

아나필락시스 대응의 패러다임: 환자 중심의 관리전략

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전유훈

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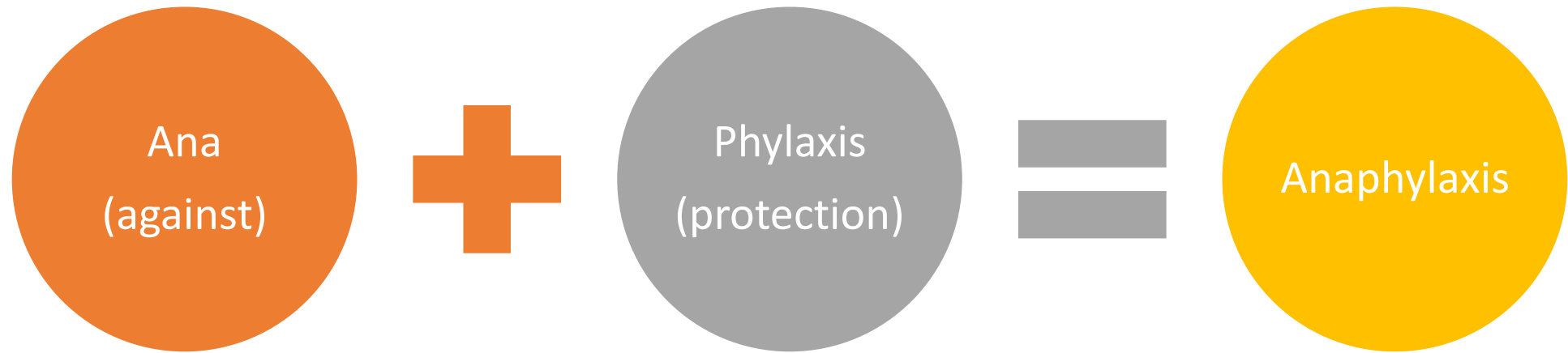
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아나필락시스 원인 알아내기

3. 아나필락시스 환자 관리법

환자교육과 장기관리계획

ANAPHYLAXIS



- : A serious life-threatening generalized or systemic hypersensitivity reaction.
- : An acute, potentially fatal, multi-organ system, allergic reaction.

'유제품 알레르기' 초등생 급식 먹고 뇌사

입력 : | 수정 : 2013-04-10 0028

우유 탄 카레로 가려움 호소 30분뒤 축구하다 호흡곤란

유제품에 알레르기 반응을 보이는 한 초등학생이 우유가 들어간 학교 급식을 먹은 뒤 뇌사상태에 빠져 경찰이 수사에 나섰다.

9일 인천시 연수구 송도동 S초등학교에 따르면 이 학교 4학년생 김모(10)군이 지난 3일 낮 12시 50분쯤 학교 운동장에서 친구들과 축구를 하다가 갑자기 호흡곤란 증세를 보이며 쓰러졌다. 함께 운동을 하던 김군의 친구가 학교 보건실로 급히 뛰어갔고, 보건교사가 운동장으로 달려나와 김군의 상태를 확인한 후 119에 신고했다.

앞서 30분 전 점심시간에 우유를 탄 카레를 먹은 김군은 입주변이 가렵고 귀가 붓는 알레르기 반응이 나타나자 식사를 중단했다. 학교 측은 카레가 굳는 것을 방지하기 위해 우유를 섞은 것으로 알려졌다. 김군의 아버지(56)는 "학년 초 상담기 초조사서에 '유제품 알레르기가 있어 그런 종류



최신뉴스

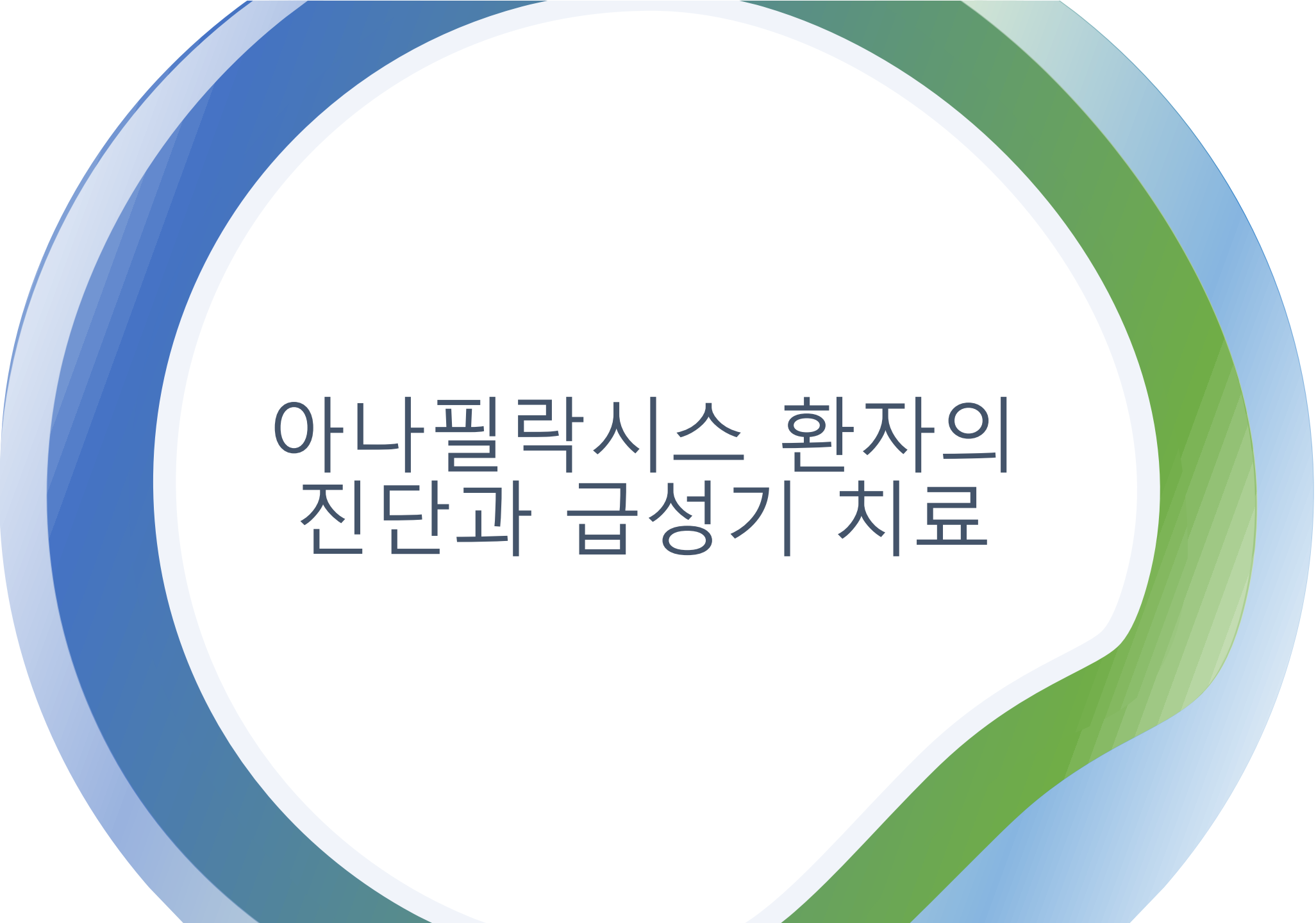
코로나19 백신 접종 D-2... '아나필락시스' 감별 ·처치 어떻게

송고 2021-02-24 13:57

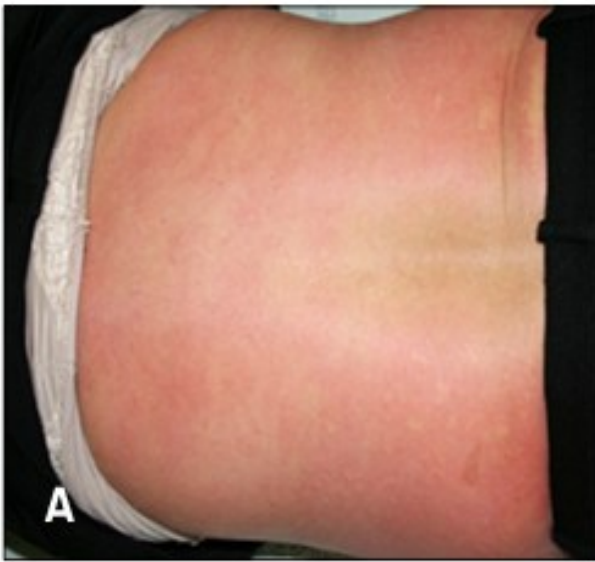


접종기관 15~30분 머물며 증상 관찰 필요...과호흡으로 인한 졸도와 구분해야
기도 확보하고 에피네프린 투여하면 호전...아나필락시스 발생시 추가 접종 금지





아나필락시스 환자의 진단과 급성기 치료



Ann Dermatol Vol. 21, No. 4, 2009



	피부 입속, 귀 속이 따끔거림 입술, 구강 부종 가려움 홍반 두드러기		호흡기 삼키거나 말하기 힘들 호흡곤란 숨소리
	심장혈관계 실신 요실금 혈압저하		소화기 구역질 설사 복통 구토

질병관리청 경기도 경기도의료원 아토피·천식 교육정보센터

Symptoms of Anaphylaxis

소아알레르기 호흡기학 제 3판

피부	홍조, 가려움증, 두드러기, 혈관부종, 홍역모양발진 눈주위 가려움증, 홍반, 부종, 결막홍반 입술, 혀, 입안의 가려움증, 부종 손바닥, 발바닥, 생식기의 가려움증
호흡기	코가려움증, 코막힘, 콧물, 재채기 인후통, 발성장애, 쉼 목소리, 마른 단속성 기침, 협착음 하기도: 빈호흡, 호흡곤란, 가슴답답함, 천명, 기도수축, 최고호기유속감소 청색증, 호흡마비
소화기	복부통증, 구역, 구토, 설사, 연하곤란
순환기	가슴통증 빈맥, 서맥, 부정맥, 두근거림 저혈압, 실신, 요실금, 대변실금, 쇼크
신경	안절부절 못함, 박동성 두통, 실신, 의식저하, 현기증, 터널시야, 혼동
기타 증상	금속성의 입맛 여성에서 자궁 수축으로 인한 경련통 또는 출혈

Diagnosis of Anaphylaxis

Cardona et al. *World Allergy Organization Journal* (2020) 13:100472
<http://doi.org/10.1016/j.waojou.2020.100472>



WORLD ALLERGY
ORGANIZATION
JOURNAL

POSITION PAPER

World Allergy Organization Anaphylaxis Guidance 2020

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DOI: 10.1111/all.15032

GUIDELINES



EAACI guidelines: Anaphylaxis (2021 update)

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Audrey DunnGalvin^{5,6} | Lene Heise Garvey^{7,8} | Carmen Riggioni⁹ |
Debra de Silva¹⁰ | Elizabeth Angier¹¹ | Stefania Arasi¹² |
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Lynne Regent²⁷ | Angel Sanchez²⁸ | Berber J. Vlieg-Boerstra²⁹ |
Graham Roberts^{3,30,31} | European Academy of Allergy and Clinical Immunology, Food
Allergy, Anaphylaxis Guidelines Group

Allergy INTERNATIONAL JOURNAL OF ALLERGY
AND CLINICAL IMMUNOLOGY WILEY

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

1. Acute onset of an illness (minutes to several hours) with involvement of the skin, mucosal tissue or both (eg generalized hives, pruritus or flushing, swollen lips-tongue-uvula) AND AT LEAST ONE of the following:

- a. Respiratory compromise (eg wheezing, stridor, reduced peak expiratory flow, or hypoxemia)
- b. Reduced BP or associated symptoms (eg lightheadedness, fainting, or incontinence)

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 (eg generalized hives, itch-flush, swollen lips-tongue-uvula)
- b. Respiratory compromise (eg dyspnoea, wheeze-bronchospasm, stridor, reduced PEF, hypoxemia)
- c. Reduced BP or associated symptoms (eg hypotonia [collapse], syncope, incontinence)
- d. Persistent gastrointestinal symptoms (eg abdominal pain, vomiting)

