



CONDITIONS THAT PREDISPOSE ANAPHYLAXIS

WISC 2012 Hyderabad, India
6-9 December
2012 WAO International Scientific Conference



*A World Federation of Allergy Asthma
and Clinical Immunology Societies*



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FAAAI, FACAAI, SLAAI 2010-2012



December 2012



Sandra Nora González Díaz, MD, PhD



- **Current President of the Latin American Society of Asthma, Allergy and Clinical Immunology (SLAAI) 2010-2012**
 - **Director of the Residency Program in Allergy and Clinical Immunology, Regional Centre of Allergy and Clinical Immunology, University Hospital of Monterrey, NL since 1990**
 - **Head of Regional Centre of Allergy and Clinical Immunology, University Hospital, Monterrey, NL since 2000**
 - **Professor of Regional Centre of Allergy and Clinical Immunology, University Hospital, Monterrey, NL since 1990**
 - **Director of Fundraising Department, University Hospital since 2007**
 - **Director General, Department Fundraising at the Autonomous University of Nuevo Leon**
 - **Researcher Level 1 CONACYT**
Past President of the Mexican Association of Allergy and Clinical Immunology (CMICA) 2005-2007
 - **Past President Chapter of the Latin American Society Mesoamerica Asthma, Allergy and Clinical Immunology (SLAAI) 1997-1999**
 - **Past president UNASMA (International Asthma Foundation) M2007-2011**
 - **Member of CAICNL , CMICA, SLAAI, AAAAI, ACAAI, WAO, EAACI**
-
- **Faculty of Medicine, U.A.N.L 1977-1983. Monterrey, NL Mexico**
 - **Specialty of Internal Medicine, University Hospital, UANL Monterrey, N.L.1986 – 1988**
 - **Fellowship in Pediatric Allergy and Immunology Clínica, UCSD, University of San Diego, California, USA, 1987-1988**
 - **Subspecialty in Allergy and Clinical Immunology, University Hospital UANL , Monterrey, N. L.1988 – 1990**
 - **Doctor of Medicine, Hospital Universitario UANL , Monterey, N.L.1991 - 1997**



MEDICAL TEAM CRAIC 2012



FELLOW IN TRAINING CRAIC 2012





HISTORY

The first record of a case of anaphylaxis

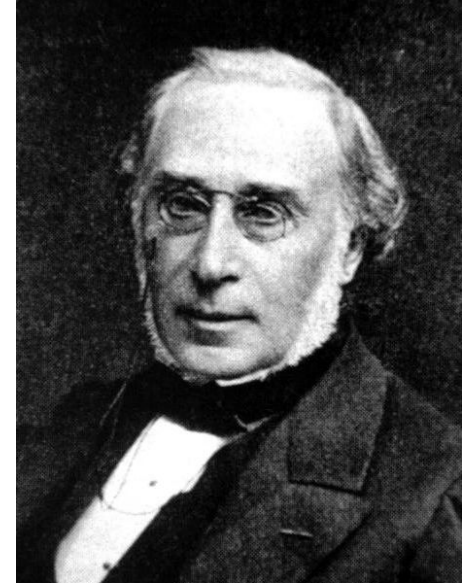
- 2640 B.C.
- Pharaoh Menes
- Died from a bee sting





1889- C. Richet y Hericourt

ANAPHYLAXIS



They conducted experiments in dogs with eel serum, a powerful poison.

He noted that after the second or third injection dogs were sicker than before

Term "anaphylaxis" = lack of immunity

By then Richet know the significance of their findings

Anaphylaxis: definition

Anaphylaxis is a severe life-threatening generalized or systemic hypersensitivity reaction.

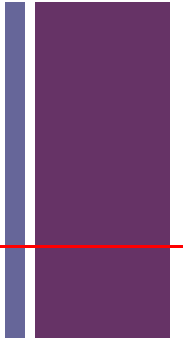
It is commonly, but not always, mediated by an allergic mechanism, usually by IgE.

Allergic (immunologic) non-IgE-mediated anaphylaxis also occurs.

Non-allergic anaphylactic reactions, formerly called anaphylactoid or pseudo-allergic reactions, may also occur.



PREVALENCE OF ANAPHYLAXIS



- Lifetime prevalence internationally estimated at 0.05-2%
- Uncommon cause of death
- Anaphylaxis fatalities often not diagnosed
- Evidence base for assessment and management weak

Online Latin American Survey of Anaphylaxis: Epidemiologic Study

First epidemiologic study on Anaphylaxis in Latin America

Online questionnaire – www.slaai.org

Previously applied in Brazil

Translated into Spanish

Data filled in by allergologists

Total registered cases = 634 (Aug 2008 to Dec 2010)

Anaphylaxis in Latin America: a report of the online Latin American survey on anaphylaxis (OLASA)

Dirceu Solé,^I Juan Carlos Ivancevich,^{II} Mario Sánchez Borges,^{III} Magna Adaci Coelho,^{IV} Nelson A. Rosário,^V Ledit Ramón Francisco Arduoso,^{VI} Luis Antônio Guerra Bernd,^{VII} Latin American Anaphylaxis Working Group

