ALLERGIA ALIMENTARE

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Unità Operativa di Pediatria ed Allergologia
Ospedale Fatebenefratelli
Benevento

Pediatric Allergy and Immunology

REVIEW ARTICLE

Food allergy: Riding the second wave of the allergy epidemic

Susan Prescott[1] & Katrina J. Allen[2]

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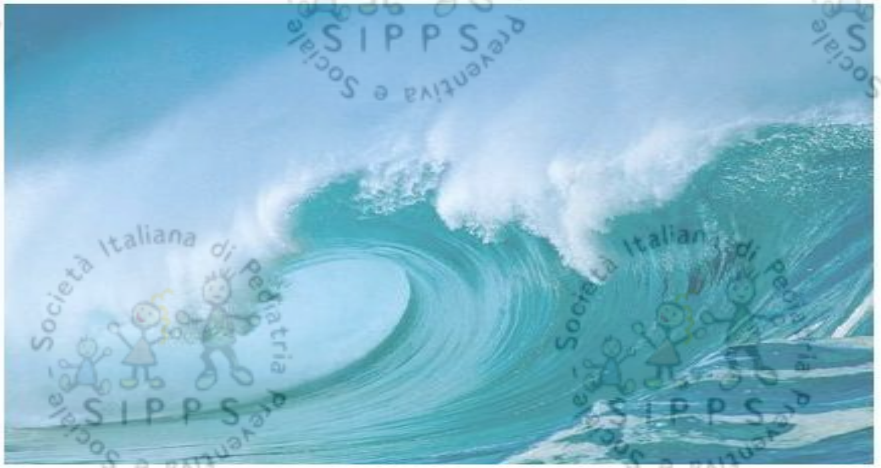
To cite this article: Prescott S, Allen KJ. Food allergy: Riding the second wave of the allergy epidemic. *Pediatr Allergy Immunol* 2011; **22**: 155–160.

While attention has been steadily focused on the well-established surge of respiratory allergic diseases, a "second wave" of allergy has been slowly building behind it and intriguing questions.



Allergy EUROPEAN JOURNAL OF ALLERGY AND CLINICAL IMMUNOLOGY

EAACI

REVIEW ARTICLE

The epidemiology of food allergy in Europe: a systematic review and meta-analysis

B. I. Nwaru[1], L. Hickstein[2], S. S. Panesar[3], A. Muraro[4], T. Werfel[5], V. Cardona[6], A. E. J. Dubois[7], S. Halken[8], K. Hoffmann-Sommergruber[9], L. K. Poulsen[10], G. Roberts[11,12,13], R. Van Ree[14], B. J. Vlieg-Boerstra[15] & A. Sheikh[3,16] on behalf of the EAACI Food Allergy and Anaphylaxis Guidelines Group*

Epidemiology

The point prevalence of sensitization to ≥1 food as assessed by specific IgE was 10.1% (95% CI: 9.4-10.8) and skin prick test 2.7% (95% CI: 2.4-3.0), food challenge positivity 0.9% (95% CI: 0.8-1.1).

The epidemiology of anaphylaxis in Europe: a systematic review. Panesar SS et al

EAACI Food Allergy and Anaphylaxis Guideline Group Allergy 2013 Nov

Epidemiology

The incidence rates for all-cause anaphylaxis ranged from 1.5 to 7.9 per 100.000 person-years.

These data indicated that an estimated 0.3% (95% CI 0.1-0.5 %) of the population experience anaphylaxis at some point in their lives.

ALLERGIA ALIMENTARE

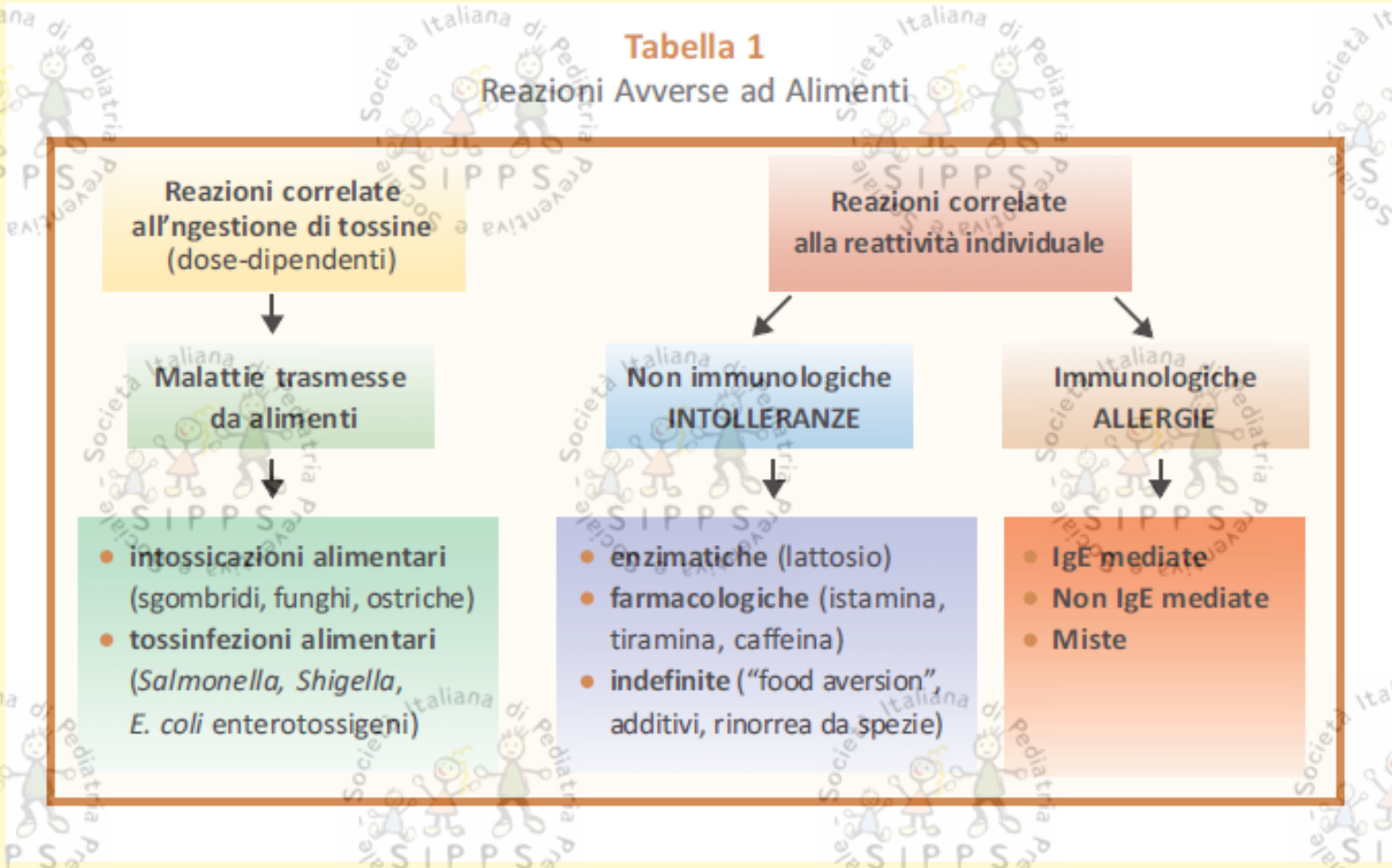
The term food allergy refers to an immune response directed toward food.