3. Reduced BP after exposure to known allergen for that patient (minutes to several hours):

- a. Infants and children: low systolic BP (age specific) or >30% decrease in systolic BP*
- b. Adults: systolic BP of <90 mmHg or >30% decrease from that person's baseline

Anaphylaxis is highly likely when any one of the following 2 criteria are fulfilled:

1. Acute onset of an illness (minutes to several hours) with simultaneous involvement of the skin, mucosal tissue, or both (eg, generalized hives, pruritus or flushing, swollen lips-tongue-uvula)

AND AT LEAST ONE OF THE FOLLOWING:

a. Respiratory compromise (eg, dyspnea, wheeze-bronchospasm, stridor, reduced PEF, hypoxemia)

b. Reduced BP or associated symptoms of end-organ dysfunction (eg, hypotonia [collapse], syncope, incontinence)

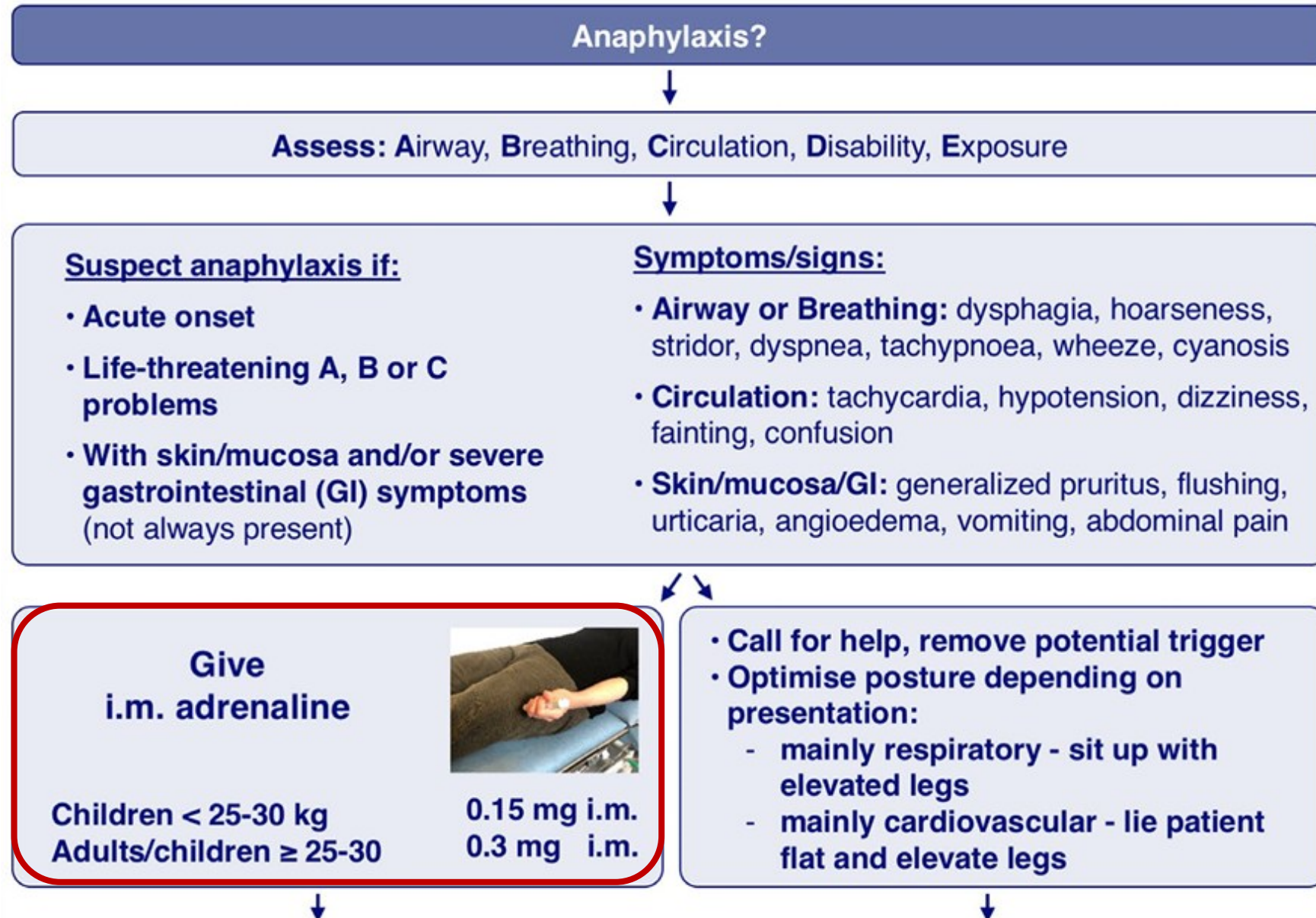
c. Severe gastrointestinal symptoms (eg, severe crampy abdominal pain, repetitive vomiting), especially after exposure to non-food allergens

2. Acute onset of hypotension^a or bronchospasm^b or laryngeal involvement^c after exposure to a known or highly probable allergen^d for that patient (minutes to several hours), even in the absence of typical skin involvement.

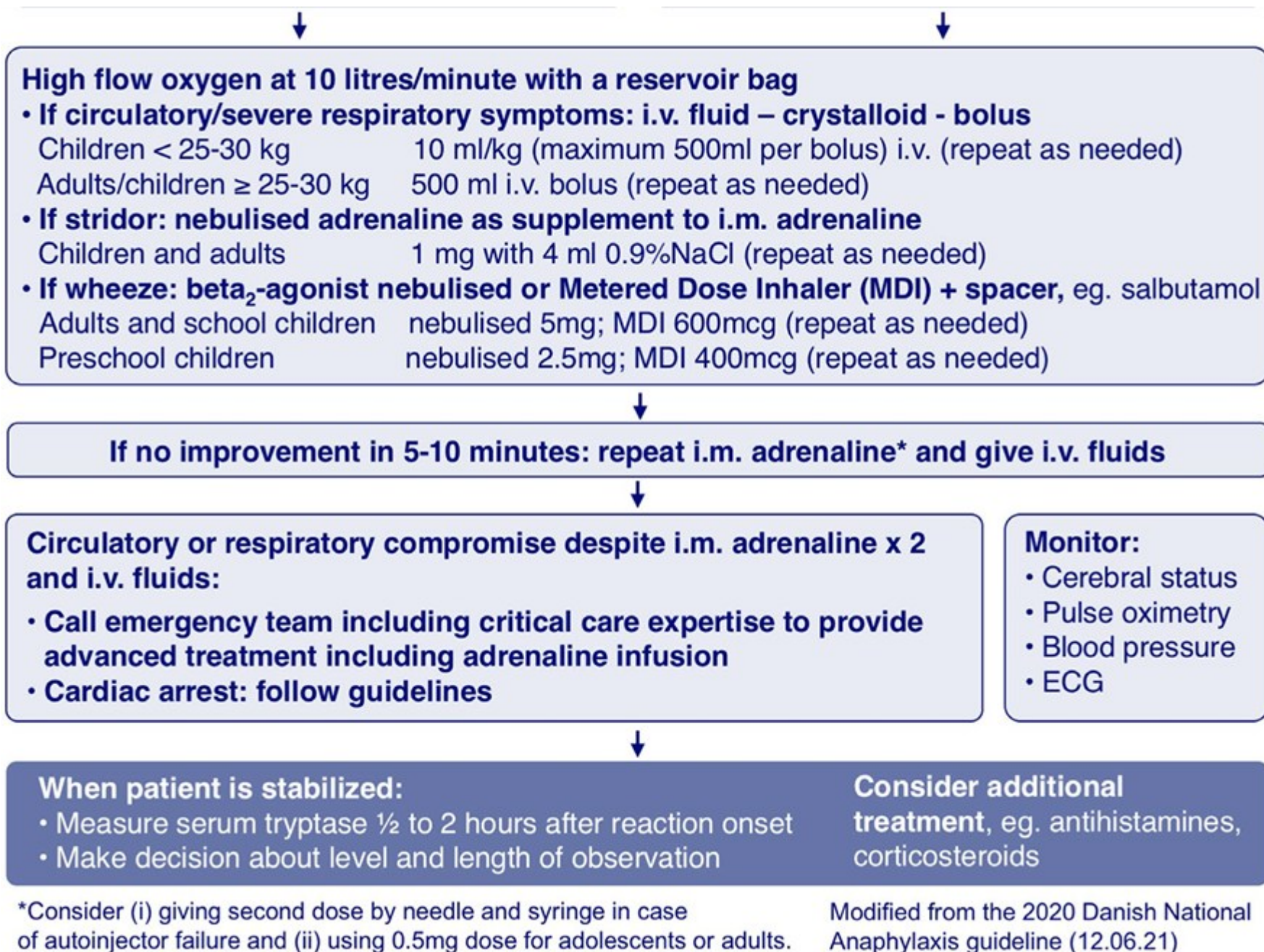
**** Hypotension defined as a decrease in systolic BP greater than 30% from that person's baseline, OR infants and children under 10 years: systolic BP less than $(70 \text{ mmHg} + [2 \times \text{age in years}])$, OR adults and children over 10 years: systolic BP less than $<90 \text{ mmHg}$.**

World Allergy Organization
Anaphylaxis Guidance 2020

Initial Treatment for Anaphylaxis = Epinephrine



EAACI guideline:
Anaphylaxis (2021
update). Allergy.
2022;77:357–377



Modified from the 2020 Danish National Anaphylaxis guideline (12.06.21)

EAACI guideline: Anaphylaxis (2021 update). Allergy. 2022;77:357–377

Anaphylaxis in infants: initial management

- 1) Have a written emergency protocol for anaphylaxis recognition and treatment.
- 2) If possible, remove exposure to the trigger, e.g. stop IV medication.
- 3) Assess circulation, airway, breathing, skin, and body weight (mass).
- 4) Promptly and simultaneously, call to request help from a resuscitation team in a healthcare setting or from emergency medical services in a community setting (eg. 911).



- 5) Place the infant supine or semi-reclining in a position of comfort in the caregiver's arms.



- 6) Inject epinephrine (adrenaline) intramuscularly in the mid-outer thigh in a dose of 0.01 mg/kg in healthcare settings, or use an epinephrine auto-injector (EAI), 0.15 mg in community settings.



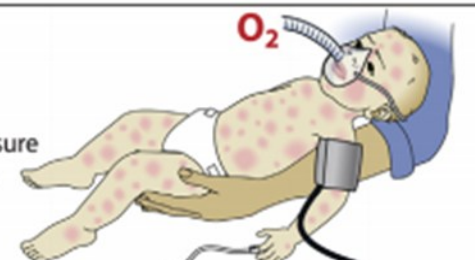
- 7) When indicated at any time, provide high-flow supplemental oxygen (8-10/L) using a tightly-fitting infant face mask.



- 8) Establish intravenous access and start fluid resuscitation with 0.9% saline, initially in a dose of 10-20 mL/kg over 5-10 minutes.



- 9) Monitor respiratory rate, heart rate, and blood pressure using continuous electronic monitoring if possible. Monitor oxygenation using pulse oximetry.



- 10) When indicated, perform cardiopulmonary resuscitation (CPR) at a rate of 100 chest compressions per minute and a depth of 4 cm, with minimal interruptions, and perform rescue breaths at a rate of 15-20/minute.





아나필락시스의 역학 및 원인

Anaphylaxis Prevalence

- The current incidence worldwide was found to be **46 cases per 100,000** population per year (95% CI 21–103).

Front Allergy. 2023 Dec 12;4:1249280.

- The estimated incidence of anaphylaxis in children is between **1 to 761 per 100,000** person-years.

Allergy. 2019;74:1063–1080.

- The prevalence of anaphylaxis in children has been estimated between **0.04-1.80%**.

Allergy. 2019;74:1063–1080.