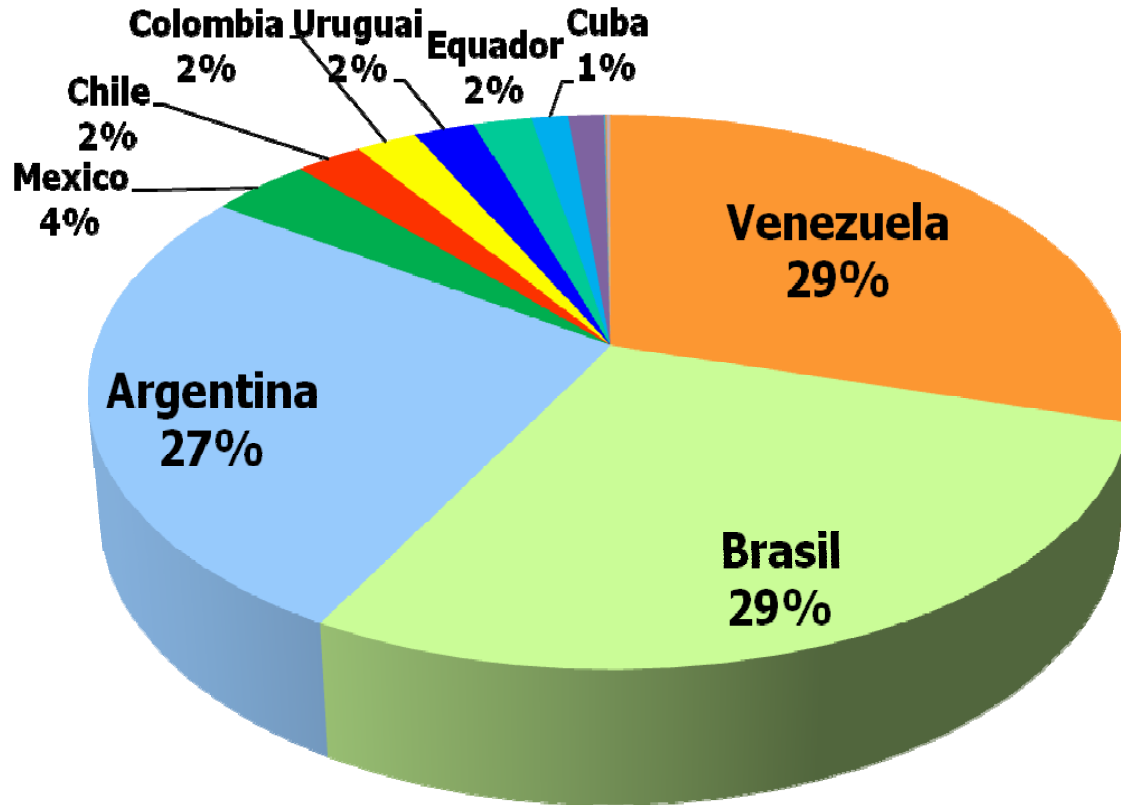
CLINICS 2011;66(6):943-947

Anaphylaxis in Latin American children and adolescents: The Online Latin American Survey on Anaphylaxis (OLASA)

D. Solé^{a,*}, J.C. Ivancevich^b, M.S. Borges^c, M.A. Coelho^d, N.A. Rosário^e, L. Arduoso^f, L.A.G. Bernd^g, Latin American Anaphylaxis Working Group^h

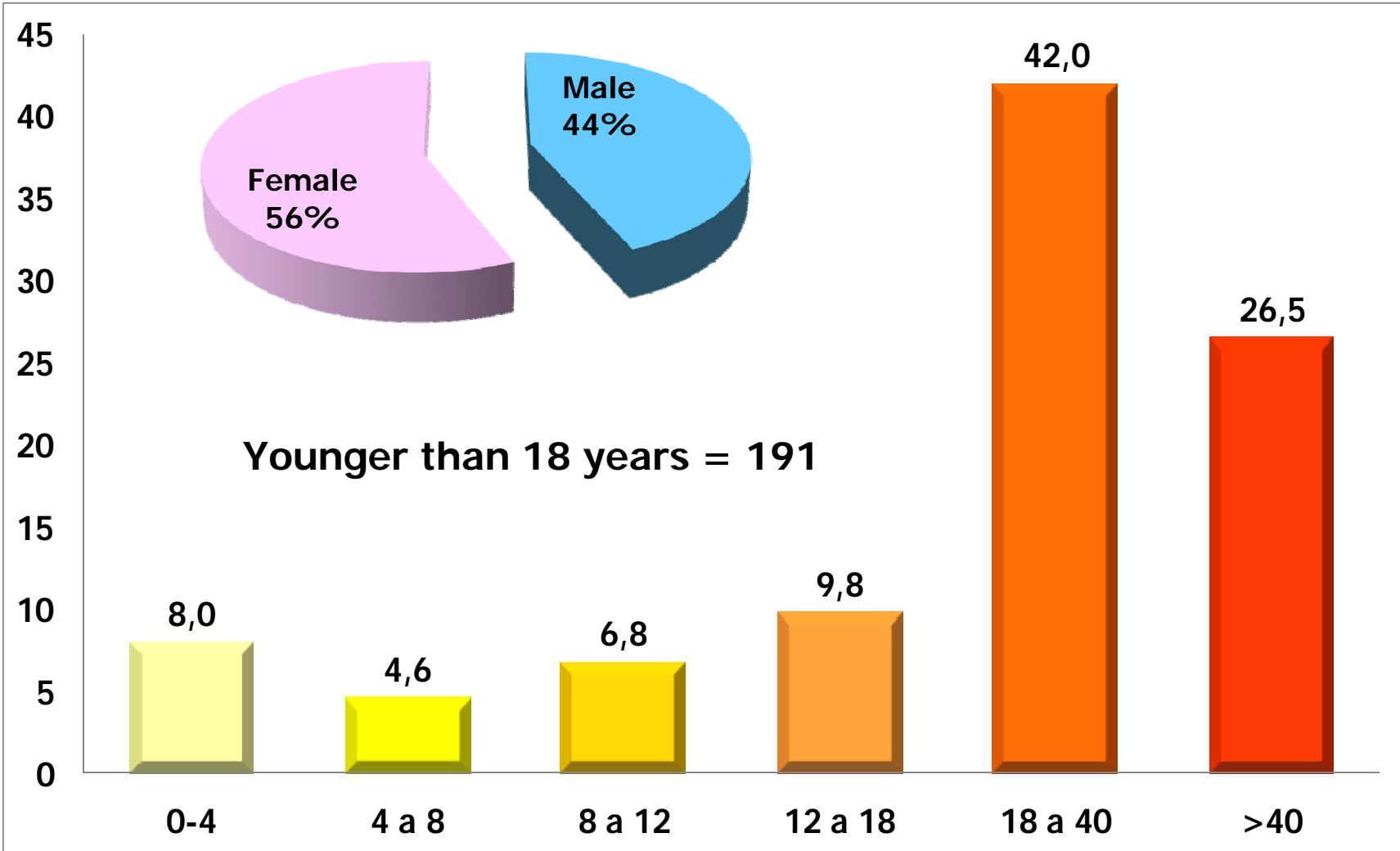
Allergol Immunopathol (Madr). 2011; Nov 21. [Epub ahead of print]

