simultaneously, perform steps 4, 5 and 6.
5	 Inject epinephrine (adrenaline) intramuscularly in the mid-anterolateral aspect of the thigh, 0.01 mg/kg of a 1:1,000 (1 mg/mL) solution, maximum of 0.5 mg (adult) or 0.3 mg (child); record the time of the dose and repeat it in 5-15 minutes, if needed. Most patients respond to 1 or 2 doses.
6	 Place patient on the back or in a position of comfort if there is respiratory distress and/or vomiting; elevate the lower extremities; fatality can occur within seconds if patient stands or sits suddenly.
7	 When indicated, give high-flow supplemental oxygen (6-8 L/minute), by face mask or oropharyngeal airway.
8	 Establish intravenous access using needles or catheters with wide-bore cannulae (14 - 16 gauge). When indicated, give 1-2 litres of 0.9% (isotonic) saline rapidly (e.g. 5-10 mL/kg in the first 5-10 minutes to an adult; 10 mL/kg to a child).
9	 When indicated at any time, perform cardiopulmonary resuscitation with continuous chest compressions.
10	 In addition, At frequent, regular intervals, monitor patient's blood pressure, cardiac rate and function, respiratory status, and oxygenation (monitor continuously, if possible).

Adrenalina



The evidence base for prompt epinephrine injection in the initial treatment of anaphylaxis is stronger than the evidence base for the use of antihistamines and glucocorticoids in anaphylaxis.^{14-16,20,97,101-116}

Adrenalina

Adrenalina 0,01 mg/kg im faccia anterolaterale
coscia

- 0,5 mg dose massima adulto
- 0,3 mg dose massima bambino
- 0,1 mg dose massima nel neonato

ripetibile ogni 5-10 minuti

In caso di shock/periarresto usare via ev

- boli di 50-200 mcg

Adrenalina – effetti collaterali

Effetti attesi a dose terapeutica efficace:

- pallore
- ansia
- cefalea
- vertigini
- palpitazioni

Adrenalina – effetti collaterali

Effetti collaterali gravi, generalmente da sovradosaggio durante somministrazione endovenosa:

- crisi ipertensiva
- EPA
- TV

Adrenalina – effetti collaterali

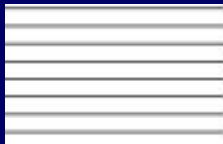
Effetti collaterali gravi generalmente da
sottodosaggio o da somministrazione
endovenosa.

**NO CONTROINDICAZIONI
ASSOLUTE!**

- EP

- IV

Terapia - Adrenalina



Clinical Reviews

The Journal of Emergency Medicine, Vol. 45, No. 2, pp. 299–306, 2013

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0736-4679/\$ - see front matter

CUSTOMIZING ANAPHYLAXIS GUIDELINES FOR EMERGENCY MEDICINE

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Withholding epinephrine in favor of antihistamine, steroid administration, and “watchful waiting,” or even establishing intravenous access in patients with a reasonable suspicion of anaphylaxis is risky—even in the presence of mild presenting symptoms.

Terapia - Adrenalina

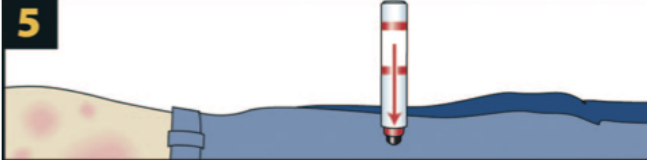
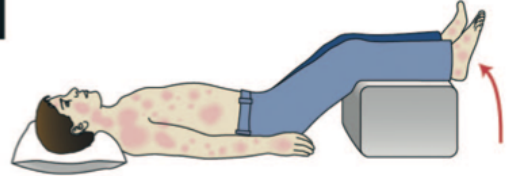
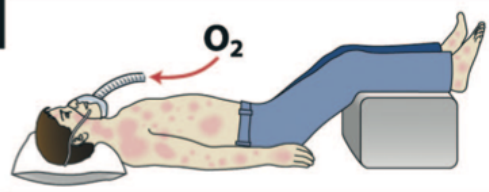
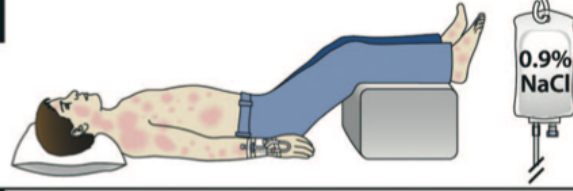
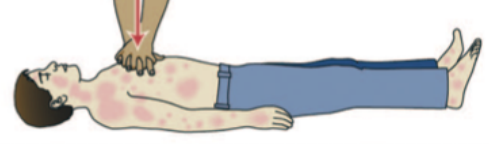
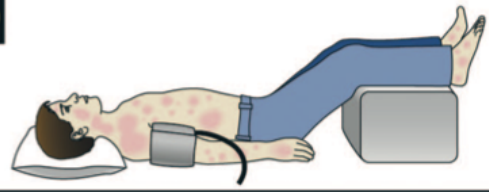
World Allergy Organization Guidelines for the Assessment and Management of Anaphylaxis