Prevalence of Food Allergy and Anaphylaxis in Korean School-aged Children in 2022 (N=12,558)

		All ages	6-7 yrs old	9-10 yrs old	12-13 yrs old
Prevalence of FA	Sx, ever	2051 (16.7%)	684 (17.2%)	744 (17.7%)	623 (15.1%)
	Dx, ever	690 (5.6%)	260 (6.2%)	248 (5.9%)	182 (4.7%)
Prevalence of Anaphylaxis	Sx, ever	1141 (9.2%)	342 (8.2%)	409 (9.7%)	390 (9.5%)
	Sx, last 12 mo	635 (5.1%)	175 (4.3%)	230 (5.4%)	230 (5.6%)
	Dx, ever	66 (0.5%)	22 (0.5%)	35 (0.8%)	9 (0.3%)
	Tx, last 12 mo	27 (0.2%)	10 (0.2%)	12 (0.3%)	5 (0.1%)

Unpublished Data, 2023 Fall Conference, The Korean Pediatric Society

Brief Communication

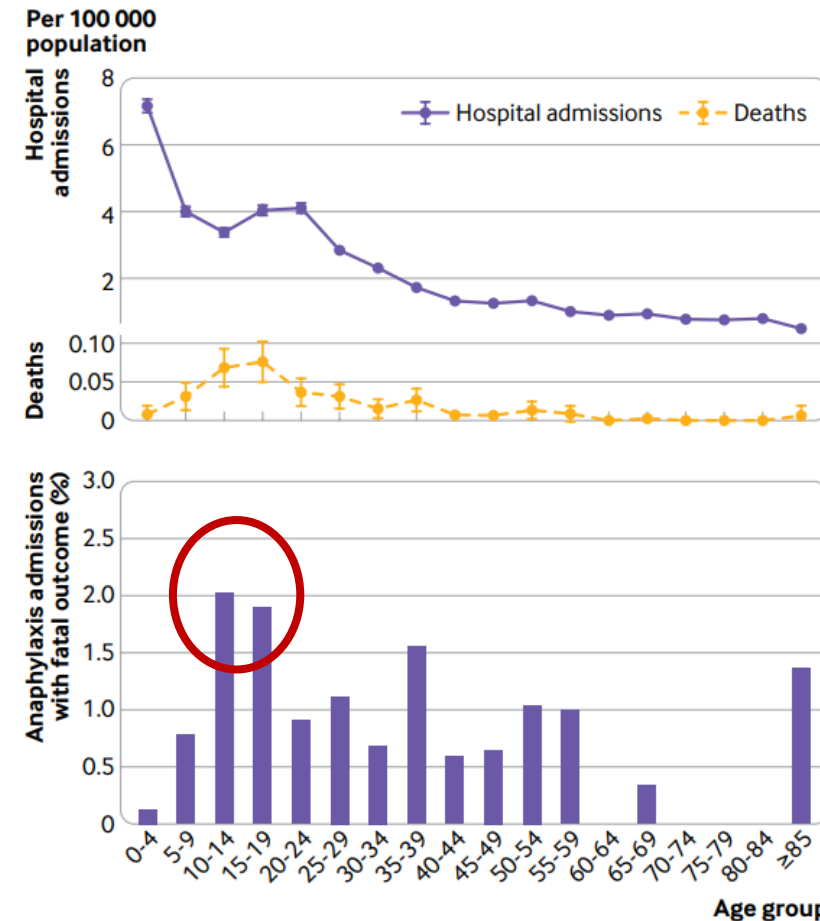
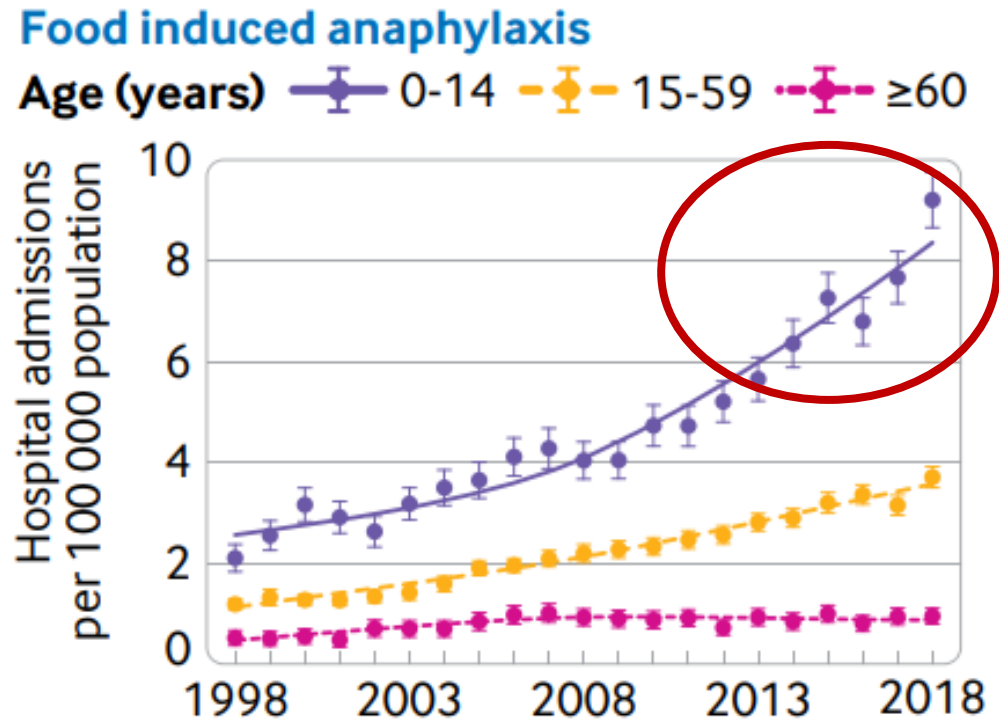
Increased incidence of admissions for anaphylaxis in Spain 1998–2011

M. A. Tejedor-Alonso ✉, M. Moro-Moro, M. Mosquera González, M. Rodríguez-Alvarez,
E. Pérez Fernández, P. Latasa Zamalloa, E. Farias Aquino, R. Gil Prieto, A. Gil de Miguel

- ✓ Admissions for anaphylaxis in Spanish hospitals
: X 1.89
: 0–14 yrs (X 1.65 ~3.22 until 2009
X 4.09 ~12.59 until 2011)
- ✓ Food anaphylaxis in all age groups
: X 2.78 until 2009
X 8.74 until 2011
- ✓ ↑ The incidence of anaphylaxis caused by food and
anaphylaxis affecting the pediatric population

Food anaphylaxis in the United Kingdom: analysis of national data, 1998-2018

Alessia Baseggio Conrado,¹ Despo Ierodiakonou,² M Hazel Gowland,³ Robert J Boyle,¹ Paul J Turner¹



Differential Diagnosis of Anaphylaxis (1)

BOX 2 Differential diagnosis of anaphylaxis

Skin or mucosal

- chronic remittent or physical urticaria and angioedema
- pollen food allergy syndrome (just oral symptoms)

Respiratory diseases

- acute laryngotracheitis
- laryngeal, tracheal or bronchial obstruction (eg foreign substances, intermittent laryngeal obstruction or vocal cord dysfunction)
- status asthmaticus (without involvement of other organs)

Cardiovascular diseases

- vasovagal syncope
- pulmonary embolism
- myocardial infarction
- cardiac arrhythmias
- cardiogenic shock

Pharmacological or toxic reactions

- ethanol
- histamine, eg scombroid fish poisoning
- opiates

Neuropsychiatric diseases

- hyperventilation syndrome
- anxiety and panic disorder
- somatoform disorder (eg psychogenic dyspnoea)
- dissociative disorder and conversion (eg globus hystericus)
- epilepsy
- cerebrovascular event
- psychoses
- factitious disorder

Endocrinological diseases

- hypoglycemia
- thyrotoxic crisis
- carcinoid syndrome
- vasointestinal polypeptide tumours
- pheochromocytoma

EAACI guideline:

Anaphylaxis (2021 update). Allergy. 2022;77:357–377

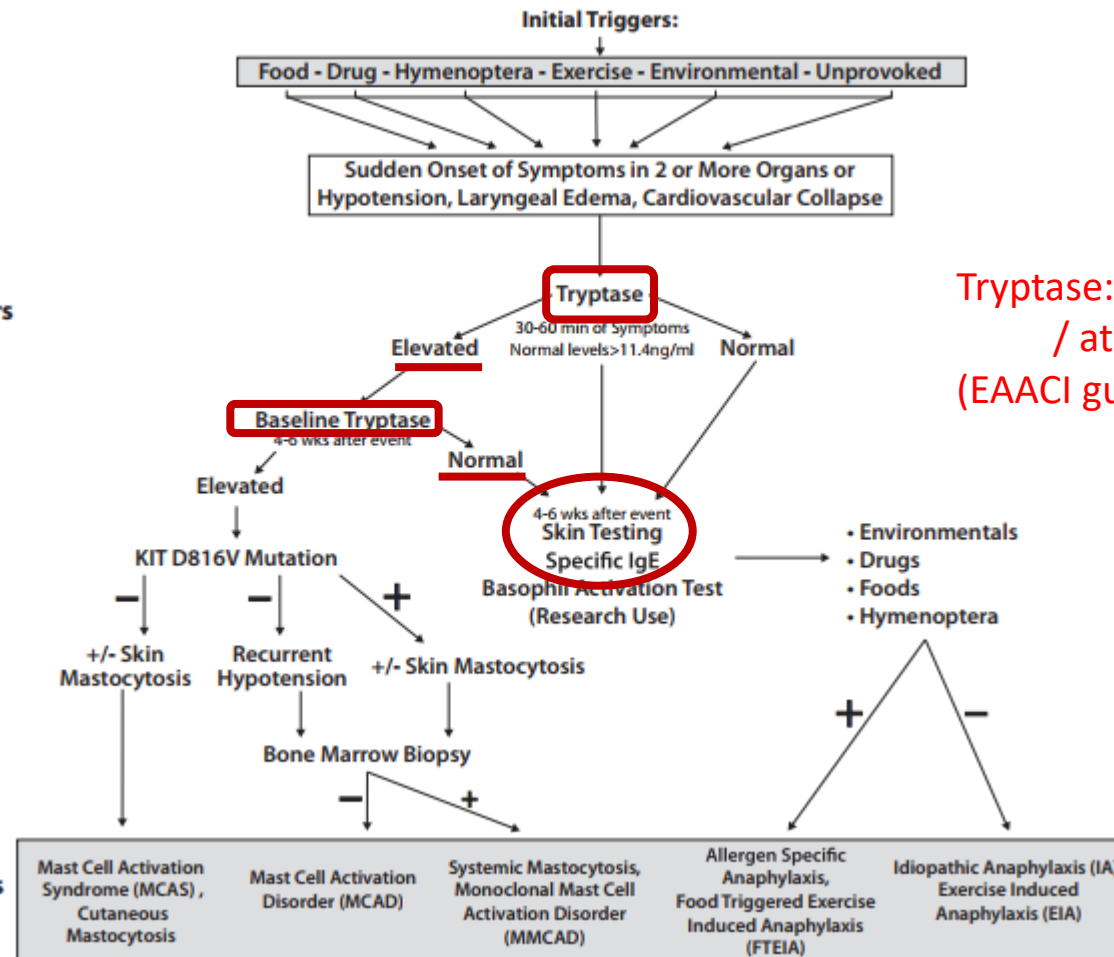
Differential Diagnosis of Anaphylaxis (2)

