Practical Course
Allergen Immunotherapy (AIT)
How to be effective

Michel Dracoulakis
HSPE-”FMO” – São Paulo-SP – Brazil
Allergen immunotherapy - beginning

- Dunbar – almost died with first inoculation
- 1911 – Noon and Freeman published first work
  - Became standard treatment for asthma/hay fever
  - Diverse build up schemes and duration
- Indiscriminate use made the specialty untrustworthy
- 1963 – Lowell and Franklin – first placebo controlled study
Studies over Allergen Immunotherapy

- **Venom Anaphylaxis**
  - Up 98% efficacy (bee and wasp)

- **Rhinitis**
  - Sublingual IT (SLIT) better than anti-H1 and placebo/similar to nasal steroids
  - Subcutaneous (SCIT) and SLIT better than placebo

- **Asthma**
  - Meta-analysis confirms efficacy for children and adults

- **Atopic Dermatitis**
  - Trend for efficacy - need better studies

J Allergy Clin Immunol 2005; 115; 439-47
BMC Medicine 2014, 12:71
Cochrane Database Syst Rev. 2010;(8):CD001186
Efficacy of AIT

- Children – carry over effect of 12 years
- Reduces progression to asthma
- Reduces new sensitizations
- SLIT – carry over of 2 years documented in adults
- Long-lasting effect – 15 years after 4 years of SLIT

- Preventive SLIT – asymptomatic children
  - Safe / in vitro effects

J Allergy Clin Immunol 2005; 115; 439-47
BMC Medicine 2014, 12:71
Cochrane Database Syst Rev. 2010;(8):CD001186
Indication of AIT

- Identified allergen
- IgE mediated disorders
- Exposure correlate with symptoms
- Good extract available?
  - Allergen standardization

Persistent rhinitis – allergic or nonallergic? – Allergy 2004: 59 (Suppl. 76): 11–15
Indication of AIT

Patient selection

- Patient adherence
- Symptoms intensity
- Monosensitized x polysensitized
- Seasonal x perennial

How much allergic is the symptom?

- Rhinitis – allergic x non-allergic = 3:1
- Mixed rhinitis – 44-87%
- Atopic Dermatitis – intrinsic, food allergy...
- Geriatric population – perception / co-morbidities
Efficacy of AIT – practical issues

- SLIT x SCIT – SCIT better

- Up dosing protocol
  - Conventional
    - Time consuming - more dropouts
  - Cluster
    - Zhang et al. – safe as conventional (HDM)
    - Feng et al. – meta-analysis – efficacy in RQLQ
  - Rush
    - Safer in Venom AIT

- Pre-medication – Anti-histamines/Omalizumab

Int Arch Allergy Immunol 2009;148:161–169
J Allergy Clin Immunol 2012;130:1097-107
Efficacy of AIT – practical issues

- Maintenance
  - Missed doses
    - Patient evaluation – Peak-Expiratory Flow
    - Flexibility – dose interval?
  - How much time
    - 3-5 years
    - Venom IT
  - Dose?

Optimal duration of allergen immunotherapy in children with dust mite respiratory allergy - doi: 10.1111/pai.12296
Efficacy of AIT – the allergens

- Choice of allergens
  - Multiple allergens AIT
  - Single allergen AIT

- Bystander effect?

Mixing allergens

- **Dose**
  - Cross-reactive allergens – increased dose
  - Too many allergens – insufficient dose
- **Enzymatic activity**
- **Time between mixing and applying**
  - Greater dilution = lower shelf life

Tailoring AIT

- **Recommended doses – flexibility**
  - Venom AIT – 100 μcg

- **Modifying AIT**
  - Adverse reactions
    - Large Local reactions
    - Systemic reactions
  - Lack of response – 1 year
    - Non-allergic component
    - Missed main triggers
    - Continued exposure to allergen

Optimal duration of allergen immunotherapy in children with dust mite respiratory allergy - doi: 10.1111/pai.12296
Allergen immunotherapy: A practice parameter third update; Cox et al; J Allergy Clin Immunol. 2011
Monitoring AIT

- Clinical response
  - Symptoms
  - Medications

- Cutaneous late responses (intradermal test)

- IgG4/serum inhibitory activity for IgE-allergen complex binding to B cells

- Basophil histamine release

- Basophil expression of diamine oxidase

J Allergy Clin Immunol. 2012;130:918-24
For questions or commentaries please contact

mdracoulakis@gmail.com