Epinephrine is under-used in anaphylaxis treatment.^{8–10,13,111,112} Failure to inject it promptly is potentially associated with fatality, encephalopathy because of hypoxia and/or ischemia, and biphasic anaphylaxis in which symptoms recur within 1–72 hours (usually within 8–10 hours) after the initial symptoms have resolved, despite no further exposure to the trigger.^{106,107,117–120}

Trendelemburg

Aumento ritorno venoso al cuore (shock redistributivo)

Prevenzione della “sindrome della vena cava vuota”

1	Have a written emergency protocol for recognition and treatment of anaphylaxis and rehearse it regularly.
2	Remove exposure to the trigger if possible, eg. discontinue an intravenous diagnostic or therapeutic agent that seems to be triggering symptoms.
3	 Assess the patient's circulation, airway, breathing, mental status, skin, and body weight (mass).
4	 Promptly and simultaneously, perform steps 4, 5 and 6. Call for help: resuscitation team (hospital) or emergency medical services (community) if available.
5	 Inject epinephrine (adrenaline) intramuscularly in the mid-anterolateral aspect of the thigh, 0.01 mg/kg of a 1:1,000 (1 mg/mL) solution, maximum of 0.5 mg (adult) or 0.3 mg (child); record the time of the dose and repeat it in 5-15 minutes, if needed. Most patients respond to 1 or 2 doses.
6	 Place patient on the back or in a position of comfort if there is respiratory distress and/or vomiting; elevate the lower extremities; fatality can occur within seconds if patient stands or sits suddenly.
7	 When indicated, give high-flow supplemental oxygen (6-8 L/minute), by face mask or oropharyngeal airway.
8	 Establish intravenous access using needles or catheters with wide-bore cannulae (14 - 16 gauge). When indicated, give 1-2 litres of 0.9% (isotonic) saline rapidly (e.g. 5-10 mL/kg in the first 5-10 minutes to an adult; 10 mL/kg to a child).
9	 When indicated at any time, perform cardiopulmonary resuscitation with continuous chest compressions.
10	 In addition, At frequent, regular intervals, monitor patient's blood pressure, cardiac rate and function, respiratory status, and oxygenation (monitor continuously, if possible).

20 ml/Kg
(1-2 l nell'adulto)

Farmaci di seconda linea

mines, beta-2 adrenergic agonists, and glucocorticoids. The evidence base for use of these medications in the initial management of anaphylaxis, including doses and dose regimens, is extrapolated mainly from their use in treatment of other diseases such as urticaria (antihistamines) or acute asthma (beta-2 adrenergic agonists and glucocorticoids). Concerns have been raised that administering one or more second-line medications potentially delays prompt injection of epinephrine, the first-line treatment. Additional informa-

ANAFILASSI

Terapia

- Rimuovere l'agente causale
- Trendelenburg
- Epinefrina
- Cristalloidi
- Antistaminico e steroide

ANAFILASSI

Osservazione

4-6 h sintomi lievi

12-24 ore se compromissione vascolare

Ricovero (eventuale TI) se anafilassi protratta

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Dimissione

Prescrizione adrenalina (FAST-JEKT)

Evitare trigger

Visita allergologica