Phenotype

Anaphylaxis Diagnosis

Biomarkers

Endotypes



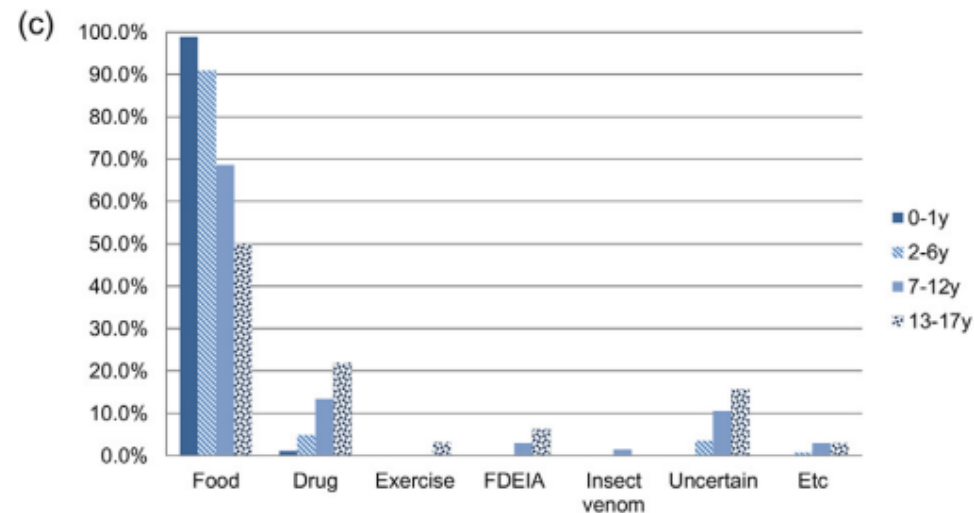
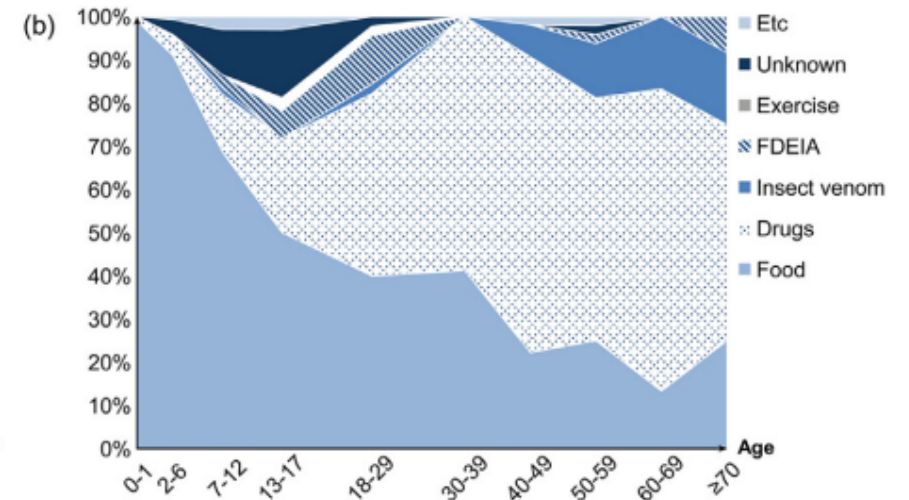
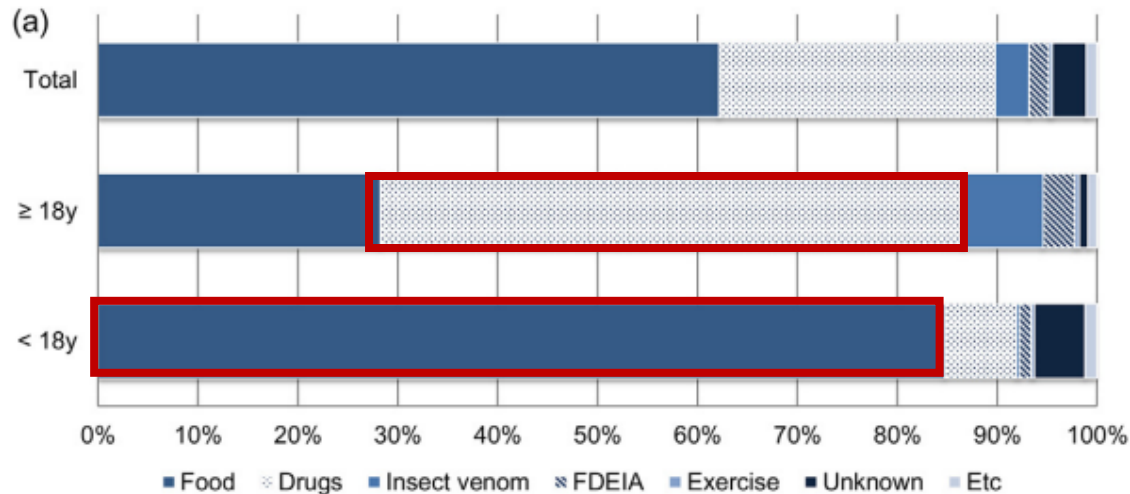
Tryptase: 30min-2hrs
/ at least 24hrs after resolution
(EAACI guideline)

Trigger factors

A multicenter anaphylaxis registry in Korea: Clinical characteristics and acute treatment details from infants to older adults

World Allergy Organization Journal (2020) 13:100449

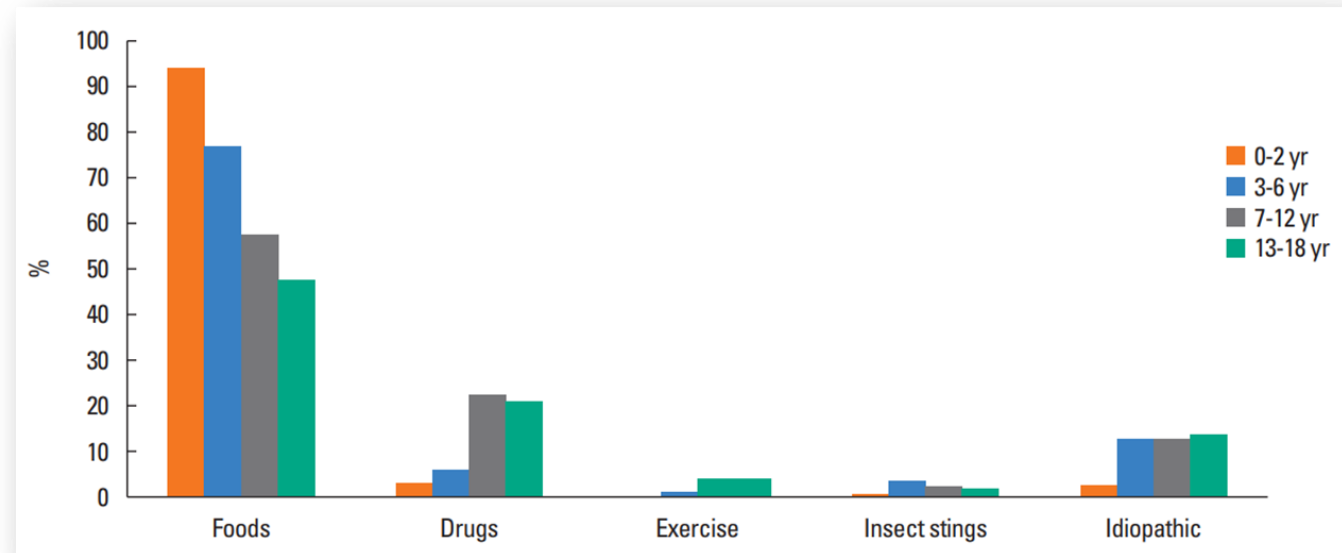
- 22 allergy departments in 16 tertiary or secondary hospitals in Korea
- 2016-2018
- N=558
<18yr : 335
≥18yr : 223



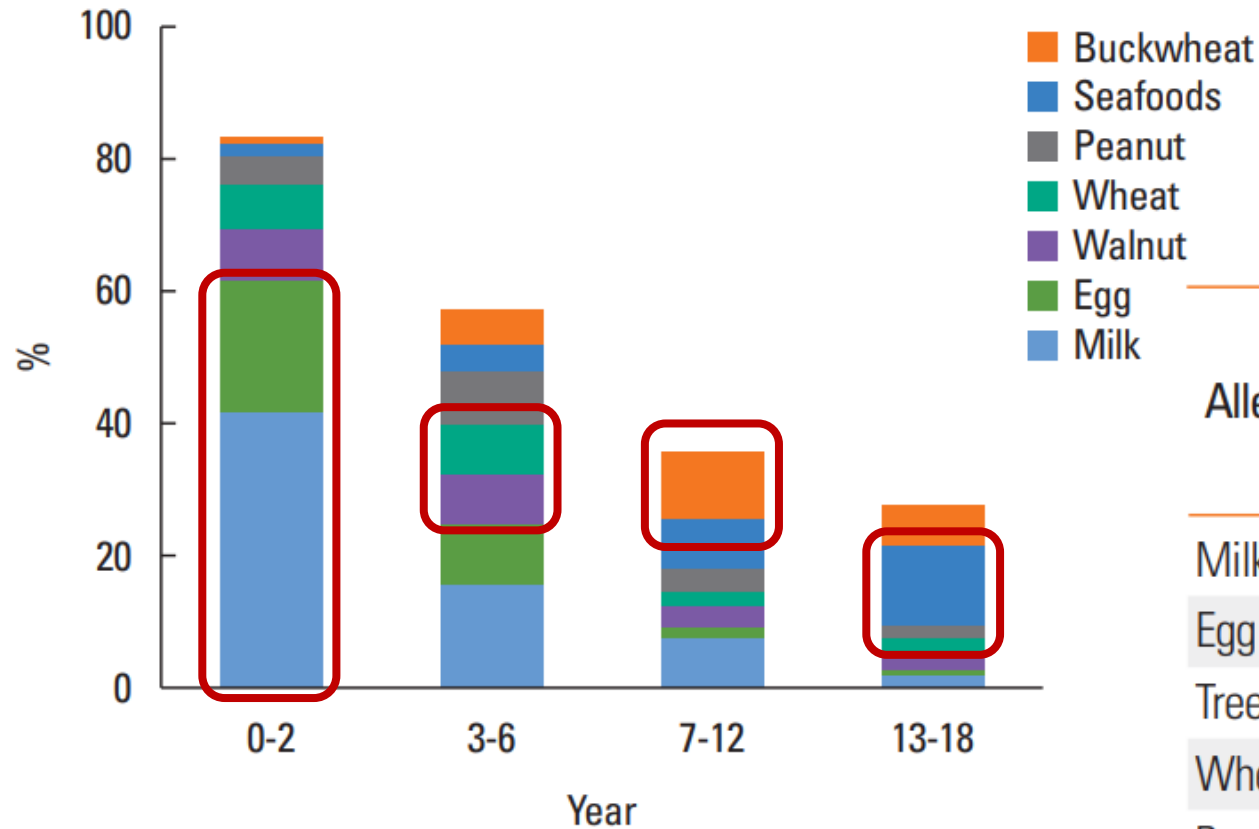
Trigger Factors in Anaphylaxis - Korea

- Children (<18 yr) diagnosed with anaphylaxis between 2009 and 2013 in 23 secondary or tertiary hospitals in South Korea (N=991)

Triggers	
Food	740/991 (74.7)
Drugs and radiocontrast media (RCM)	106/991 (10.7)
Idiopathic	91/991 (9.2)
Exercise	36/991 (3.6)
Insect stings	18/991 (1.8)