Online Latin American Survey of Anaphylaxis: Epidemiologic Study



15 LA countries + Portugal – N = 634

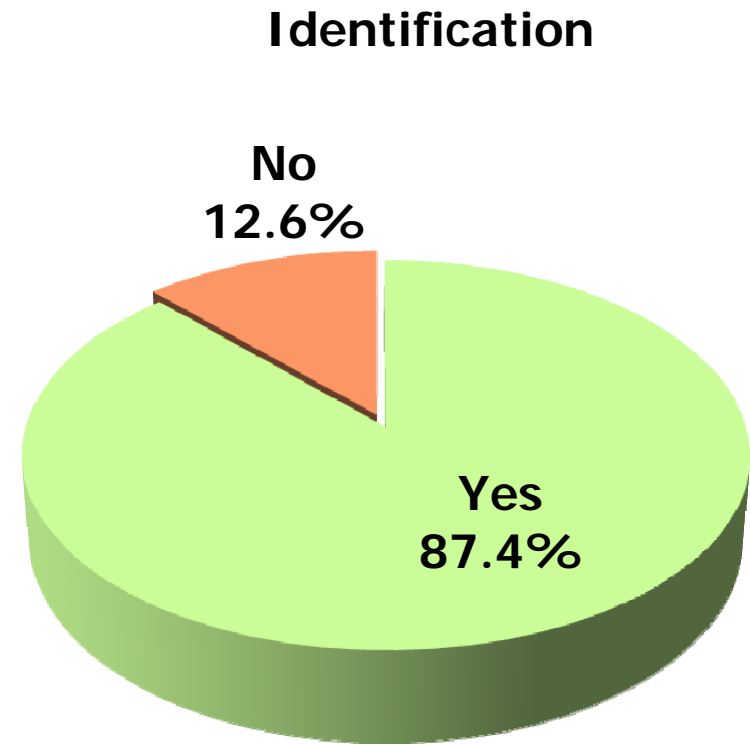
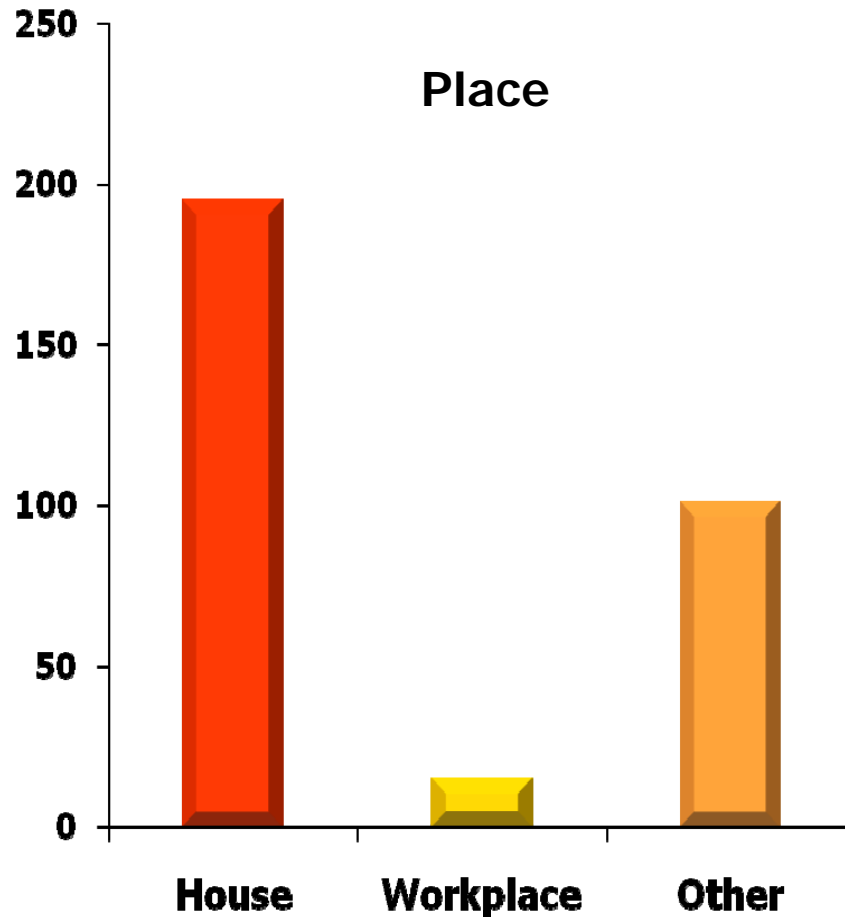
Distribution according to gender and age



Q3 – Gender?

Q4 – Age?

Place where reaction occurred and if the trigger was identified



Q6 - Place where reaction occurred?

Q7 - Could you identify the etiologic agent?