ICON 2012

"Adverse health effect arising from a specific immune response that occurs reproducibly on exposure to a given food."

NIAID 2010

ALLERGIA ALIMENTARE



INTOLLERANZE ALIMENTARI

*Nonimmunologic reactions to food **(food intolerances)** can include metabolic, pharmacologic, toxic, and/or undefined mechanisms.*

Because food intolerances can sometimes mimic reactions typical of an immunologic response, it is important to keep these mechanisms in mind when evaluating patients reporting adverse food reactions.

ALLERGIA ALIMENTARE

Tabella 2

I fenotipi clinici dell'allergia alimentare

Reazioni allergiche IgE-mediate	Reazioni allergiche non IgE-mediate o cellulo-mediate	Reazioni allergiche miste IgE e non IgE-mediate
Orticaria-angioedema acuto	Proctite/proctocolite allergica indotta da proteine alimentari	Esofagite/gastroenterite eosinofila
Orticaria da contatto	Enterocolite allergica indotta da proteine alimentari (FPIES)	Dermatite atopica
Anafilassi	Sindrome enteropatica indotta da proteine alimentari	
Anafilassi cibo-dipendente esercizio-indotta	Dermatite allergica da contatto (DAC)	
Sindrome orale allergica	Sindrome di Heiner	
Ipersensibilità immediata gastrointestinale		

Diagnosi Allergologica

Iter diagnostico

Test di provocazione

Dieta di eliminazione diagnostica

IgE s

SPT

Esame obiettivo

Anamnesi accurata

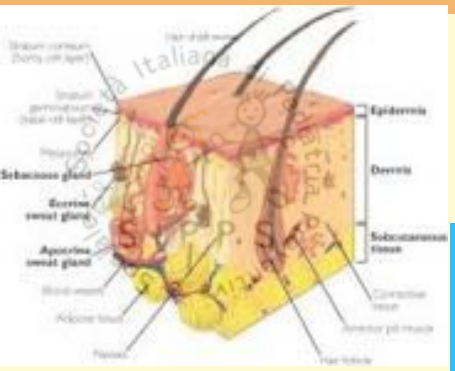
ALLERGIA ALIMENTARE

Both a detailed medical history and a physical examination are needed to diagnose IgE-mediated, non–IgE-mediated, or mixed IgE- and non–IgE-mediated food allergy.

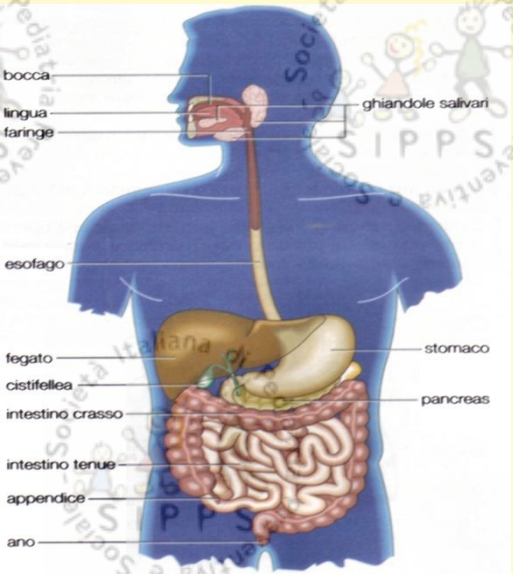
The medical history should capture:
-the possible causal food or foods,
-form or forms in which ingested (raw, semicooked, cooked, or baked),
-quantity ingested,
-time course of reactions,
-nature of reactions,
-ancillary factors, such as exercise or ingestion of aspirin or alcohol.

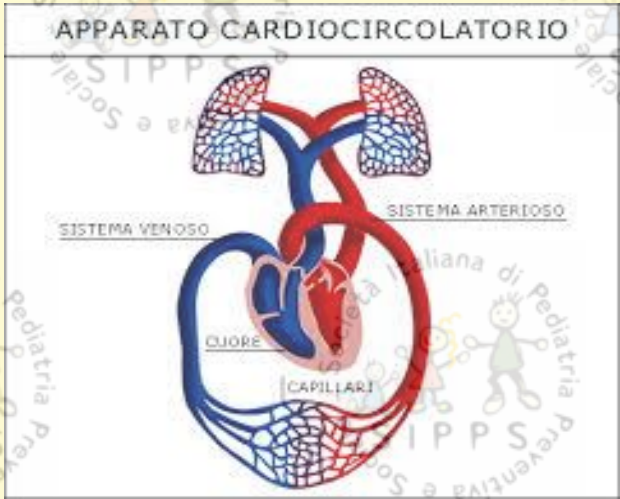
Food allergy: a practice parameter. Ann Allergy Asthma Immunol 2006; 96(suppl 2):S1-68.

IgE-mediated reactions



IgE-mediated symptoms develop within minutes to 1 to 2 hours of ingesting the food.





Practice parameter

The diagnosis and management of anaphylaxis practice parameter: 2010 Update

Chief Editors: Phillip Lieberman, MD, Richard A. Nicklas, MD, John Oppenheimer, MD, Stephen F. Kemp, MD, and David M. Lang, MD

(J Allergy Clin Immunol 2010;126:477-80.)

Anaphylaxis is an acute, life-threatening systemic reaction with varied mechanisms, clinical presentations, and severity that results from the sudden systemic release of mediators from mast cells and basophils.

The more rapidly anaphylaxis develops, the more likely the reaction is to be severe and potentially life-threatening.

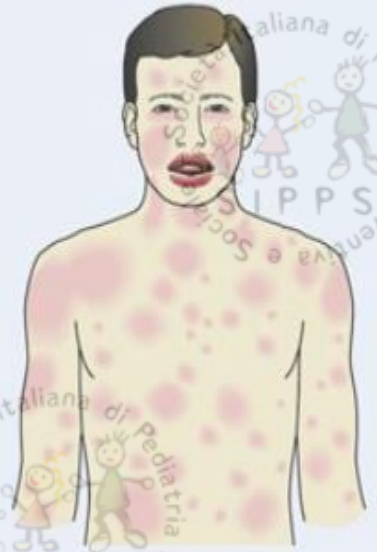
Prompt recognition of signs and symptoms of anaphylaxis is crucial.

World Allergy Organization Guidelines for the Assessment and Management of Anaphylaxis

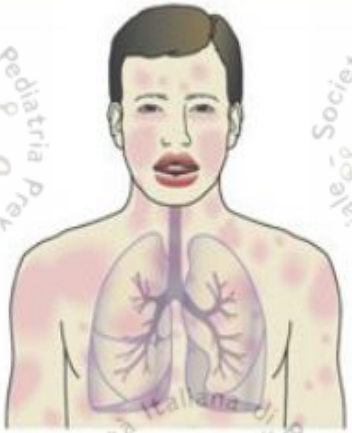
Clinical criteria for diagnosis

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

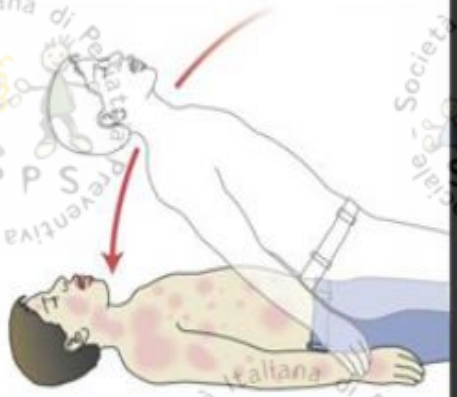
1 Sudden onset of an illness (minutes to several hours), with involvement of the skin, mucosal tissue, or both (e.g. generalized hives, itching or flushing, swollen lips-tongue-uvula)