Food Triggers in Pediatric Anaphylaxis - Korea

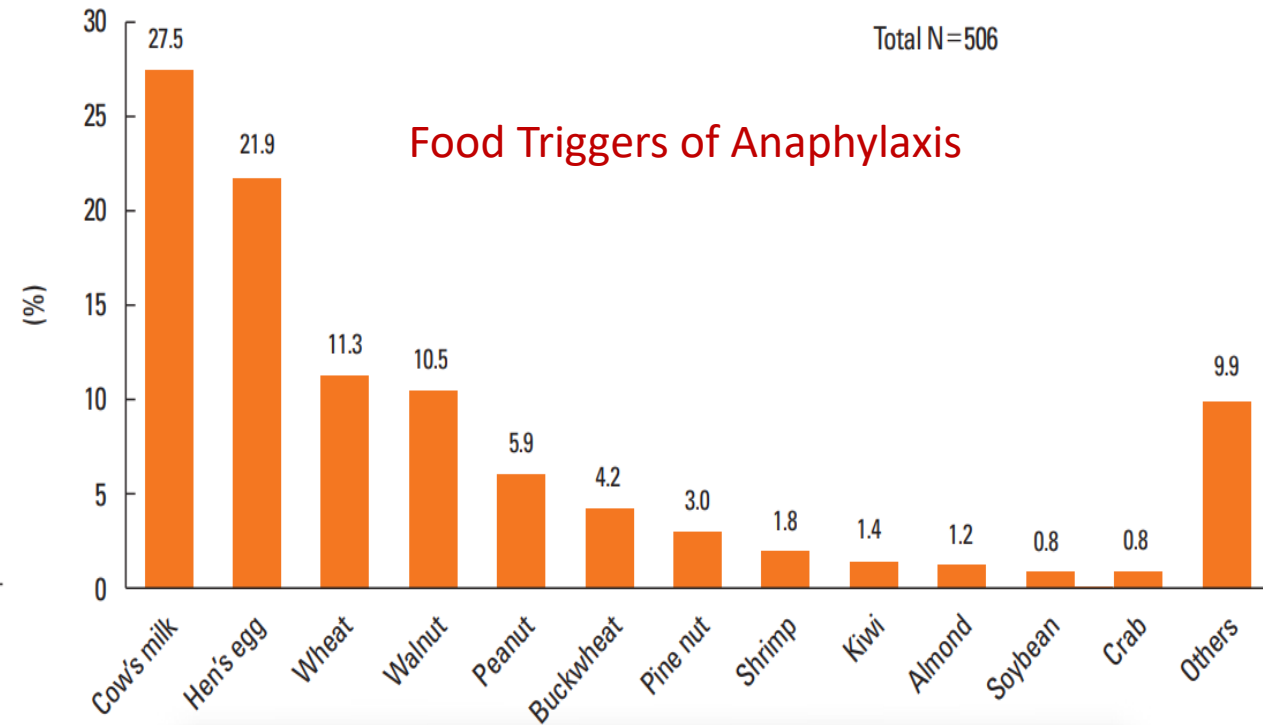
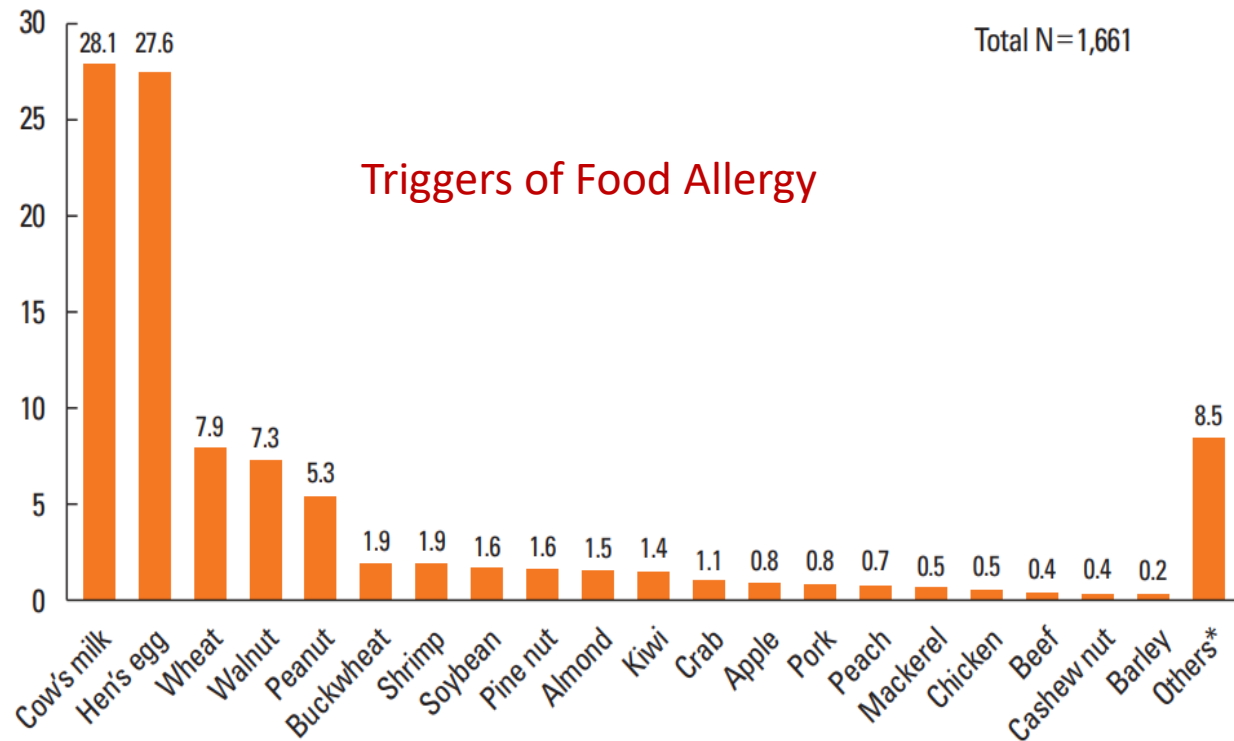


Allergens	No. (%)				
	2009 (n=85)	2010 (n=117)	2011 (n=166)	2012 (n=262)	2013 (n=361)
Milk	13 (15.3)	23 (19.7)	31 (18.7)	65 (24.8)	78 (21.6)
Egg white	7 (8.2)	8 (6.8)	15 (9.0)	32 (12.2)	39 (10.8)
Tree nuts	7 (8.2)	6 (5.1)	11 (6.6)	25 (9.5)	49 (13.6)
Wheat	6 (7.1)	7 (6.0)	11 (6.6)	9 (3.4)	20 (5.5)
Peanut	5 (6.9)	1 (0.9)	7 (4.2)	17 (6.5)	16 (4.4)
Buckwheat	5 (5.9)	12 (10.3)	7 (4.2)	9 (3.4)	15 (4.2)

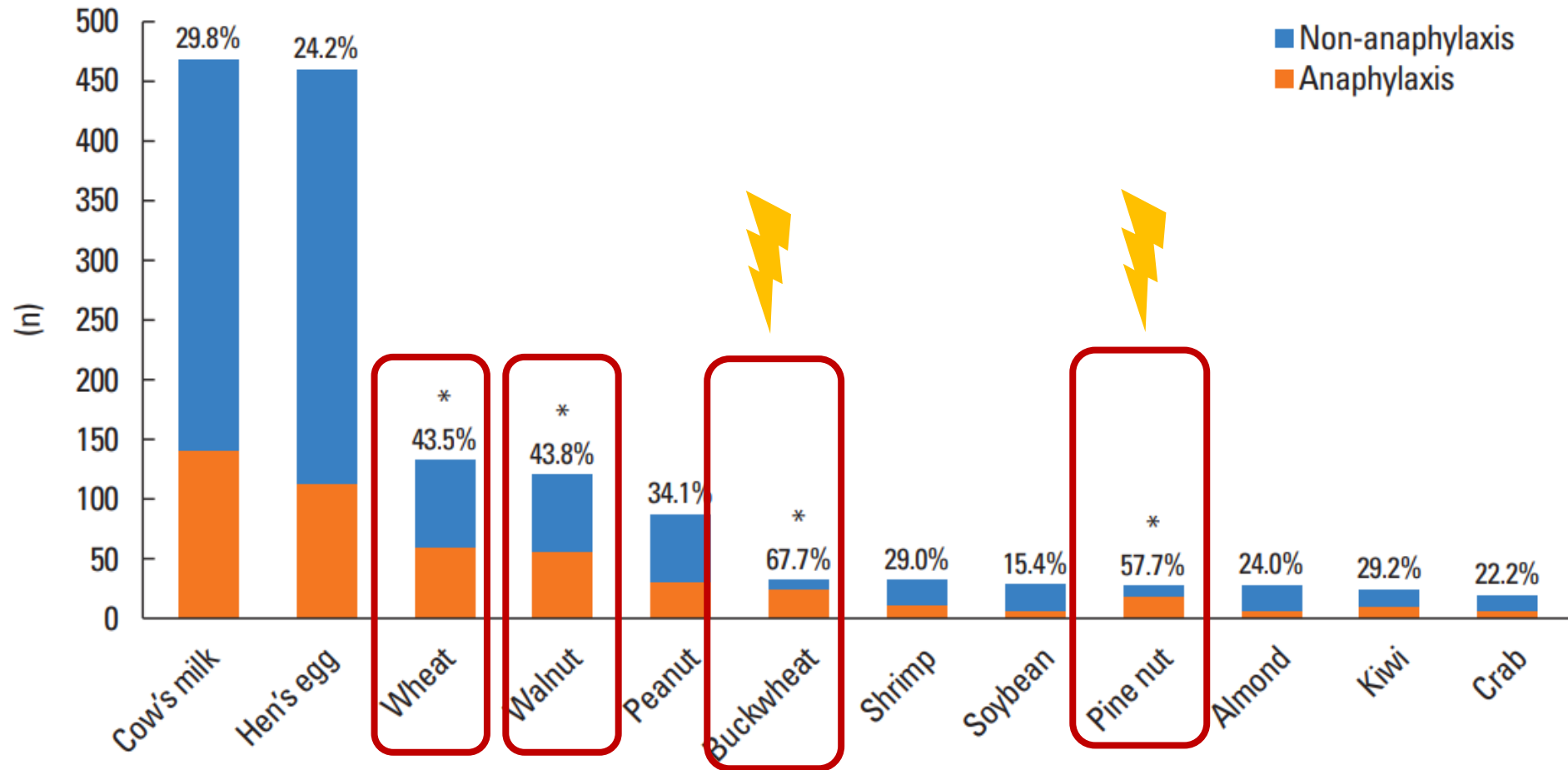
Food Triggers in Pediatric Anaphylaxis - Korea

Food	No. (%) (N=740)
① Milk	210 (28.4)
② Egg white	101 (13.6)
⑥ Peanut	46 (6.2)
Soy	10 (1.4)
Tree nuts	98 (13.2)
③ Walnut	59 (8)
⑦ Pine nuts	17 (2.3)
Cashew	6 (0.8)
Almond	4 (0.5)
Other tree nuts*	12 (1.6)
④ Wheat	53 (7.2)
⑤ Buckwheat	48 (6.5)
Crustacean	26 (3.5)
Shrimp	13 (1.8)
Crab	11 (1.5)
Shellfish	2 (0.3)

Triggers of FA ≠ Food Triggers of Anaphylaxis

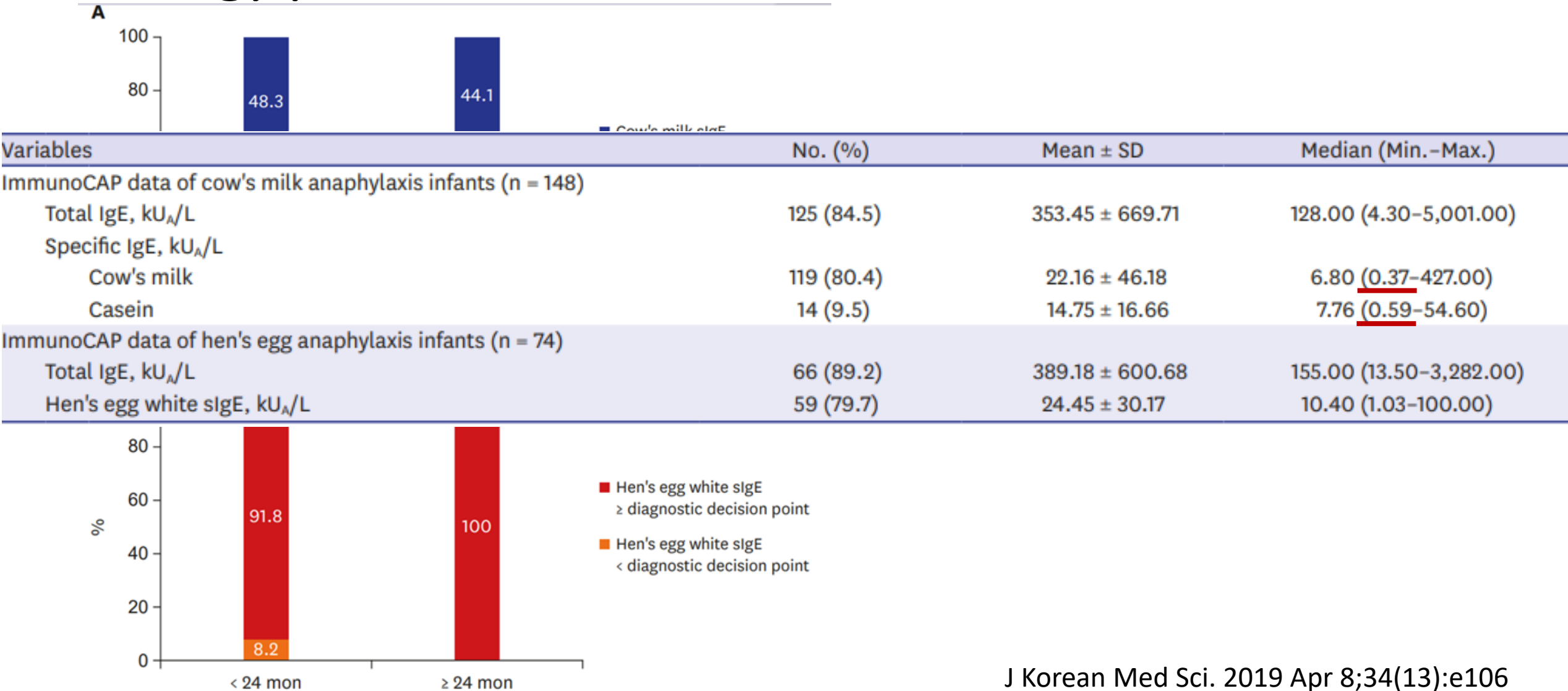


Dangerous Food?