+ Etiologic agents are different according to age

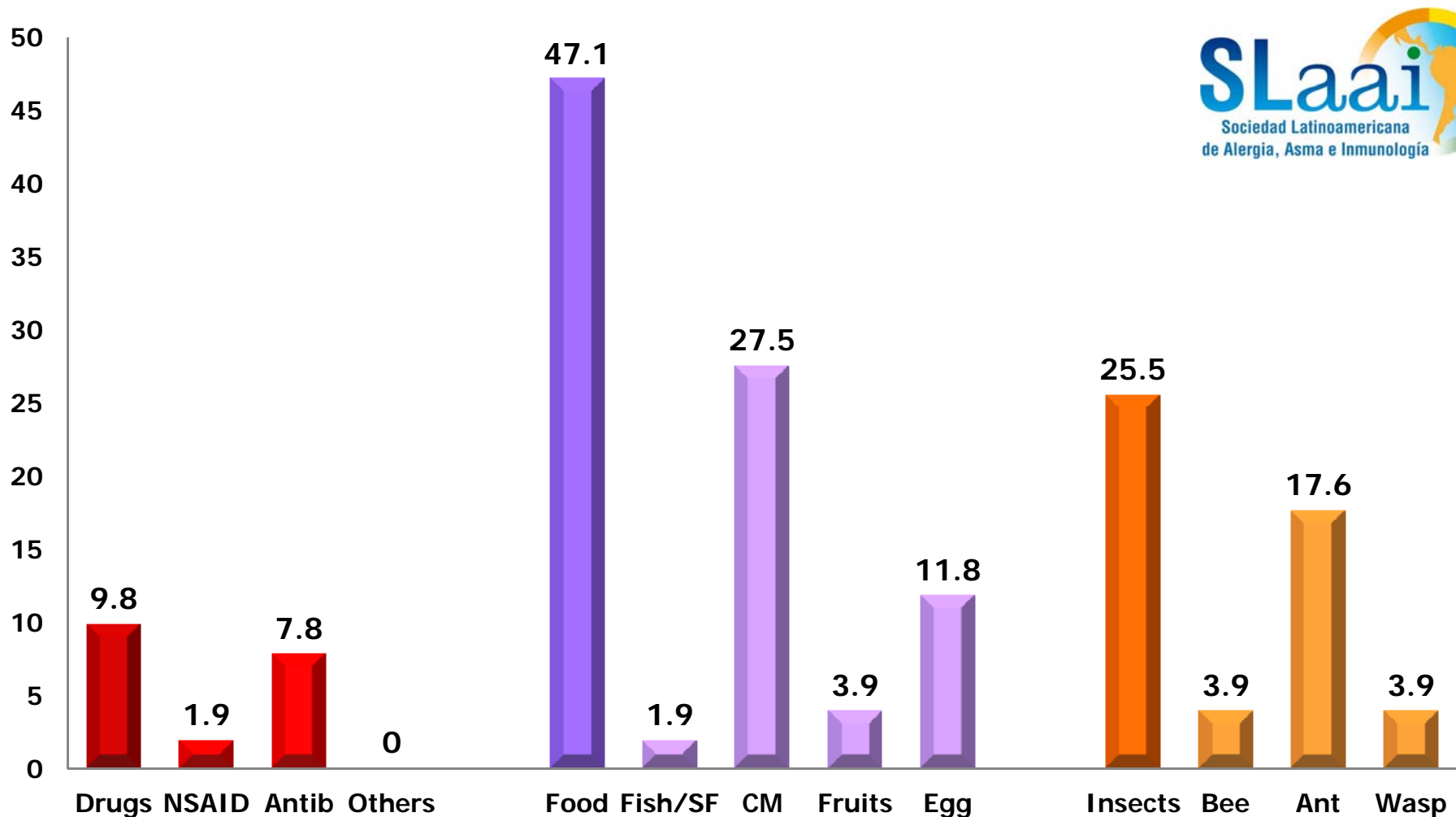
✓ Adults

✓ Drugs (31.2%), foods (23.3%) and insect (14.9%)

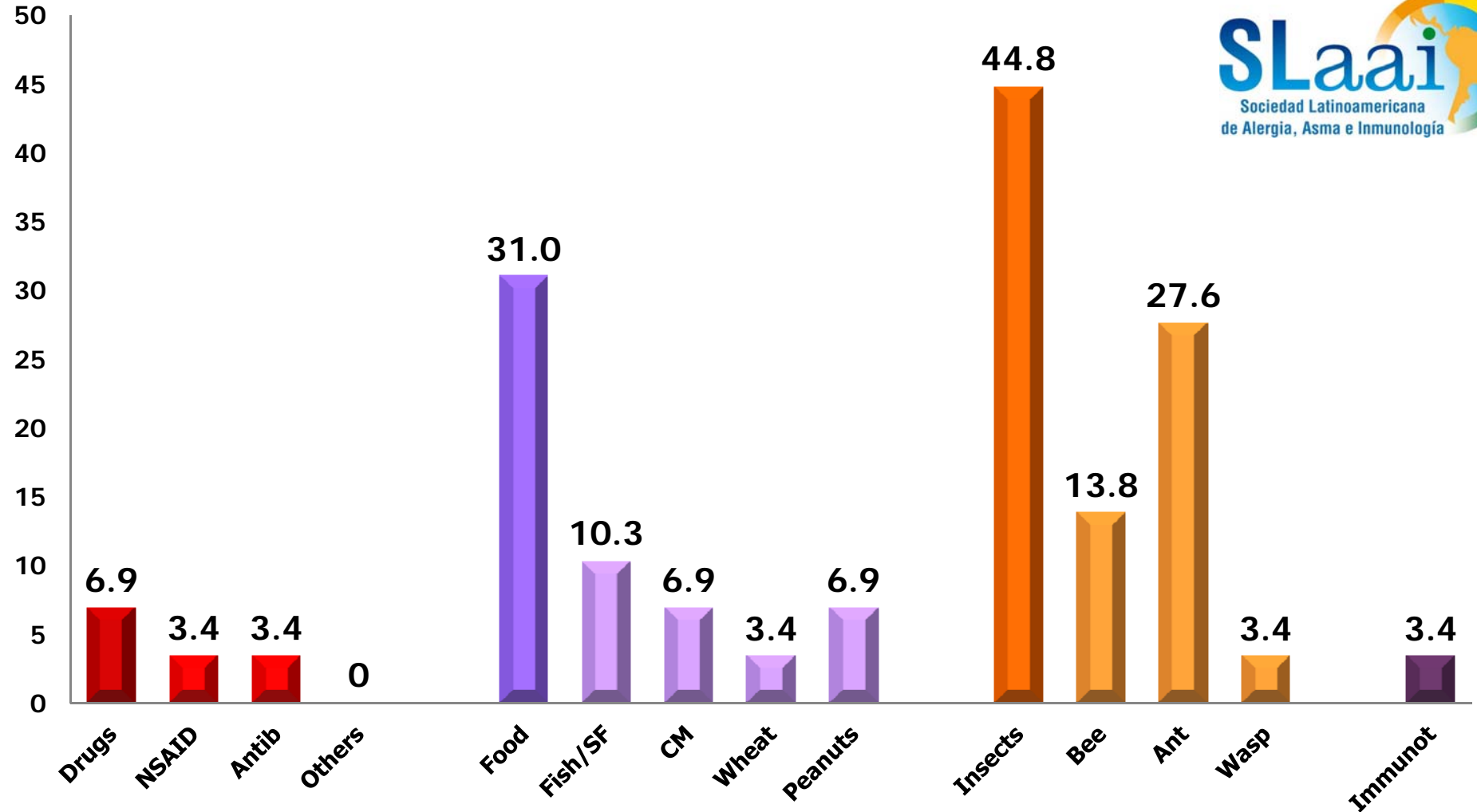
✓ Children

✓ Foods (26.2%), insect (25.0%) and drugs (17.9%)