AND AT LEAST ONE OF THE FOLLOWING:



Sudden respiratory symptoms and signs (e.g. shortness of breath, wheeze, cough, stridor, hypoxemia)

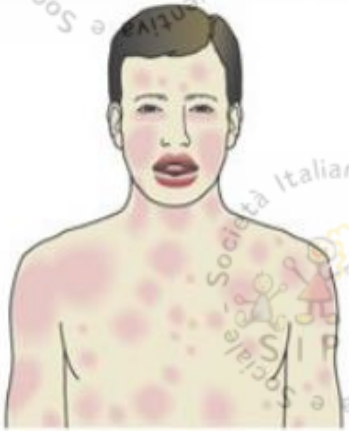


Sudden reduced BP or symptoms of end-organ dysfunction (e.g. hypotonia [collapse], incontinence)

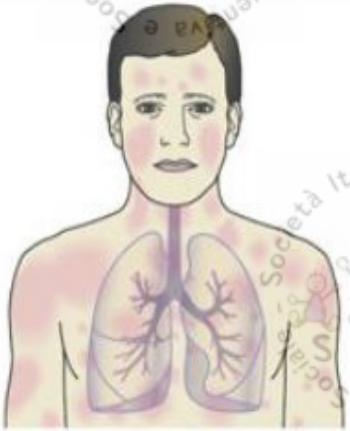
World Allergy Organization Guidelines for the Assessment and Management of Anaphylaxis

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

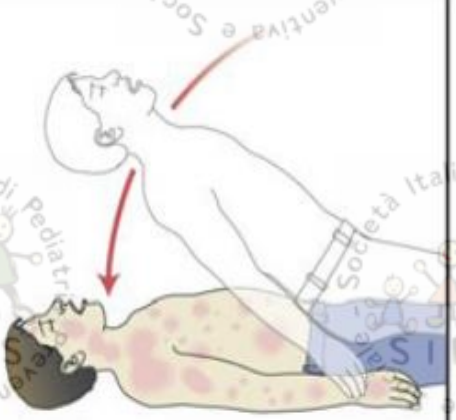
OR 2 **Two or more of the following that occur suddenly after exposure to a *likely allergen or other trigger** *for that patient* (minutes to several hours):**



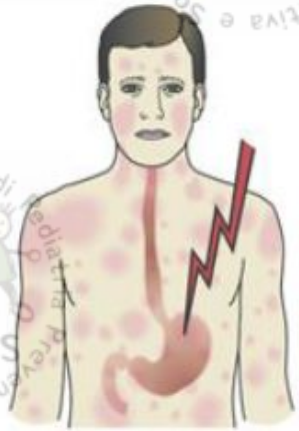
Sudden skin or mucosal symptoms and signs (e.g. generalized hives, itch-flush, swollen lips-tongue-uvula)



Sudden respiratory symptoms and signs (e.g. shortness of breath, wheeze, cough, stridor, hypoxemia)



Sudden reduced BP or symptoms of end-organ dysfunction (e.g. hypotonia [collapse], incontinence)



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

* For example, immunologic but IgE-independent, or non-immunologic (direct mast cell activation)

World Allergy Organization Guidelines for the Assessment and Management of Anaphylaxis

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

OR 3 **Reduced blood pressure (BP) after exposure to a *known allergen*** *for that patient* (minutes to several hours):**

Infants and children: low systolic BP (age-specific) or greater than 30% decrease in systolic BP***

Adults: systolic BP of less than 90 mm Hg or greater than 30% decrease from that person's baseline

** For example, after an insect sting, reduced blood pressure might be the only manifestation of anaphylaxis; or, after allergen immunotherapy, generalized hives might be the only initial manifestation of anaphylaxis.

*** Low systolic blood pressure for children is defined as less than 70 mm Hg from 1 month to 1 year, less than (70 mm Hg + [2 x age]) from 1 to 10 years, and less than 90 mm Hg from 11 to 17 years. Normal heart rate ranges from 80-140 beats/minute at age 1-2 years; from 80-120 beats/minute at age 3 years; and from 70-115 beats/minute after age 3 years. In infants and children, respiratory compromise is more likely than hypotension or shock, and shock is more likely to be manifest initially by tachycardia than by hypotension.

Anaphylaxis: Unique aspects of clinical diagnosis and management in infants (birth to age 2 years)

F. Estelle R. Simons, MD, FAAAAI,[a] and Hugh A. Sampson, MD, FAAAAI[b] *Winnipeg, Manitoba, Canada, and New York, NY*

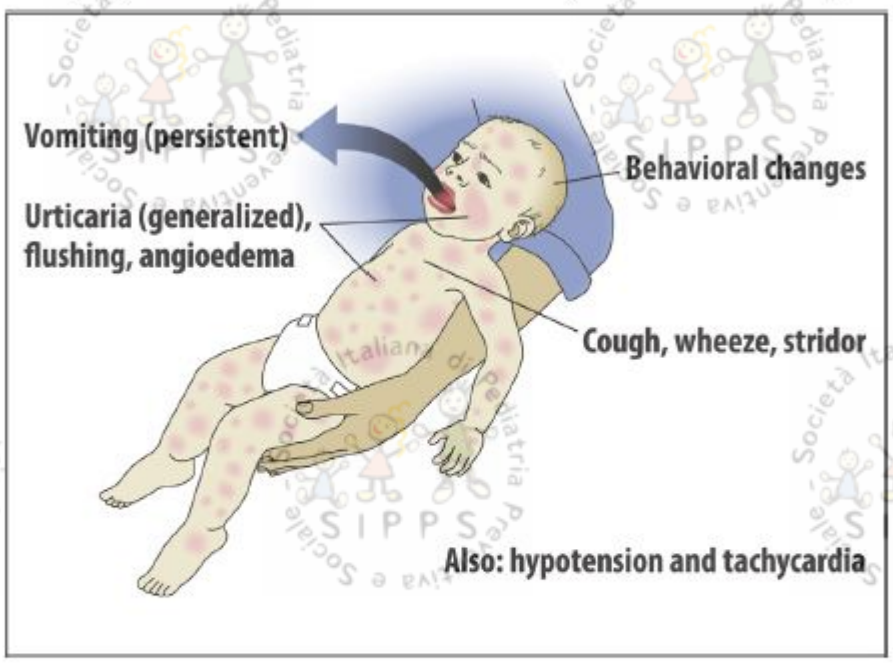


FIG 1. Clinical diagnosis of anaphylaxis in infants is based on sudden onset of characteristic symptoms and signs in 2 or more body organ systems. Typical symptoms and signs can include generalized urticaria, cough, wheeze, stridor, and/or persistent vomiting. In infants with anaphylaxis, respiratory compromise is more likely than hypotension or shock, and shock is more likely to manifest initially as tachycardia rather than hypotension.[1-3]

EIA E FREIA

2012 Update

World Allergy Organization Guidelines for the Assessment and Management of Anaphylaxis

F. Estelle R. Simons; Ledit R.F. Ardusso; M. Beatrice Biló; Vesselin Dimov; Motohiro Ebisawa; Yehia M. El-Gamal; Dennis K. Ledford; Richard F. Lockey; Johannes Ring; Mario Sanchez-Borges; Gian Enrico Senna; Aziz Sheikh; Bernard Y. Thong; Margitta Worm

Posted: 07/16/2012; Curr Opin Allergy Clin Immunol. 2012;12(4):389-399.