Proportion of anaphylaxis according to different causative foods (0-18 years). *Proportion of anaphylaxis higher than 40%.

Objective test value that predicts anaphylaxis in food allergy patients?



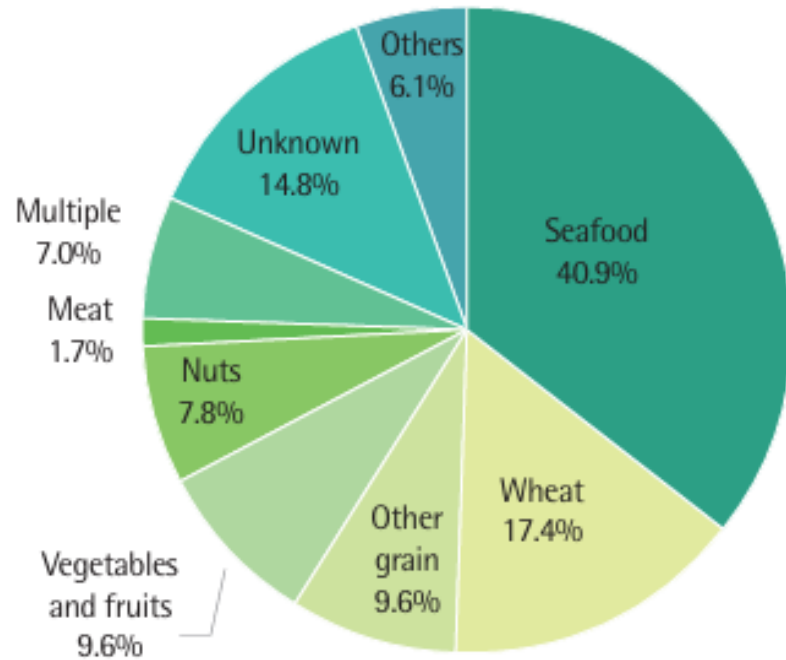
Exercise Induced Anaphylaxis

- Exercise-induced anaphylaxis (EIAn)
- Food-Dependent, Exercise-Induced Anaphylaxis (FDEIAn)

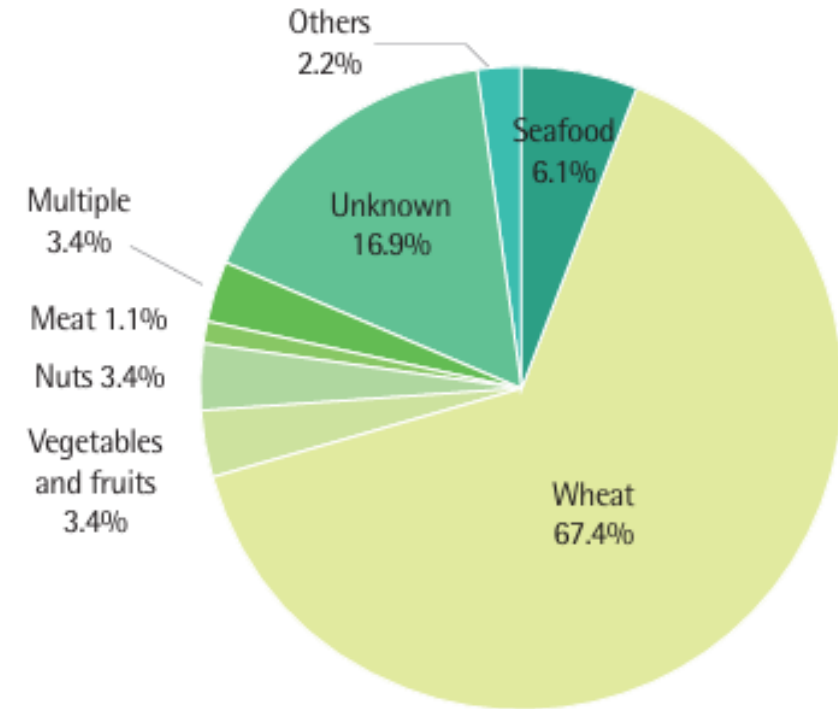
- 1) 운동후 장점막 투과성 증가
- 2) 장점막 효소 활성화 -> IgE 면역반응 촉진
- 3) 혈액세포->알러젠이 표적기관에 전달
- 4) 소화기 점막의 삼투압 변화

- Most common trigger foods in FDEIAn

Most common	Less common
Wheat	Other grains (maize, buckwheat, etc.)
Shellfish (particularly shrimp)	Vegetables (lettuce, celery, pepper)
Legumes (peanut, soy)	Garlic
Tree nuts	
Tomato	



The causative foods
of food anaphylaxis in adults



The causative foods
of FDEIA in adults

Drug-induced Anaphylaxis

AARD

Allergy Asthma Respir Dis 8(1):30-35, January 2020 <https://doi.org/10.4168/aard.2020.8.1.30>



pISSN: 2288-0402
eISSN: 2288-0410

ORIGINAL ARTICLE

의약품부작용보고원시자료 기반 약물 아나필락시스 사례 분석

조민경,¹ 문미라,¹ 김현화,¹ 강동윤,¹ 이주연,² 조상현,^{1,3,4} 강혜련^{1,3,4}

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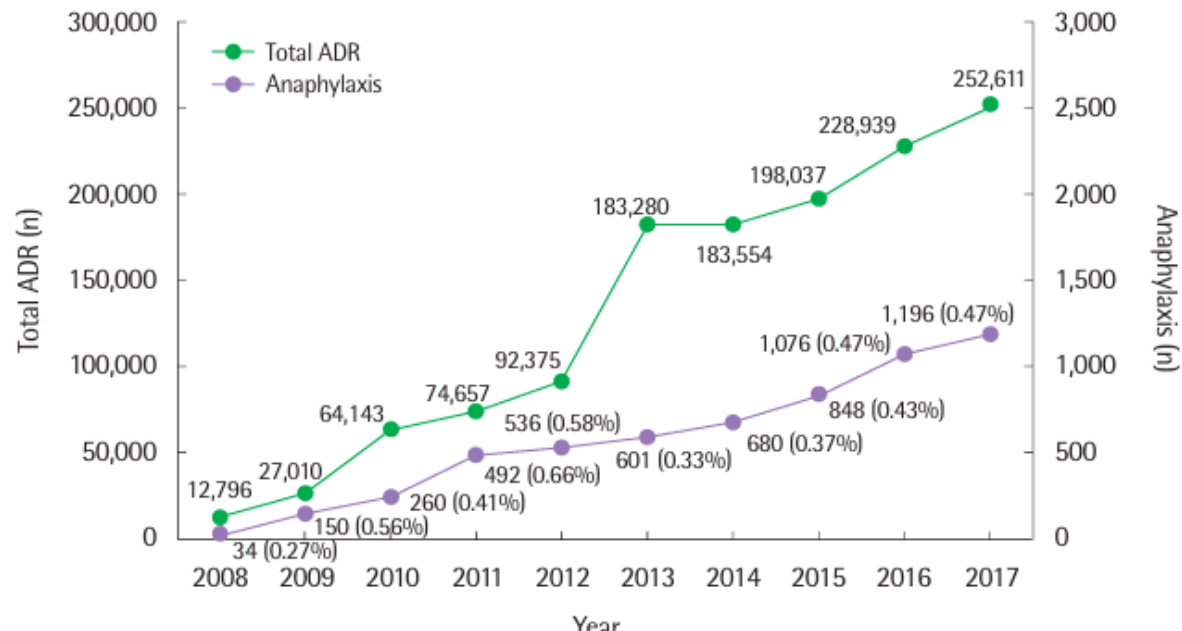


Table 2. Categories of causative agents of drug-induced anaphylaxis (n = 6,212)

Category	No. of agents (%)
Antibiotics	1,705 (27.4)
Cephalosporin	1,035 (16.7)
Penicillin	333 (5.4)
Quinolones	130 (2.1)
NSAIDs/aspirin	1,147 (18.5)
Contrast media	668 (10.8)
Iodine contrast media	627 (10.1)
Gadolinium	38 (0.6)
Antineoplastic agents	526 (8.5)
Platinum	247 (4.0)
Taxane	107 (1.7)
Monoclonal antibody	88 (1.4)
H ₂ antagonist	362 (5.8)
Muscle relaxants	195 (3.1)
Peripherally acting agents	98 (1.6)
Centrally acting agents	97 (1.6)

NSAID, nonsteroidal anti-inflammatory drug.

Drug-induced Anaphylaxis in children

Drug	No. (%) (N=106)
Antibiotics	37 (34.9)
Cephalosporins	24 (22.6)
Penicillin	8 (7.5)
Other antibiotics*	5 (4.7)
Nonsteroidal anti-inflammatory drugs	19 (17.9)
Vaccine	10 (9.4)
Influenza vaccine	7 (6.6)
Others vaccine [†]	3 (2.8)
Immunotherapy	3 (2.8)
Other drugs [†]	14 (13.2)
Unspecified drugs	16 (15.1)
Radiocontrast media	7 (6.6)

