ANAPHYLAXIS
EPI-PEN REFRESHER

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ANAPHYLAXIS

The term is used to describe a severe immediate-type hypersensitivity [allergic] response which affects multiple body events at the one time.

TAKE HOME MESSAGE

Adrenaline by IM injection is the primary first aid, and in most cases the only, treatment necessary to treat anaphylaxis

Steroid injections should not be given as first aid treatment

ALLERGY

The classic allergic response is one which is produced by the interaction of a substance, virtually always the most complex component of it—a protein, and the specific antibody.

SPECIFIC CAUSES 1

• Foods
  – Milk—usually cow but other types
  – Egg—virtually only the white, not the yolk
  – Peanut—a legume, not a nut
  – Tree nuts—usually one or types only
  – Seafood—3 types, fish, crustaceans, molluscs
  – Seeds—sesame, sunflower, pumpkin
  – Others; e.g. fruits

SPECIFIC CAUSES 2

• Stinging and biting insects
• Venom proteins
  – Honey bee
  – Paper wasp, ‘European wasp’, mud wasp (rarely)
  – Ants—many species; e.g. Jack Jumper, greenhead, bullant etc
• Salivary proteins
  – March flies
  – Ticks
SPECIFIC CAUSES 3

- Drugs
  - Antibiotics—penicillin, cephalosporins, etc
  - ? Multiple antibiotic ‘allergy’
  - General anaesthetics—muscle relaxants the most common
  - ? Local anaesthetics
  - Chlorhexidine

RED MEAT ALLERGY

- Exception to the rule that specific allergens must be proteins
- Some patients who have had adverse reactions to tick bites will subsequently experience a delayed anaphylactic event from eating any type of red meat
- Cause? A complex carbohydrate commonly referred to as α-gal, a component of both tick saliva and red meat

ANAPHYLACTOID REACTIONS

These are anaphylaxis-like reactions but are not caused by antibodies interacting with specific proteins.
- X-ray contrast media; etiology?? Not iodine!!
- Drugs such as aspirin and NSAIDS
- Exercise—3 types
  - A critical degree of exertion
  - Exercise under particular weather conditions
  - Food associated, exercise induced

TIME SEQUENCE

Clinical Features
1. Abrupt onset—usually <30 minutes
2. Rapid progression—over 15-30 mins
3. Relatively quick resolution—in a few hours
4. No further reaction unless re-exposure

EXPRESSIONS OF ANAPHYLAXIS

- MAJOR
  - Breathing difficulty
    - Throat swelling—choking sensation
    - Chest tightness—asthma
  - Low blood pressure—faint, dizzy, weak, collapse, or in very young children, floppy, ‘not with it’.

- MINOR
  - Rashes, hives, swellings
  - Stomach upset, especially vomiting; in women acute uterine discomfort
  - Hay fever-like symptoms
DIAGNOSIS

- CLINICAL HISTORY
- ALLERGIC ANTIBODIES
  - Skin prick tests
  - Blood test—RAST
- INVALID TESTS
  - Chiropractic
  - Naturopathic
  - VEGA tests
  - Cytotoxic tests

SKIN TESTING

SPECIFIC FEATURES [1]

- 60% of children naturally outgrow egg white and 70% cow’s milk allergies by age 5 years. A significant number will lose allergic activity by puberty.
- Most children with cow’s milk allergy will also react to goat’s milk.
- Lactose is ‘milk sugar’ and does not cause allergic reactions
- Raw foods are more likely to cause allergic reactions
- Peanut is not a nut—it should be called ‘nutpea’
- <5% of peanut allergic people will react to other legumes.
- Only about 30% of peanut allergic people will react to tree nuts and vice versa

SPECIFIC FEATURES [2]

- Most tree nut allergic people react only to certain varieties.
- Cashews and pistachios are in the same family of nuts, as are walnuts and pecans.
- Seafood allergy falls into the 3 basic types —fish, crustaceans, shellfish [molluscs]
- Iodine allergy does NOT exist
- Oils from fish and nuts are usually OK
- Bee, wasp, ant sting allergies are quite distinct from each other
- Adverse reactions usually don’t worsen with further exposures

TREATMENT

- IDENTIFY THE ALLERGEN
  — AVOID IT

- FIRST AID:
  - Major—Adrenaline [Epi-Pen]
  - Minor [rashes and swellings]—Antihistamines
- IMMUNOTHERAPY
  - Available for bee and wasp sting-anaphylaxis
EPI-PEN

2 strengths
- [1] 300μ/ml-yellow marking
- [2] 150μ/ml—‘Junior’-green marking. This strength is based on weight, not on age, of the child; i.e. 20-22 kg or more, the 300 dose should be prescribed

• PBS authority-approval from an allergist/immunologist or from a hospital-based ED M.O.

EMERGENCY TREATMENT

• ELIMINATE CAUSATIVE AGENT
• IM ADRENALINE [lateral thigh]-0.01 mg/kg [max 0.5 ml]
• IV ACCESS
• LOW FLOW OXYGEN
• IF HYPOTENSIVE—wide bore IV access for saline infusion
• FURTHER ADRENALINE—IV or IM
• NB-steroids NOT useful, antihistamines rarely needed

USEFUL CONTACTS

• Australasian Society of Clinical Immunology and Allergy: www.allergy.org.au
• Anaphylaxis Australia: www.allergyfacts.org.au

SALIENT POINTS

• Anaphylaxis is relatively common but fatal outcomes, foods in particular, are RARE
• Specific immunotherapy directed against bee and wasp venoms can reverse anaphylaxis
• Specific immunotherapy for foods remains under investigation
• Adrenaline by IM injection is not only extremely effective alone in reversing anaphylaxis, but is also very safe to give in ALL circumstances

TAKE HOME MESSAGE

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Steroid injections should not be given as first aid treatment