Current Opinion in Allergy and Clinical Immunology

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.

2012 Update

World Allergy Organization Guidelines for the Assessment and Management of Anaphylaxis

F. Estelle R. Simons; Ledit R.F. Ardusso; M. Beatrice Biló; Vesselin Dimov; Motohiro Ebisawa; Yehia M. El-Gamal; Dennis K. Ledford; Richard F. Lockey; Johannes Ring; Mario Sanchez-Borges; Gian Enrico Senna; Aziz Sheikh; Bernard Y. Thong; Margitta Worm

Posted: 07/16/2012; Curr Opin Allergy Clin Immunol. 2012;12(4):389-399.

Current Opinion in Allergy and Clinical Immunology

A Pervietà delle vie aeree

B Respirazione

C Circolo

+

Stato mentale = ipossia

2012 Update

World Allergy Organization Guidelines for the Assessment and Management of Anaphylaxis

F. Estelle R. Simons; Ledit R.F. Ardusso; M. Beatrice Biló; Vesselin Dimov; Motohiro Ebisawa; Yehia M. El-Gamal; Dennis K. Ledford; Richard F. Lockey; Johannes Ring; Mario Sanchez-Borges; Gian Enrico Senna; Aziz Sheikh; Bernard Y. Thong; Margitta Worm

Posted: 07/16/2012; Curr Opin Allergy Clin Immunol. 2012;12(4):389-399.

Current Opinion in Allergy and Clinical Immunology

Promptly and simultaneously, perform steps 4, 5 and 6.

Call for help: resuscitation team (hospital) or emergency medical services (community) if available.

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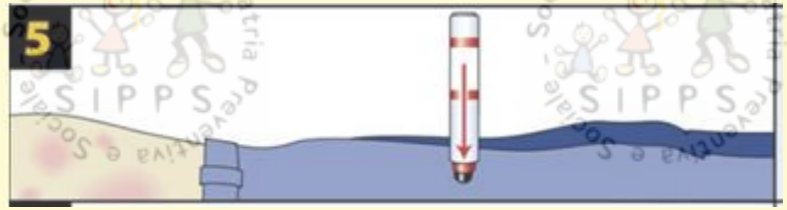
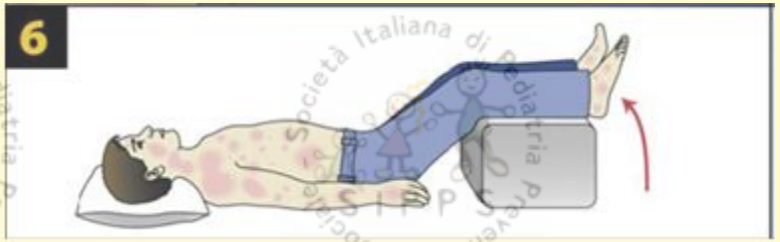


Inject epinephrine (adrenaline) intramuscularly in the mid-anterolateral aspect of the thigh, 0.01 mg/kg of a 1:1 000 (1 mg/mL) solution, maximum of 0.5 mg (adult) or 0.3 mg (child); **record the time of the dose and repeat it** in 5-15 minutes, if needed. Most patients respond to 1 or 2 doses.



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.

2012 Update

World Allergy Organization Guidelines for the Assessment and Management of Anaphylaxis

F. Estelle R. Simons; Ledit R.F. Ardusso; M. Beatrice Biló; Vesselin Dimov; Motohiro Ebisawa; Yehia M. El-Gamal; Dennis K. Ledford; Richard F. Lockey; Johannes Ring; Mario Sanchez-Borges; Gian Enrico Senna; Aziz Sheikh; Bernard Y. Thong; Margitta Worm

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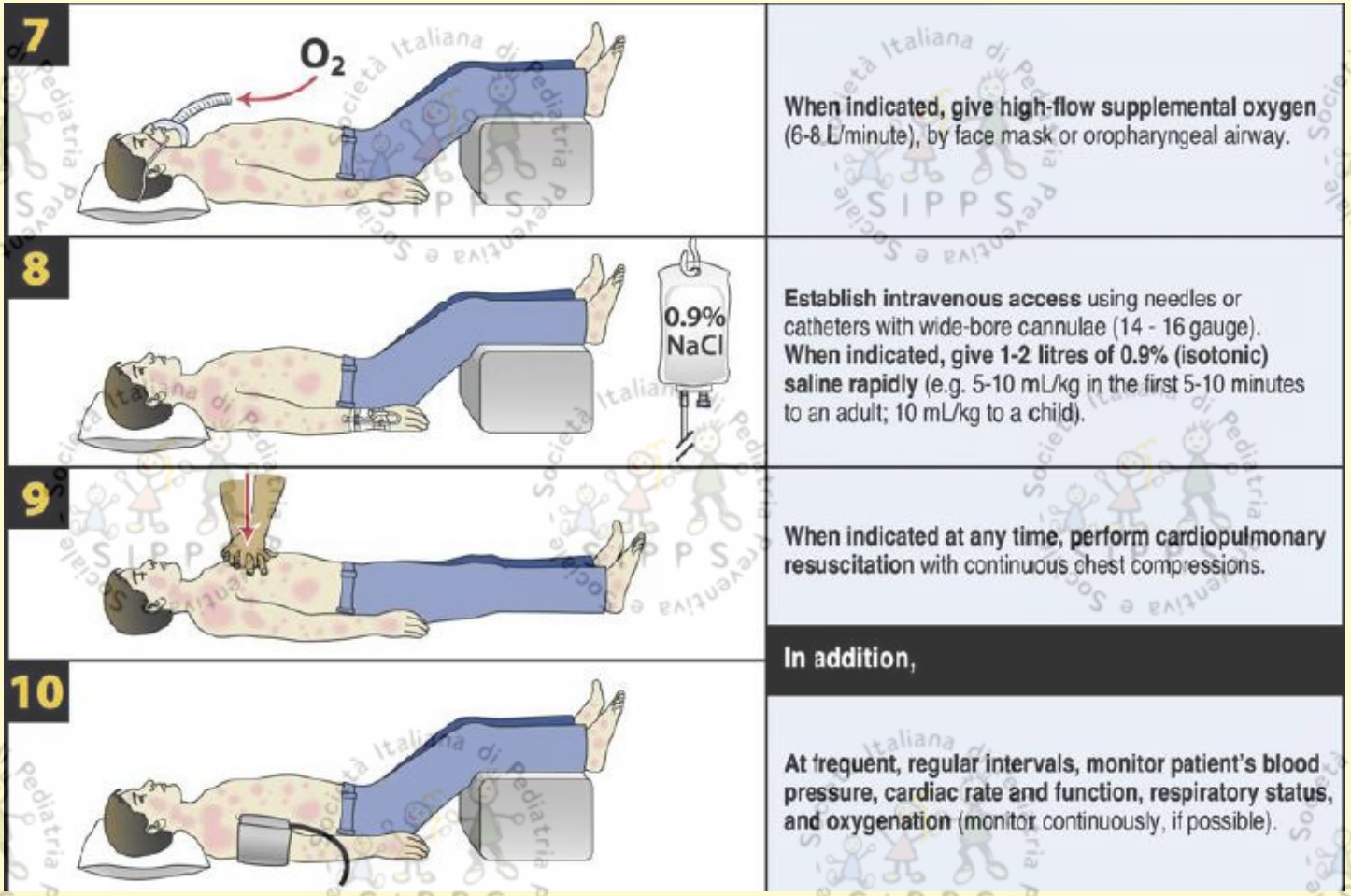
Current Opinion in Allergy and Clinical Immunology



La consulenza allergologica

Il 35% dei pazienti modifica la diagnosi o l'identificazione del trigger dopo consulenza allergologica

Original Article

Outcomes of Allergy/Immunology Follow-Up After an Emergency Department Evaluation for Anaphylaxis

Ronna L. Campbell, MD, PhD[a], Miguel A. Park, MD[b], Michael A. Kueber, Jr, MD[a], Sangil Lee, MD[a], and John B. Hagan, MD[b] *Rochester, Minn*

What is already known about this topic? Anaphylaxis guidelines currently recommend follow-up with an allergist after an emergency department (ED) visit for anaphylaxis. Low rates of documented allergy/immunology referrals after an ED evaluation for anaphylaxis have been demonstrated in multiple studies.