Drug-induced vs. Food-induced Anaphylaxis

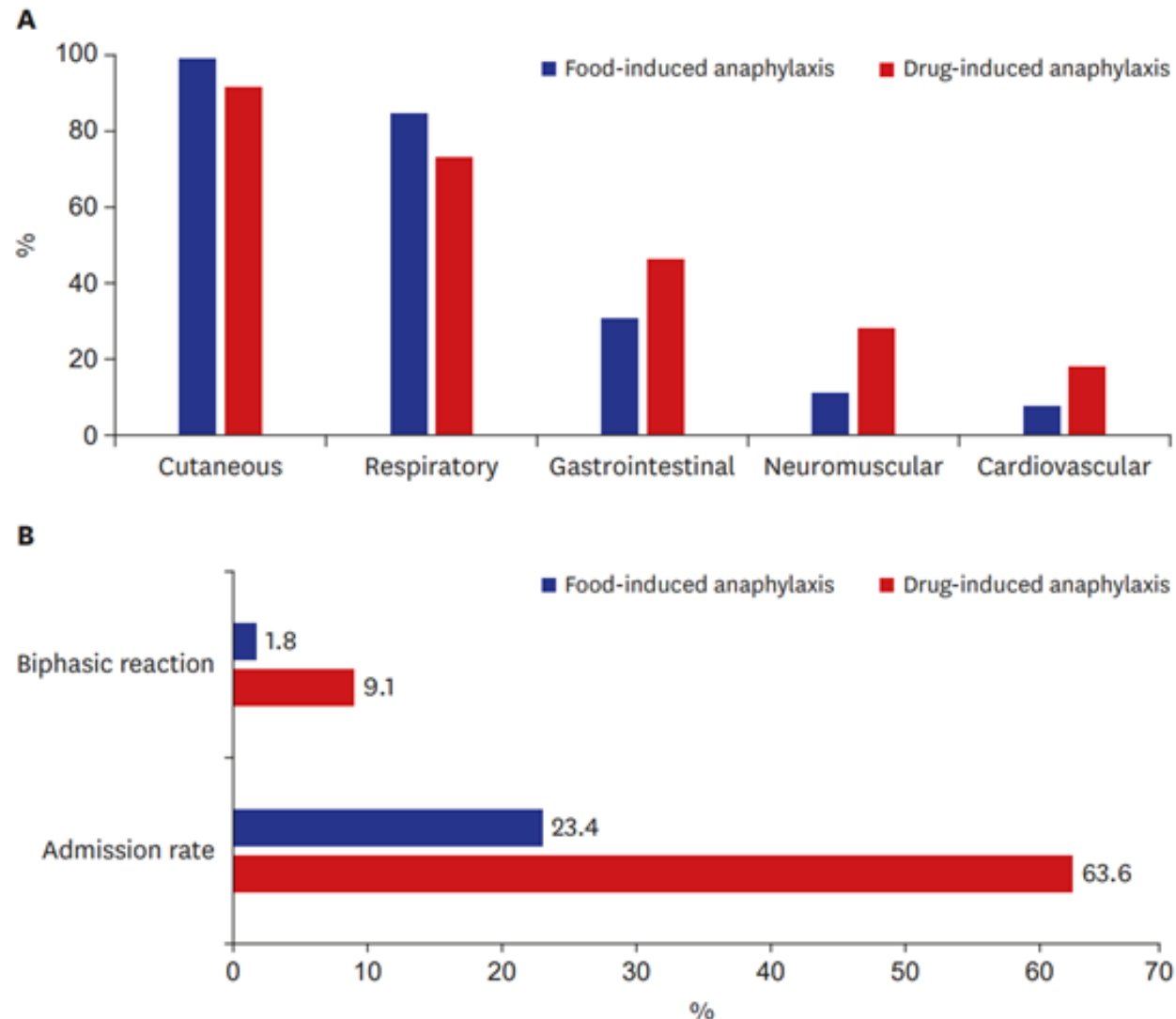


Fig. 3. Differences between food and drug anaphylaxis. (A) Involved organs and (B) clinical course.

Infantile Anaphylaxis in Korea: a Multicenter Retrospective Case Study

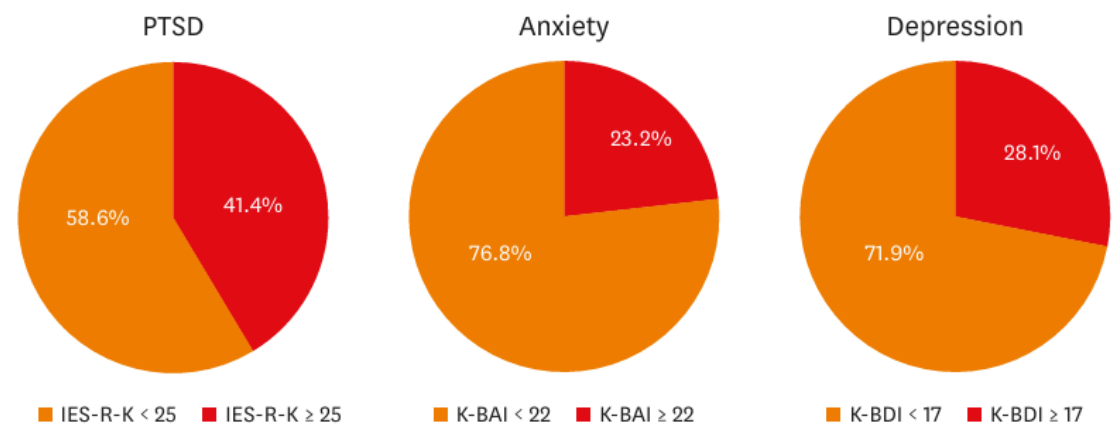
Jeon et al. (FAAD study group)

J Korean Med Sci. 2019 Apr 8;34(13):e106

아나필락시스
환자 교육과
장기적 관리 계획

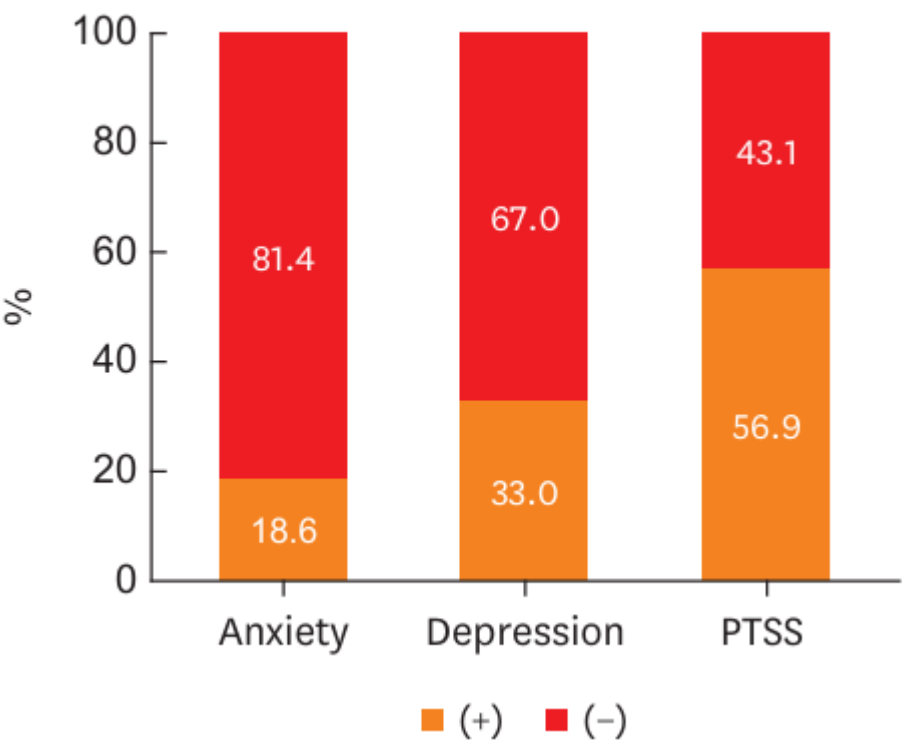
Psychological distress in patients with anaphylaxis

A Prospective Observation of Psychological Distress In Patients With Anaphylaxis



Allergy Asthma Immunol Res. 2020;12(3):496-506

Maternal Posttraumatic Stress Symptoms and Psychological Burden in Mothers of Korean Children With Anaphylaxis



Allergy Asthma Immunol Res. 2022;14(6):742-751

Epinephrine autoinjector -dosage



EpiPen® Junior (150 microgram)



EpiPen® (300 microgram)



0.075mg

0.15mg

7.5kg



Anapen® Jr (150 microgram)



Anapen® 300 (300 microgram)



Anapen® 500 (500 microgram)



Epinephrine autoinjector



젝스트 성인용



젝스트 소아용

Epinephrine bitartrate 주사제
(품명: 제스트 프리필드펜주 150마이크로그램 등) 급여 기준

가. 아나필락틱 속의 과거 병력이 있는 사람에게
투여 시 요양급여를 인정하며,
나. 재처방시에는 유효기간 경과 등으로
폐기사유가 확인되거나 이전에 처방 받은 동
약제의 사용이 확인된 경우에 요양급여를 인정함.

■ 고시 신설 고시번호(시행일자)
고시 제2019-153호(2019.7.23.)

*1회 처방시 2개까지 인정
*재처방시는 유효기간 경과 등으로 폐기사유가
확인되거나 이전에 처방 받은 이 약제 사용이
확인된 경우에 요양급여를 인정

- 25℃ 이하 실온보관

Risk of Severe Anaphylaxis

Prolonged observation following anaphylaxis: factors to consider

Factors relating to the patient:

- Reactions in individuals with severe asthma¹¹⁷
- Patients presenting in the evening or at night, or those who may not be able to respond to any deterioration¹¹⁷
- Patients in areas where access to emergency care is difficult¹¹⁷
- Patients with a previous history of biphasic reactions¹¹⁷

Factors related to the reaction, potentially increasing the risk of a biphasic reaction:

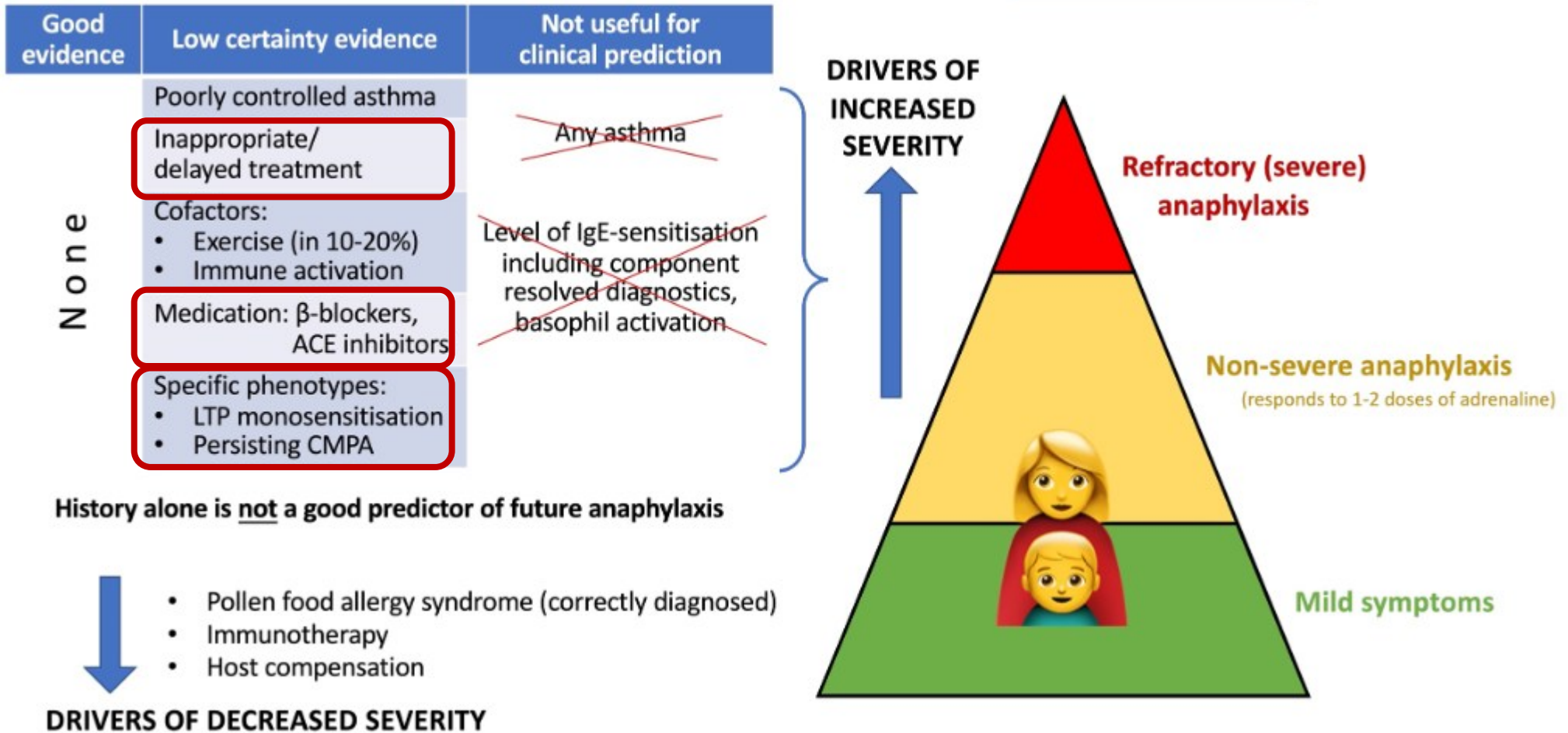
- With multi-organ involvement⁹²
- With a severe respiratory component¹¹⁷
- Needing administration of >1 dose of epinephrine for the treatment of the initial anaphylaxis⁹⁰
- Caused by allergen with continued absorption of the allergen, for example food¹¹⁷
- With unknown elicitor⁹⁰

Risks of Anaphylaxis

Co-Factors that Amplify Anaphylaxis*



Risks of Anaphylaxis



Anaphylaxis Long-term Management & Emergency Action Plan (1)