Precipitating agent according to age: up to 4yrs

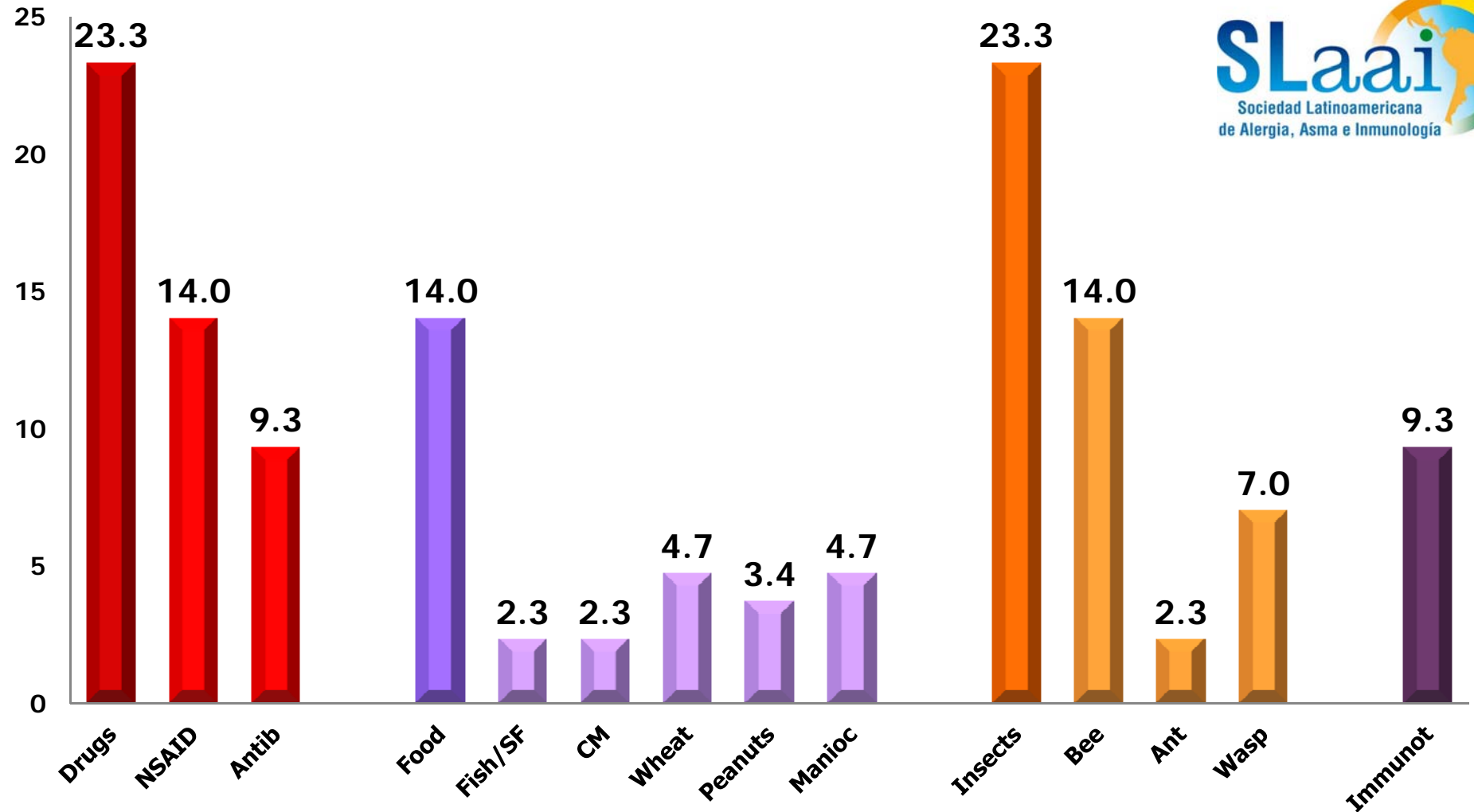


Precipitating agent according to age: 4 to 8yrs



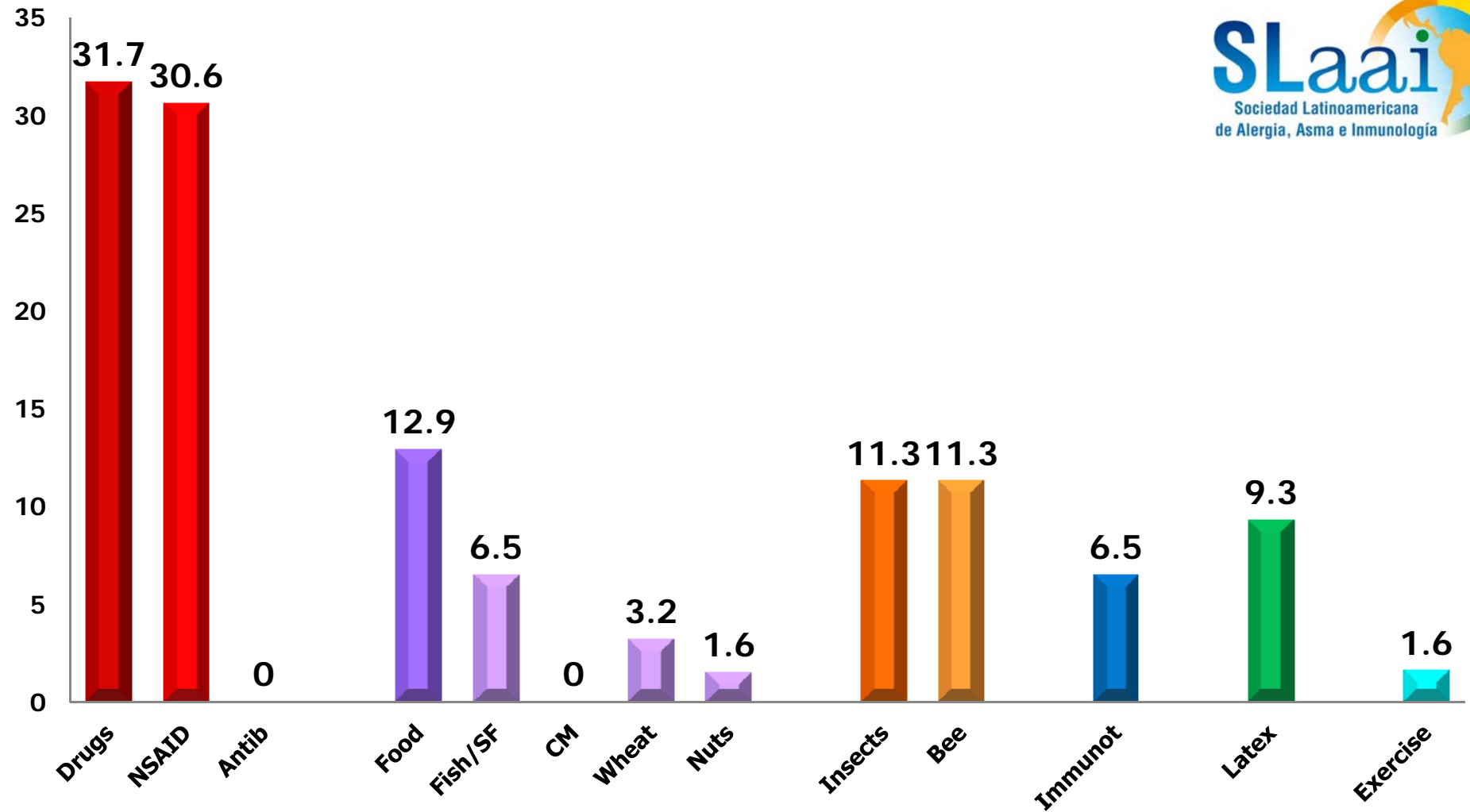
Q8 – Type of offending agent?