What does this article add to our knowledge? Our study systematically evaluated outcomes of allergy/immunology follow-up after an ED visit for anaphylaxis and demonstrated that overall, 35% of patients had an alteration in the diagnosis of anaphylaxis or trigger after allergy/immunology evaluation.

How does this study impact current management guidelines? Our study supports current guidelines that recommend a follow-up with an allergist after an ED evaluation for anaphylaxis.

Am J Med. 2014 Jan;127(1 Suppl):S6-11. doi: 10.1016/j.amjmed.2013.09.008. Epub 2013 Oct 1.

Recognition and first-line treatment of anaphylaxis.

Lieberman PL[1].

Epinephrine is the only first-line treatment of anaphylaxis; it is the sole effective treatment for an acute reaction.

ANAFILASSI

PORRE DIAGNOSI DI ANAFILASSI

Garantire l'ABC primario, secondo uno schema di priorità ben preciso:

A = airway: pervietà delle vie aeree

B = breathing: ventilazione o respirazione

C = circulation: circolazione sanguigna

↓

- Stendere il bambino sul dorso sollevandogli le gambe in posizione antishock

↓

INIZIARE TERAPIA DI EMERGENZA

SETTING AMBULATORIALE: CHIAMARE IL 118

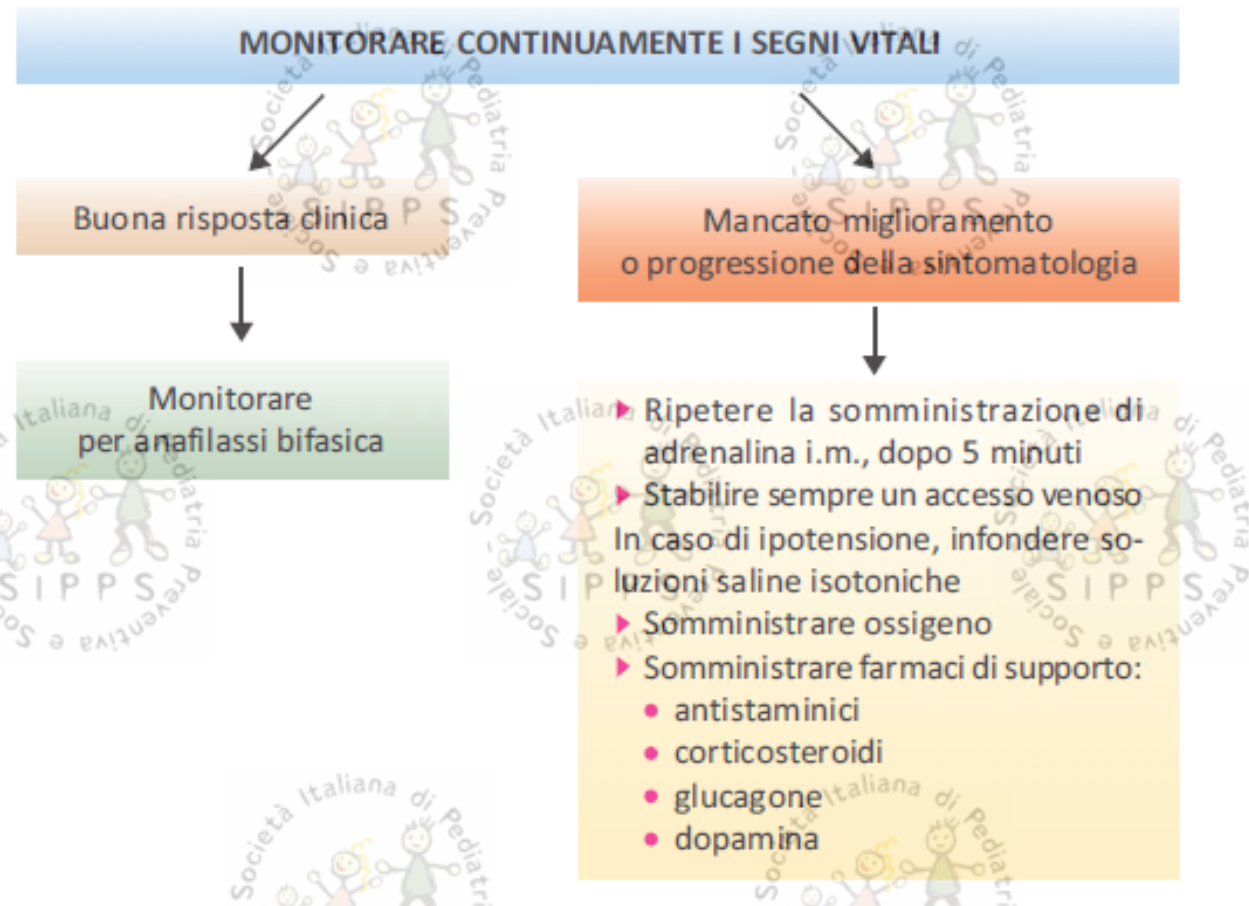
- Somministrazione i.m. di adrenalina

In caso di anafilassi da puntura di insetto o iniezione di farmaci o vaccini

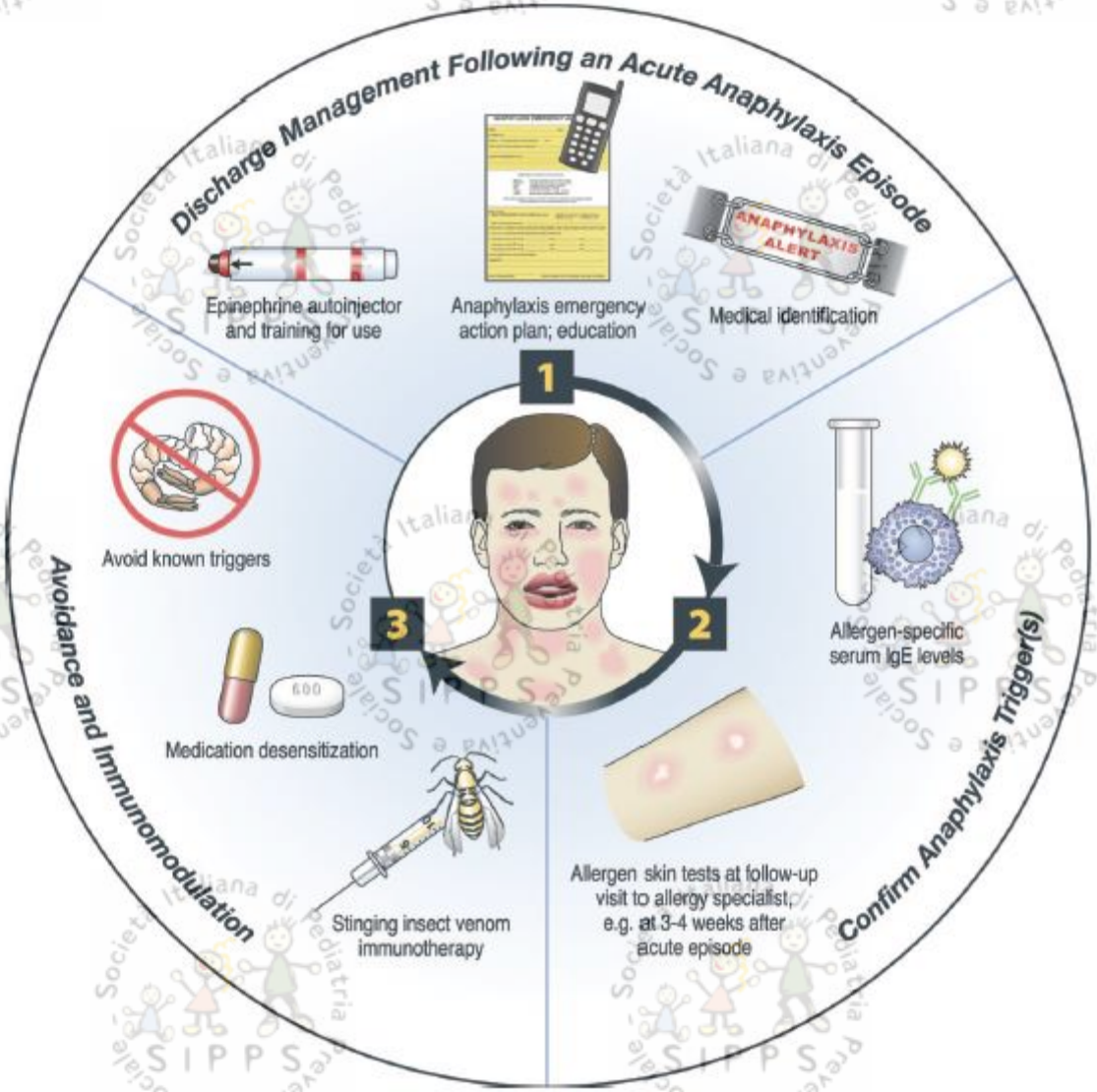
- Posizionare un laccio al di sopra del punto di iniezione e allentarlo per un minuto ogni tre

↓

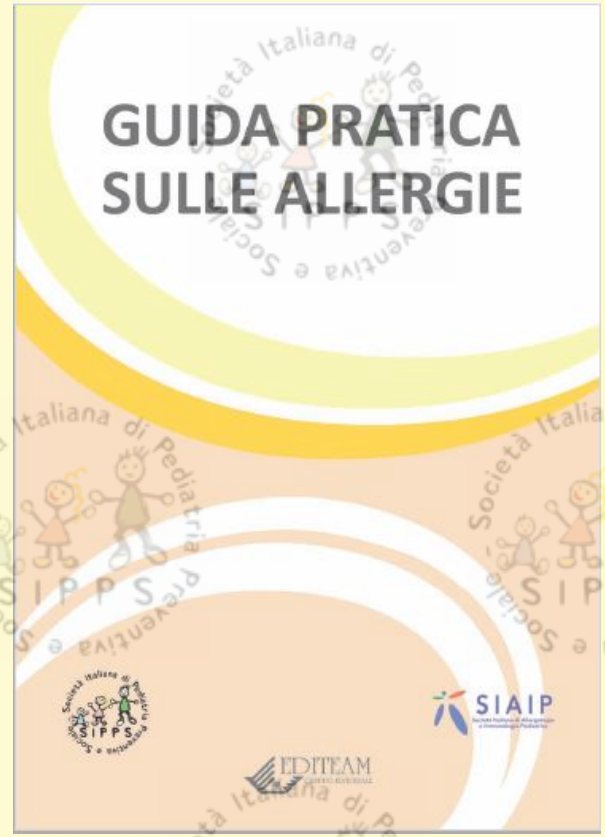
ANAFILASSI


MONITORARE CONTINUAMENTE I SEGNI VITALI
Buona risposta clinica
Monitorare per anafilassi bifasica
Mancato miglioramento o progressione della sintomatologia
Ripetere la somministrazione di adrenalina i.m., dopo 5 minuti
Stabilire sempre un accesso venoso
In caso di ipotensione, infondere soluzioni saline isotoniche
Somministrare ossigeno
Somministrare farmaci di supporto:
antistaminici
corticosteroidi
glucagone
dopamina