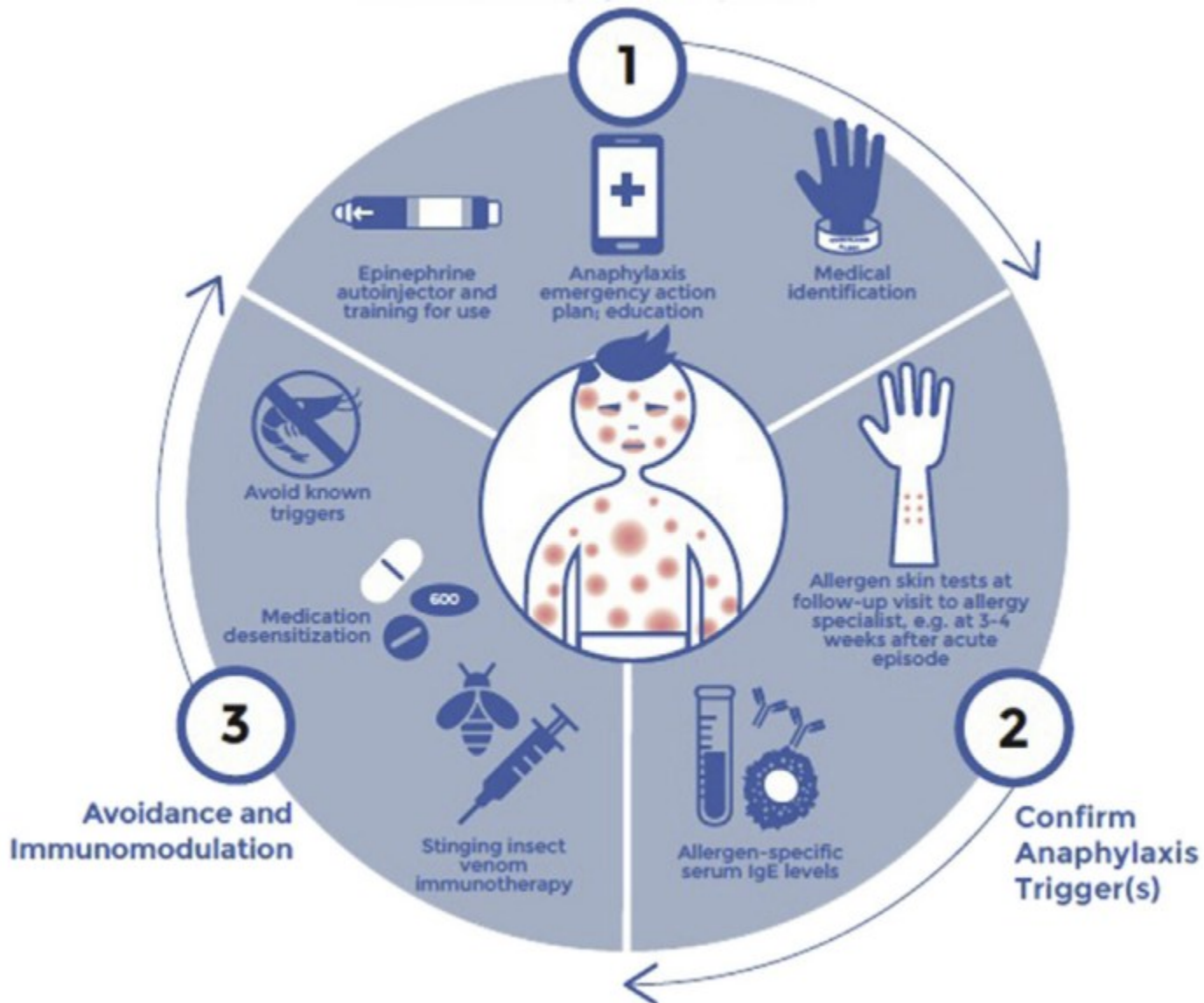
Recommendation	Key references	Rationale
Absolute indications for adrenaline autoinjectors		
Previous anaphylaxis triggered by food, latex or aeroallergens	58,59	High risk of recurrent anaphylaxis
Previous exercise-induced anaphylaxis	60	High risk of recurrent anaphylaxis
Previous idiopathic anaphylaxis	61	High risk of recurrent anaphylaxis
Co-existing unstable or moderate to severe, persistent asthma and a food allergy*	62,63	Asthma is a risk factor for experiencing anaphylaxis in the context of food allergy
Hymenoptera venom allergy in untreated patients with more than cutaneous/mucosal systemic reactions or high risk of re-exposure	25,64	High risk of recurrent anaphylaxis
During and after VIT, in patients with more than cutaneous/mucosal systemic reactions if risk factors for relapse are present		
Underlying systemic mastocytosis in adults with any previous systemic reaction. Children with very severe skin involvement (>50% body surface) and increased basal serum tryptase levels (>20 ng/ml) and with blistering in the first three years of life	65–68	Systemic mastocytosis is associated with a high risk of recurrent anaphylaxis and it is not possible to identify individual at-risk patients

Anaphylaxis Long-term Management & Emergency Action Plan (2)

Consider prescribing adrenaline autoinjectors with any of the following additional factors (especially if more than one is present)

Previous mild-to-moderate allergic reaction* to foods known to be associated with anaphylaxis in patient's region (eg peanut and/or tree nut, cow's milk, sea food depending on triggers for anaphylactic reactions at that location)	69-74	Relatively high risk of experiencing anaphylaxis in future with any peanut or tree nut allergy in many countries. Increasing number of fatal anaphylaxis with cow's milk in school-age children and young adults. Seafood is an important hidden allergen in some countries.
Teenager or young adult with a food allergy with previous mild-to-moderate reactions*	75,76	This age group is at higher risk of experiencing anaphylaxis due to their life style or risk behaviours
Remote from medical help or prolonged travel abroad in the context of previous mild-to-moderate allergic reaction to a food, Hymenoptera venom, latex or aeroallergens	77	Medical help may not be easily available during travel. Risks are more difficult to control due to language barriers and new foods.
Previous mild-to-moderate allergic reaction to traces of food*	43,77,78	Contact with a large amount of the food in future may result in a more severe reaction
Hymenoptera venom or drug allergy in patients with more than cutaneous/mucosal systemic reactions and cardiovascular disease	5,79	Cardiovascular diseases appear to be associated with a greater risk of severe or fatal anaphylaxis (venom and drug anaphylaxis)
Oral immunotherapy for food allergy	80	Anaphylaxis is a known adverse effect of oral immunotherapy for food allergy

Long-term Management of Anaphylaxis



Food Allergen Labeling in Korea

The current status

You Hoon Jeon,¹ Hyun Hee Kim,² Y
Taek Ki Min,⁸ Bok Yang Pyun,⁸ Soo
Tae Won Song,¹⁴ Jeong Hee Kim,¹⁵
and Atopic Dermatitis Study Grou

Table 1. Comparison between the foods in current food allergen labeling and common causative foods in Korean children

Food ingredients of current food allergen labeling in Korea ^{7,*}	Major triggering foods of immediate-type FA in Korean children ⁹	Major triggering foods of anaphylaxis in Korean children ¹⁰
1. Eggs (poultry only)	1. Hen's egg	1. Cow's milk
2. Milk	2. Cow's milk	2. Hen's egg
3. Buckwheat	3. Walnut	3. Walnut
4. Peanut	4. Wheat	4. Wheat
5. Soybean	5. Peanut	5. Buckwheat
6. Wheat	6. Soybean	6. Peanut
7. Mackerel	7. Shrimp	7. Meat
8. Crab	8. Buckwheat	8. Fish
9. Shrimp	9. Crab	9. Pine nut [†]
10. Pork	10. Almond [‡]	10. Shrimp
11. Peach	11. Pine nut [‡]	11. Crab
12. Tomato	12. Kiwi [‡]	12. Soybean
13. Sulfite (≥ 10 mg/kg of SO ₂)	13. Peach	13. Cereal [‡]
14. Walnut	14. Apple [‡]	14. Cashew nut [‡]
15. Chicken	15. Beef	15. Kiwi [‡]
16. Beef	16. Pork	16. Pupa [‡]
17. Squid	17. Tomato	17. Squid, small octopus
18. Shellfish (including oyster, abalone and mussels)	18. Mackerel	18. Peach
19. Pine nut	19. Chicken	19. Almond [‡]
	20. Cashew nut [‡]	20. Chinese yam [‡]

*Revised in 2015 (Ministry of Food and Drug Safety Notice No. 2015-20). [†]Not included in the current food allergen labeling. [‡]Not included in the current food allergen labeling, but announced to be include (Ministry of Food and Drug Safety Notice No. 2017-363).

· 포스터

아나필락시스 응급 대처법 포스터

아나필락시스 대처요령 포스터

아나필락시스 포스터(학교용)

아나필락시스 응급처치법 서울센터

다운로드

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Education for Anaphylaxis Patients and their Families



대한소아알레르기 호흡기학회



로그인



대한 소아알레르기 호흡기학회

@user-se4xx1fn9x 구독자 849명 동영상 10개

건강을 위해 노력과 도전을 계속해나가는 대한 소아알레르기 호흡기학회 >

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인기순

날짜순



**[대한 소아알레르기 호흡기학회] 자
가주사용 에피네프린 사용법**

조회수 5.8천회 • 4년 전



**[대한 소아알레르기 호흡기학회] 비
강분무 스테로이드 사용법**

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리식염수 코세척법**

조회수 6.7만회 • 4년 전



**[대한 소아알레르기 호흡기학회] 건
조분말흡입기(디스크스) 사용법**

조회수 3.9천회 • 4년 전

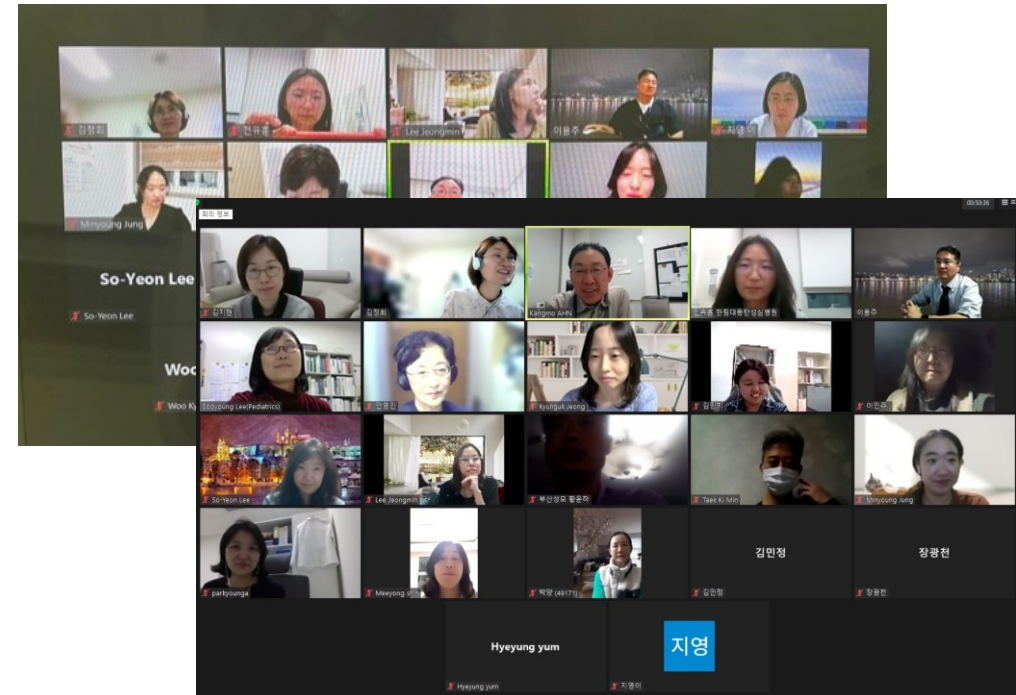
Atopy Asthma Education and Information Center



Food Allergy & Atopic Dermatitis (FAAD) Study Group (KAPARD)

- 33 pediatric allergists, 29 hospitals

Urticaria/ Angioedema/ Anaphylaxis Study Group (KAAACI)





Thank you !!