Precipitating agent according to age: 8 to 12yrs

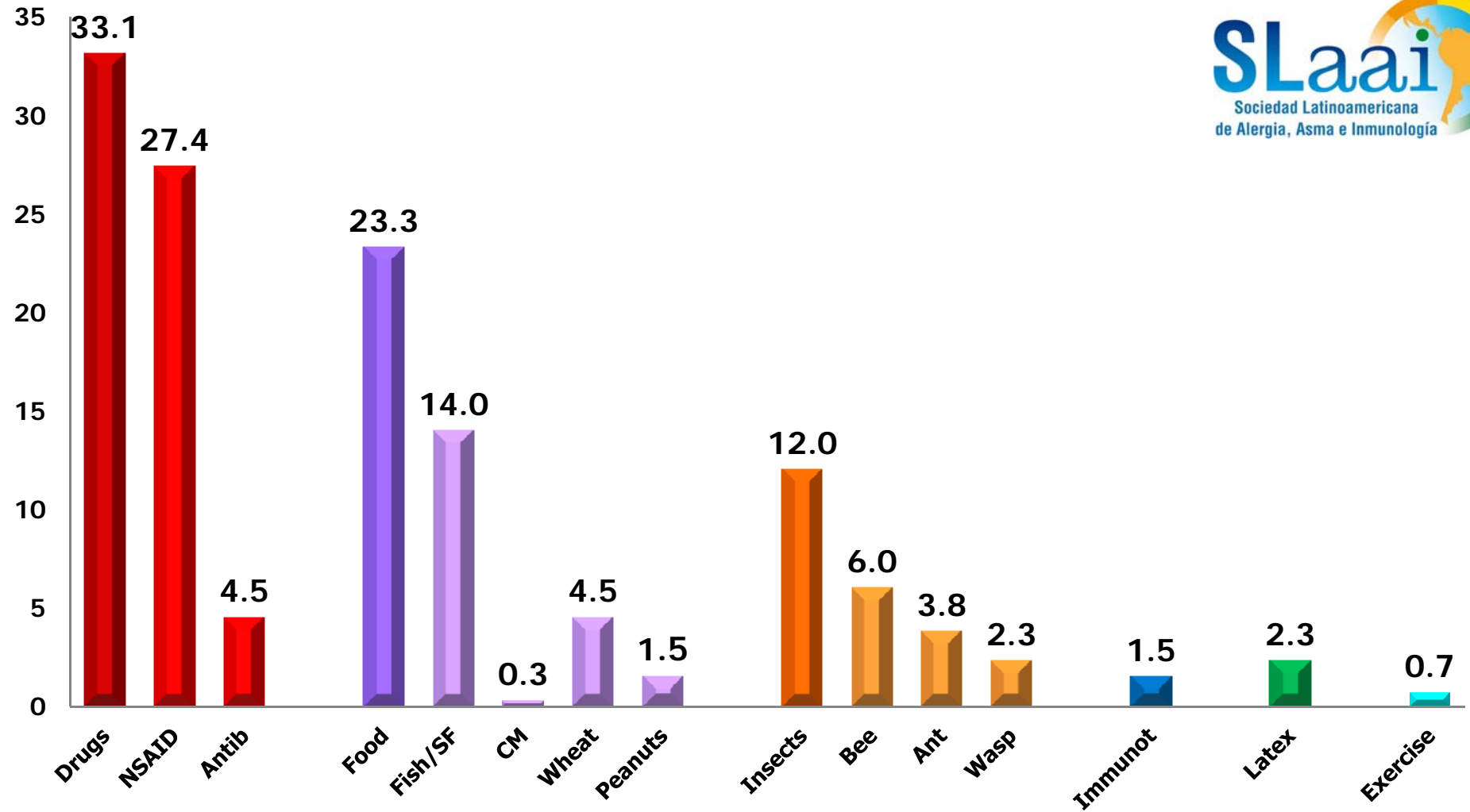


Q8 – Type of offending agent?