World Allergy Organization Guidelines for the Assessment and Management of Anaphylaxis



L'Action Plan



MANIFESTAZIONI GASTROINTESTINALI DI AA NON IgE-MEDIATE

Le manifestazioni gastrointestinali di allergia alimentare non IgE-mediate presentano un maggior rischio di mancata diagnosi per le seguenti motivazioni:

- negatività degli SPT e delle IgEs;
- espressività clinica variabile;
- ritardata associazione temporale tra ingestione dell'alimento e reazione allergica.

SINDROME ENTEROPATICA INDOTTA DA PROTEINE ALIMENTARI

LATTANTE, <2 ANNI

DIARREA CRONICA, feci sfatte talora alternate a feci formate

abnorme **DISTENSIONE** addome, **IPOTROFIA** cosce / glutei

VOMITI saltuari, incostanti; progressiva **INAPPETENZA**

DEFLESSIONE o ARRESTO CCP

sindrome da **MALASSORBIMENTO**

(bilancio **marziale** e/o **proteico** negativo)

calprotectina feci spesso elevata

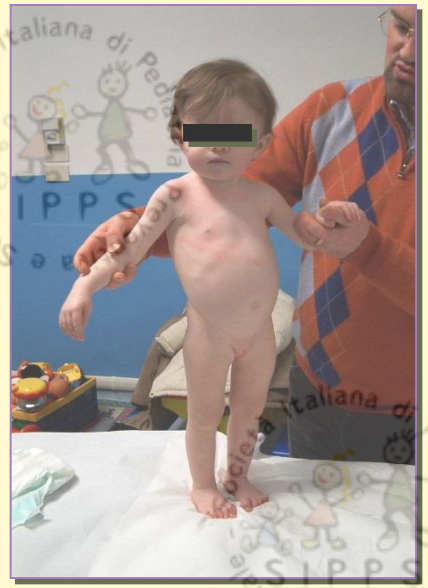
INFILTRATO MUCOSA **DUODENALE (CD4+CD8+)** con **danno dei VILLI**

ALIMENTI: **LATTE, SOIA,GRANO**; uovo, riso

RISPOSTA ALLA **DIETA**: **4 settimane** *(diario accurato, controllo esami)*

RECIDIVA AL **TPO**

TOLLERANZA: RIVALUTARE DOPO **12 MESI**



SINDROME ENTEROCOLITICA INDOTTA DA PROTEINE ALIMENTARI (FPIES)

Sintomi clinici e di laboratorio nella FPIES acuta e cronica

	ACUTA	FPIES CRONICA
Sintomi clinici	Vomito ripetuto (inizio dopo 1-3 ore) Letargia Pallore Disidratazione Diarrea (inizio dopo 3-5 ore) Compromissione stato generale Diarrea ematica Distensione addominale Ipotensione Temperatura <36°	Vomito intermittente Diarrea Letargia Perdita di peso Mancato accrescimento Compromissione stato generale Diarrea ematica Distensione addominale Disidratazione
Sintomi laboratoristici	Neutrofilia >3.500 cell/ml con picco a 6 ore Trombocitosi Elevati leucociti nel succo gastrico Acidosi metabolica Leucociti ed eosinofili fecali	Anemia Ipoalbuminemia Linfocitosi Eosinofilia Metaemoglobinemia Sostanze riducenti nelle feci

Da Leonard SA, 2012 (modificata).

LA DIAGNOSI DI FPIES E' ESSENZIALMENTE CLINICA

Table 2. Diagnostic criteria of FPIES.

Powell, 1986 [2]	Leonard *et al.*, 2012 [1]	Miceli Sopo *et al.*, 2013
Less than 9 months of age at initial presentation (reaction)	Less than 9 months of age at initial diagnosis	Less than 2 years of age at first presentation (frequent feature but not mandatory)
Exposure to the incriminated food elicits repetitive vomiting and/or diarrhea within 4 h without any other cause for the symptoms	Repeated exposure to causative food elicits gastrointestinal symptoms without alternative cause	Exposure to the incriminated food elicits repetitive and important vomiting, pallor, hyporeactivity and lethargy within 2–4 h. Diarrhea may be present, much less frequently and later. The symptoms last a few hours, usually less than 6 h
Symptoms limited to the GI tract	Absence of symptoms that may suggest an IgE-mediated reaction	Absence of symptoms that may suggest an IgE-mediated reaction
Avoidance of the offending protein from the diet results in resolution of symptoms	Removal of causative food results in resolution of symptoms	Avoidance of the offending protein from the diet results in resolution of symptoms
A standardized food challenge or isolated re-exposure elicits the typical symptoms	Re-exposure or oral food challenge elicits typical symptoms within 4 h	Re-exposure or oral food challenge elicits typical symptoms within 2–4 h. Two typical episodes are needed to deliver the definitive diagnosis

Expert Rev. C 708 lin. Immunol. 9(8), (2013)

Position paper

International consensus guidelines for the diagnosis and management of food protein–induced enterocolitis syndrome: Executive summary—Workgroup Report of the Adverse Reactions to Foods Committee, American Academy of Allergy, Asthma & Immunology

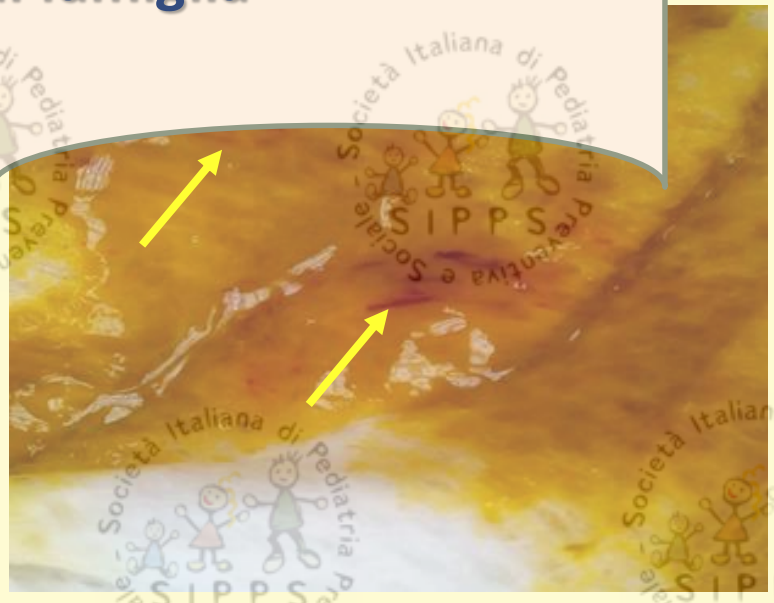
JACI 2017

TABLE I. Proposed defining features for clinical phenotyping of FPIES

FPIES subtypes	Defining features
Age of onset	
Early	Younger than age 9 mo
Late	Older than age 9 mo
Severity	
Mild-to-moderate	Repetitive emesis with or without diarrhea, pallor, mild lethargy
Severe	Repetitive projectile emesis with or without diarrhea, pallor, lethargy, dehydration, hypotension, shock, methemoglobinemia, metabolic acidosis
Timing and duration of symptoms	
Acute	Occurs with intermittent food exposures, emesis starts usually within 1-4 h, accompanied by lethargy and pallor; diarrhea can follow within 24 hours, with usual onset of 5-10 h. Usual resolution of symptoms within 24 h after elimination of the food from the diet. Growth is normal, and child is asymptomatic during food trigger elimination.
Chronic	Occurs with daily ingestion of the food (eg, feeding with CM- or soy-based formula in an infant); symptoms include intermittent emesis, chronic diarrhea, poor weight gain, or FTT. Infants with chronic FPIES usually return to their usual state of health within 3-10 d of switching to a hypoallergenic formula, although in severe cases temporary bowel rest and intravenous fluids might be necessary. Subsequent feeding of the offending food after a period of avoidance results in acute symptoms.
IgE positivity	
Classic	Food specific, IgE negative
Atypical	Food specific, IgE positive

PROCTOCOLITE INDOTTA DA PROTEINE ALIMENTARI

La Proctocolite Allergica è di gestione del pediatra di famiglia



REAZIONI ALLERGICHE MISTE
IgE e non IgE-MEDIATE

L'Esofagite Eosinofila (EoE) e una malattia infiammatoria cronica localizzata all'esofago, di presumibile eziopatogenesi immuno-allergica, che mostra un'alternanza [illegible] e clinica e di episod[illegible]opsie esofagee p[illegible]