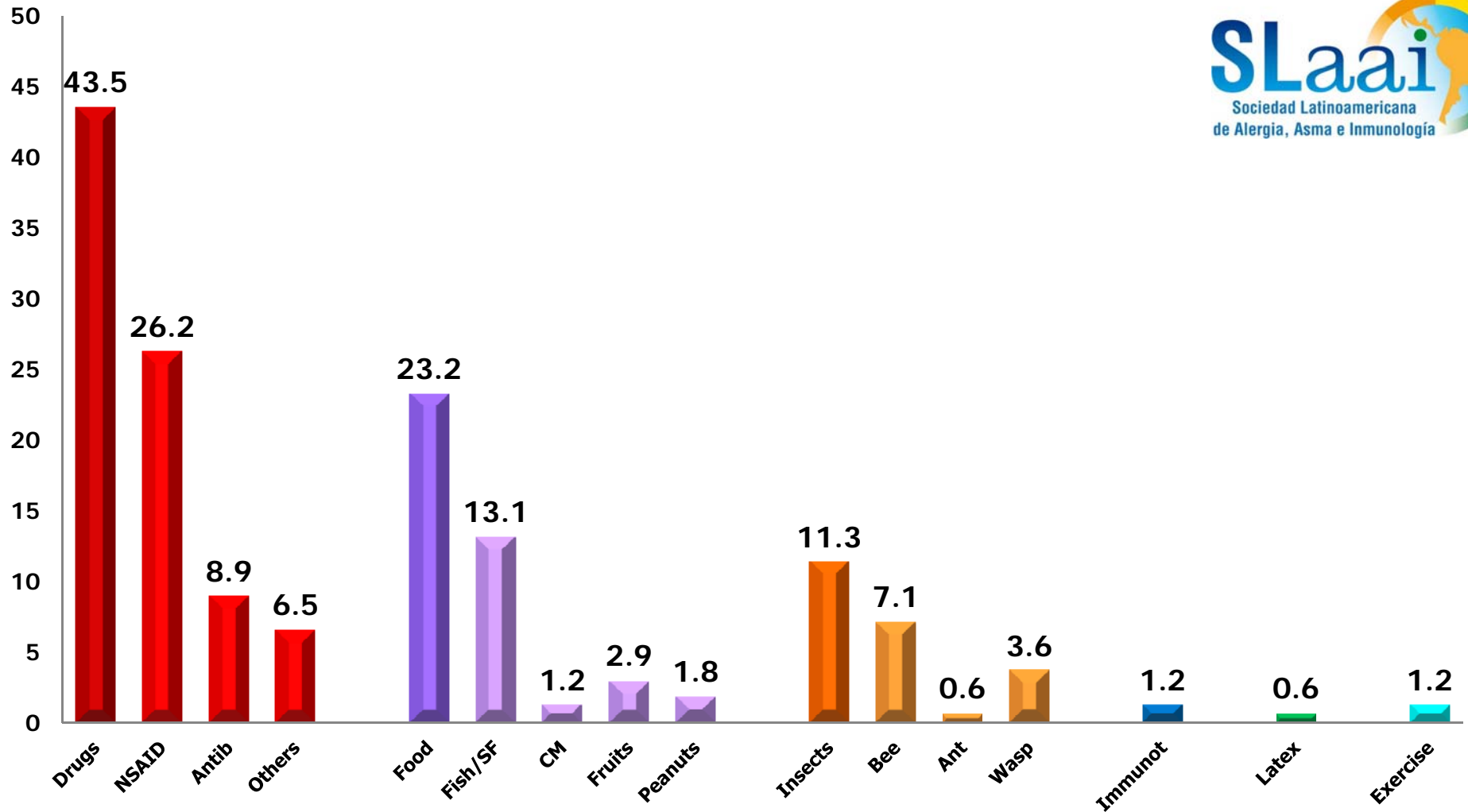
Precipitating agent according to age: 12 to 18yrs



Precipitating agent according to age: 18 to 40yrs



Precipitating agent according to age: >40yrs



Q8 – Type of offending agent?



Practice paper


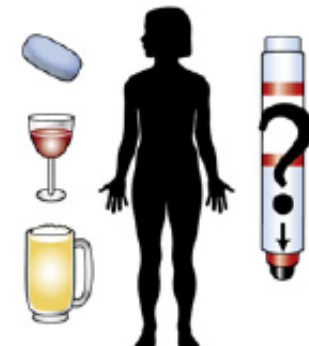


World Allergy Organization anaphylaxis guidelines: Summary

F. Estelle R. Simons, MD, FRCPC,^a Ledit R. F. Arduoso, MD,^b M. Beatrice Bilò, MD,^c Yehia M. El-Gamal, MD, PhD,^d Dennis K. Ledford, MD,^e Johannes Ring, MD, PhD,^f Mario Sanchez-Borges, MD,^g Gian Enrico Senna, MD,^h Aziz Sheikh, MD, FRCGP, FRCP,ⁱ and Bernard Y. Thong, MD,^j for the World Allergy Organization *Winnipeg, Canada, Rosario, Argentina, Ancona and Verona, Italy, Cairo, Egypt, Tampa, Fla, Munich, Germany, Caracas, Venezuela, Edinburgh, United Kingdom, and Singapore*



RISK FACTORS FOR ANAPHYLAXIS

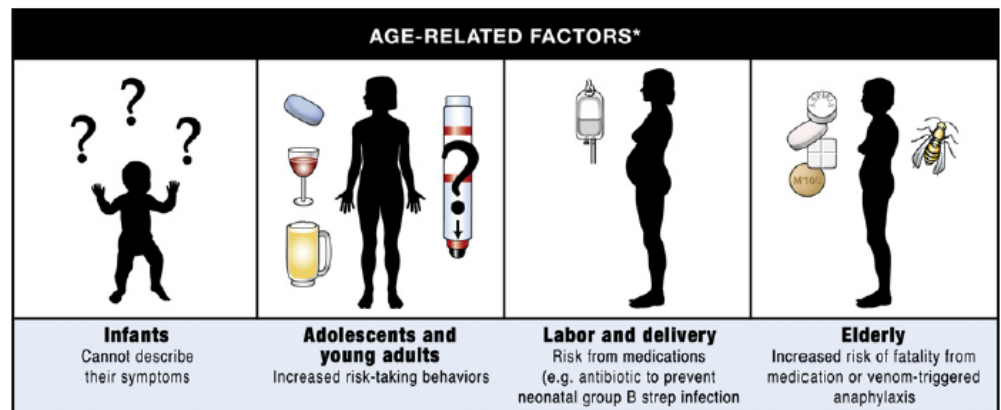
+ AGE RELATED FACTORS

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

More frequent in adults than children for some agents: radiocontrast media, plasma expanders, anesthetics – may be function of exposure frequency.



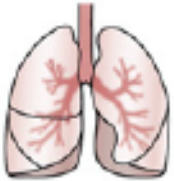

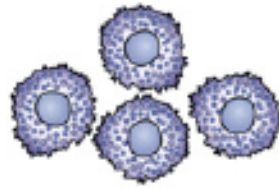


GENDER





- **Reportedly more frequent in females for latex, aspirin, and muscle relaxants**
- **May be more frequent in males for Hymenoptera stings, perhaps a function of exposure**
- **An age-related effect has been shown with males affected more frequently under age 15 years, and females affected more frequently after age 15**

+ CONCOMITANT DISEASES



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

+ CURRENT MEDICATIONS/DRUGS

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)



β-lactam antibiotics*

Medications

Antibiotics (B lactam)



NSAIDs* ** biologic agents*

NSAIDs

Recently: biological (infliximab 3%)

Simons et al. WAO Anaphylaxis Guidelines. WAO Journal • February 2011

Krzysztof Rutkowski, Shelley Dua, Shuaib Nasser *Postgrad Med J* 2012;**88**:458–464.