DIAGNOSI RISERVATA A CENTRI GASTROENTEROLOGICI ED ALLERGOLOGICI DI III LIVELLO

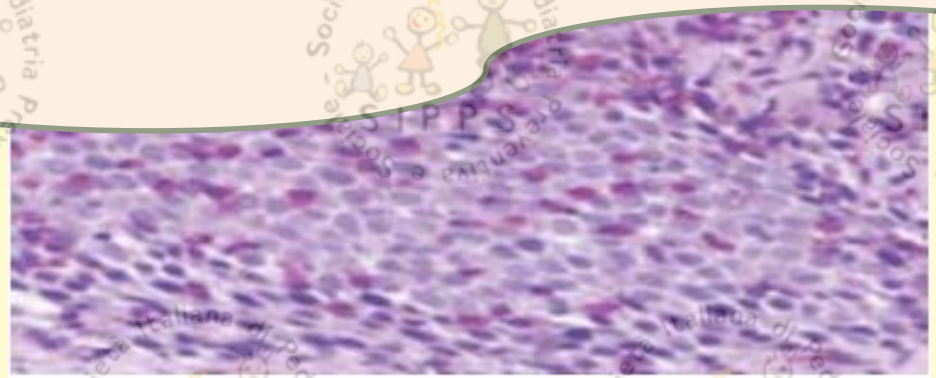
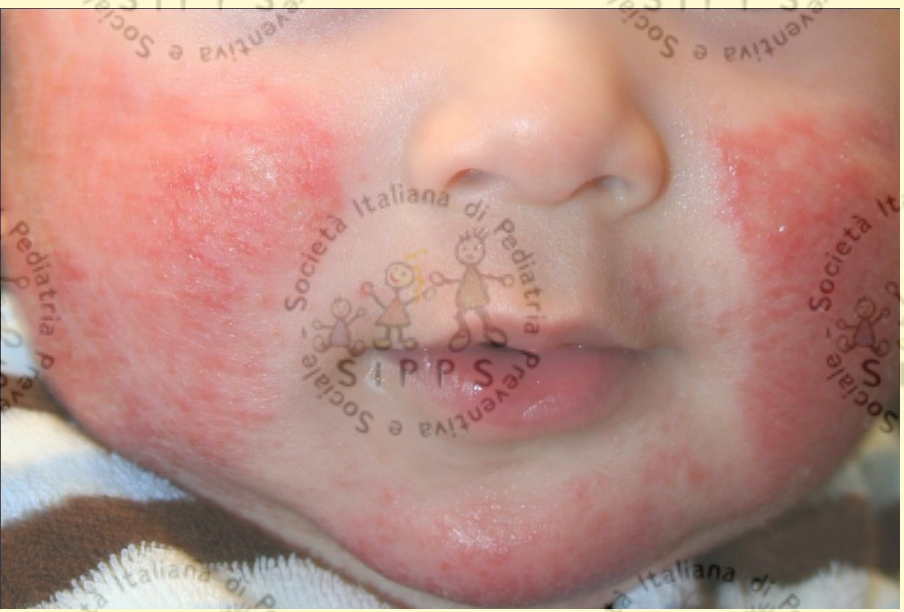


Fig. 2. Quadro istologico di esofagite eosinofila *(da Liacouras et al., 2011 [25], mod.).*

REAZIONI ALLERGICHE MISTE
IgE e non IgE-MEDIATE

Il ruolo dell'Allergia Alimentare nella Dermatite Atopica resta controverso



Di norma possiamo rispondere che i due eventi sono poco legati fra loro e, comunque, non consequenziali

TERAPIA DELLE ALLERGIE ALIMENTARI

La terapia ufficiale delle varie forme di AA consiste nell'evitamento dietetico benché si stiano sperimentando misure terapeutiche alternative (desensibilizzazione orale per alimenti).
La prescrizione di una dieta di eliminazione, in un bambino, va valutata con molta attenzione tenendo sempre in considerazione la necessità di integrazioni nutrizionali.
Inoltre, la dieta di eliminazione a scopo diagnostico, non va protratta oltre lo stretto tempo necessario, corrispondente a 2-4 settimane nelle forme di AA IgE-mediata ed al massimo 8 settimane nelle forme ritardate.

ECCEZIONE: ANAFILASSI

Diagnosi Allergologica

Iter diagnostico

Test di provocazione

Dieta di eliminazione diagnostica

IgE s

SPT

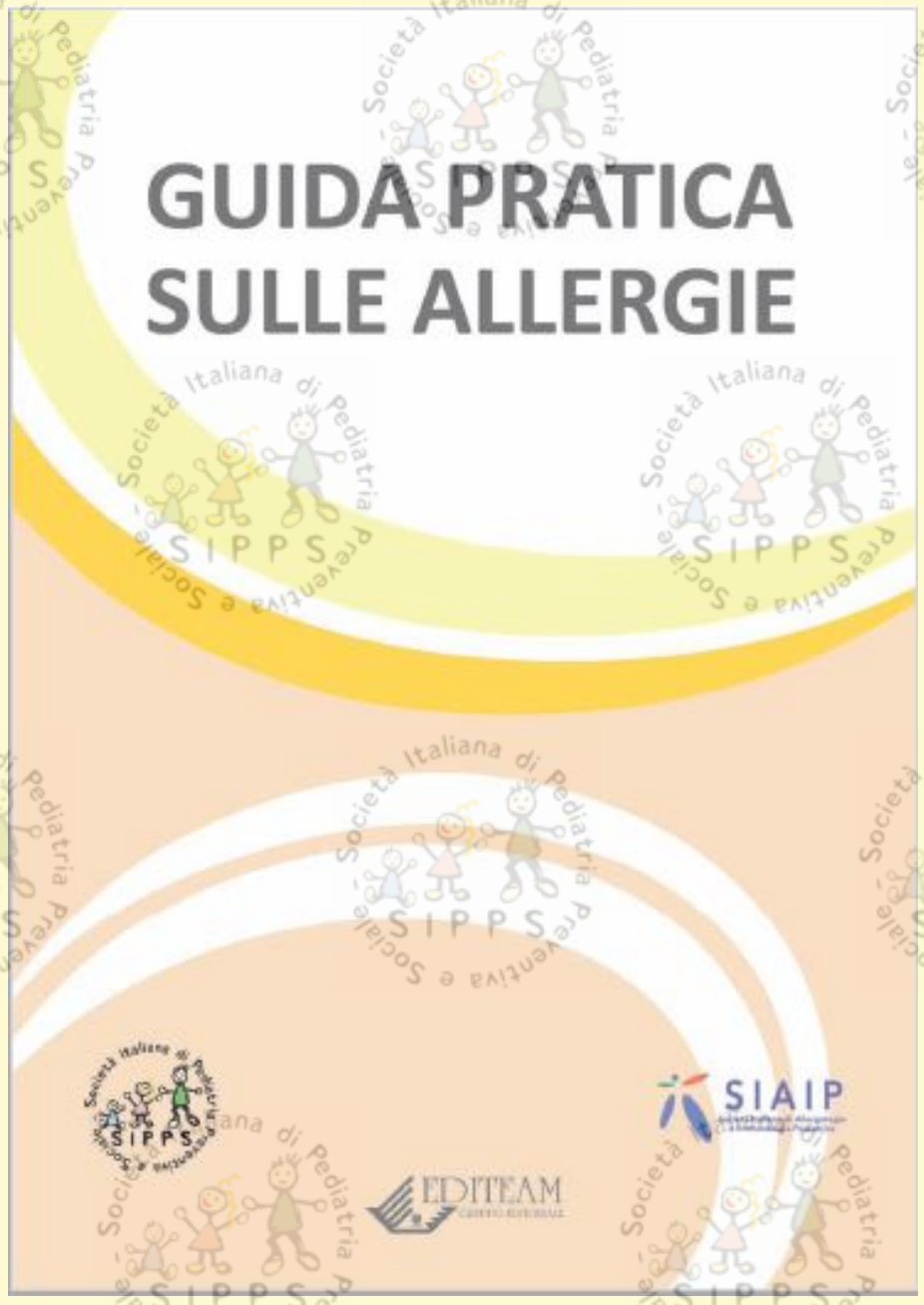
Esame obiettivo

Anamnesi accurata

TERAPIA DELLE ALLERGIE ALIMENTARI

La dieta di eliminazione terapeutica, una volta che la diagnosi di AA sia conclusiva, va effettuata finchè necessario ed implica che, almeno annualmente, venga ripetuto il TPO volto a verificare l'avvenuta tolleranza.

I genitori del bambino sottoposto a dieta di eliminazione sono invitati a leggere le etichette dei cibi. La normativa vigente prevede che vengano segnalati quegli alimenti
che sono considerati "allergeni alimentari comuni" o "allergeni maggiori".


GUIDA PRATICA
SULLE ALLERGIE
SIPPS
SIAIP
EDITEAM

GRAZIE