+ FOOD

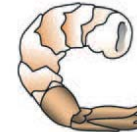
- Walnuts have often been involved, with the peanut, the most common in USA.
- Also shellfish, fish, milk and egg
- Wheat and rice may be the most common cause in Asia
- Middle East: sesame
- In children, milk, egg



peanut



tree nuts



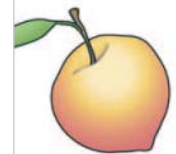
shellfish



fish



sesame



peach



milk



egg





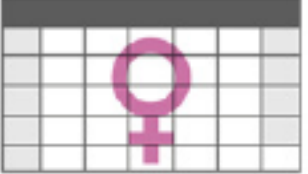
+ CO-FACTORS

✓ Exercise

✓ Some cofactors for submission:

Dependent foods: tomatoes, seafood, wheat, peanuts, corn.

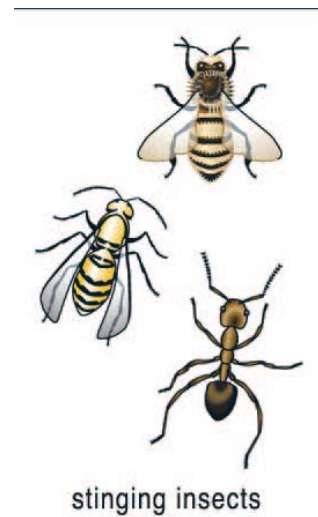
✓ NSAIDs, alcohol, menstruation, exposure to pollen,

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)



INSECT BITE

- Hymenoptera: bees, vespid, ants
- Very studied in Europe, North
- Species vary from region to region
- Systemic reactions:
 - Adults: 3%
 - Children: 1%
- Mosquitoes, ticks, little studied



OTHER RISK FACTORS IN ANAPHYLAXIS

Pancake Syndrome (Oral Mite Anaphylaxis)

WAO Journal , Mayo 2009 pag. 91-96 Mario Sanchez-Borges,MD et all.

- ❖ History of atopic disease
 - ❖ Sensitivity Mites
- ❖ Cutaneous hypersensitivity to NSAIDs
- ❖ Ingestion of Pancakes / Breaded or food contaminated with mites
- ❖ Ingestion of more than 1mg of mite allergen (> 500 mites / g. Flour)



Mite-induced inflammation: More than allergy

Mario Sánchez-Borges, M.D.,¹ Enrique Fernández-Caldas, Ph.D.,² Arnaldo Capriles-Hulett, M.D.,¹ and Fernan Caballero-Fonseca, M.D.¹

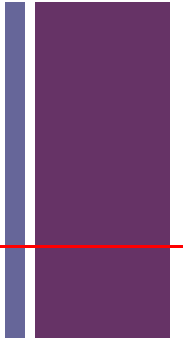
ABSTRACT

Clinical observations have suggested that there is an association of atopic conditions with hypersensitivity reactions to nonsteroidal anti-inflammatory drugs (NSAIDs). This relationship has been especially present in patients allergic to mites. This study was designed to review clinical and experimental evidence linking atopy, mite allergy, and hypersensitivity to aspirin and NSAIDs and discuss the possible mechanisms explaining this association. A review of the medical literature concerning the association of atopic diseases, mite hypersensitivity, and intolerance to NSAIDs using PubMed and other relevant articles is presented. NSAID-sensitive patients are frequently atopic and allergic to mites, and patients who develop oral mite anaphylaxis (OMA) show an increased prevalence of NSAID hypersensitivity. The study of atopic, mite-sensitive patients, who experience urticaria and angioedema when exposed to NSAIDs and patients with OMA suggests an interesting interaction between atopic allergy and disorders of leukotriene synthesis or metabolism. Various mechanisms that could be involved in this interaction are presented, including genetic factors, inhibition of cyclooxygenase-1, and other effects (not related to IgE sensitization) of mite constituents on the immune system. The association of mite hypersensitivity with aspirin/NSAIDs intolerance has been confirmed and provides additional clues to various nonallergic pathways that may contribute to the acute and chronic inflammatory process observed in atopic, mite-allergic, individuals. The clinical relevance of these observations is presently under investigation.

(Allergy Rhinol 3:e25–e29, 2012; doi: 10.2500/ar.2012.3.0025)



OTHER POSSIBLE RISK FACTORS



- Elevated baseline levels of tryptase
- Histamine
- Bradykinin (because of low serum ACE activity)
- Platelet-activating factor (PAF) (because of low serum PAF acetylhydrolase activity)



SUMMARY



- **The incidence of anaphylaxis is increasing**
 - **Anaphylaxis is underdiagnosed and underreported**
- **Risk factors for death include the presence of asthma, and deaths occur relatively more frequently in teenagers and in the elderly with other medical problems**
- **Patients subject to recurrent anaphylactic episodes should try to avoid drugs which complicate therapy or potentially may increase the severity of a reaction**



MEASURES TO REDUCE THE INCIDENCE OF ANAPHYLAXIS AND ANAPHYLACTIC DEATHS



- **General Obtain thorough history for drug allergy.**
- **Avoid drugs that have immunologic or biochemical cross-reactivity with any agents to which the patient is sensitive.**
- **Administer drugs orally rather than parenterally when possible.**
- **Check all drugs for proper labeling. Keep patients in the office 20 to 30 minutes after injections.**



MEASURES TO REDUCE THE INCIDENCE OF ANAPHYLAXIS AND ANAPHYLACTIC DEATHS



- **Have patient wear and carry warning identification tags.**
- **Teach self-injection of epinephrine and caution patients to keep an epinephrine auto-injector with them.**
- **Discontinue beta-adrenergic blocking agents, angiotensin-converting enzyme (ACE) inhibitors, ACE blockers, monoamine oxidase inhibitors, and certain tricyclic antidepressants when possible.**
- **Use preventive techniques when patients are required to undergo a procedure or take an agent that places them at risk. Such techniques include pretreatment, provocative challenge, and desensitization.**



+ GRACIAS.