

AAOA SCOPE OF KNOWLEDGE: ALLERGY AND ASTHMA*

I Epidemiology

- a Prevalence
 - i Regional
 - ii Change over time
- b Populations at risk
 - i Genetic associations
 - ii Environmental associations
- c Socioeconomic impact of disease
 - i Direct cost
 - ii Indirect cost
 - iii Quality of life

II Science of the Sites of Allergic Inflammation

- a Anatomy, Histology, physiology, pathophysiology of:
 - i Nose and paranasal sinuses
 - ii Pharynx
 - iii Ear/Eustachian Tubes
 - iv Larynx/Trachea
 - v Lungs
 - vi Eye
 - vii Skin
 - viii Gastrointestinal tract
- b Basic physiology, pathophysiology, and principles of:
 - i Mucociliary function
 - ii Smell and taste
 - iii Auditory/vestibular function
 - iv Voice
 - v Respiratory function
 - vi Deglutition
 - vii Ocular protection mechanisms
 - 1 Naso-lacrimal function
 - 2 Conjunctival function
 - viii GI function

III Basic Science

- a Basic components, concepts and applications pertinent to Allergy
 - i Immunology
 - 1 Function
 - a General aspects
 - i Recognition
 - ii Surveillance
 - iii Amplification
 - iv Memory
 - b Triggers of the immune response
 - i Allergens, haptens, epitopes, parasites, macromolecules
 - c Categories of response
 - i Innate
 - ii Adaptive
 - 2 Components
 - a Inflammatory cells

- i Macrophages (APC)
- ii Lymphoid
 - 1 T-cells
 - 2 B-Cells
 - 3 Null cells
- iii Granulocytes
 - 1 Mast Cells/basophils
 - 2 Eosinophils
 - 3 Neutrophils
 - 4 Platelets

b Immunoglobulins

- i G
- ii A
- iii M
- iv D
- v E

c Inflammatory mediators

- i Cytokines
- ii Chemokines
- iii Vasoactive amines
- iv Leukotrienes
- v Prostaglandins
- vi Complement

- ii Endocrinology
- iii Neurology
- iv Molecular cell biology
- v Genetics
- b Physiology and pathophysiology

i Immunology

- 1 Cellular communication
 - a Direct contact
 - i Antigen specific
 - b Cytokine/Chemokine mediated
 - i Non-antigen specific
 - 2 Inflammatory pathways
 - a Cellular
 - i Macrophage
 - ii Granulocyte
 - 1 Mast Cell/Basophils
 - 2 Eosinophil
 - b Non-cellular
 - i Complement
 - ii Arachadonic Acid cascade
 - iii Other
 - 3 Immune sensitization
 - a Memory
 - 4 Hypersensitivity (Gel and Coombs)
 - a I
 - b II
 - c III
 - d IV
 - e V
 - f VI

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- ii Allergic response (Type I)
 - 1 Allergy sensitization
 - a Antigen processing
 - b T-cell
 - c B-cell
 - d IgE
 - e Mast cell
 - 2 Subsequent exposure—trigger
 - a Mast Cell
 - i Antigen crosslinking
 - ii Degranulation
 - 1 Preformed mediators
 - 2 Newly synthesized mediators
 - 3 Cytokines
 - b Early phase response
 - c Late phase response
 - i Cellular Components
 - d Priming
- iii Microbiology
 - 1 Parasitology
 - 2 Bacteriology
 - 3 Virology
 - 4 Mycology
- iv Endocrinology
- v Neurology
- vi Molecular cell biology
- vii Genetics
- viii Nutrition

IV Diseases, Disorders, and Conditions

- a Differential diagnosis of inflammatory disease
 - i Nose/paranasal sinus
 - ii Otologic
 - iii Laryngopharyngeal
 - iv Tracheobronchial
 - v Thoracic/Pulmonary
 - vi Gastrointestinal
 - vii Ocular
 - viii Cutaneous
- b Immunologic disorders
 - i Allergic diseases
 - 1 Allergic rhinitis
 - 2 Allergic conjunctivitis
 - 3 Otologic disease
 - a Otitis media
 - b Meniere's
 - c Otitis externa
 - d Eustachian tube dysfunction
 - 4 Asthma
 - 5 Dermatitis
 - a Eczema
 - b Contact
 - c Urticaria/Angioedema

- 6 Allergic laryngitis
- 7 Gastrointestinal
 - a Eosinophilic esophagitis
- ii Co-morbid conditions impacted by allergy
 - 1 Rhinosinusitis
 - 2 Otitis media
 - 3 Eustachian tube dysfunction
 - 4 Disordered sleep
 - 5 Laryngeal/pharyngeal/esophageal disorders
 - a GERD
 - 6 Asthma
- iii Immunodeficiency
- iv Autoimmune diseases

V Diagnostics and Assessment Procedures

- a History
 - i Symptoms
 - 1 Onset, duration, severity
 - 2 Triggers
 - 3 Exacerbating or ameliorating factors
 - ii Exposures
 - 1 Temporal relationships
 - a Intermittent
 - b Persistent
 - 2 Identifiable antigen
 - a Aeroantigens (Inhalants)
 - b Ingestants
 - c Contactants
 - d Injectants
 - iii Co-morbid conditions
 - 1 Rhinosinusitis
 - 2 Otitis media
 - 3 Eustachian tube dysfunction
 - 4 Disordered sleep
 - 5 Laryngeal/pharyngeal/esophageal disorders
 - a GERD
 - 6 Asthma
 - 7 Ocular
 - iv Family/childhood history
- b Physical examination
 - i Face
 - ii Ears
 - iii Nose/Paranasal sinuses
 - iv Oro/Nasopharynx
 - v Laryngotracheal
 - vi Pulmonary
 - vii Skin
- c Adjunctive testing: Indications, limitations, and normal and pathologic findings:
 - i Ears
 - 1 Audiovestibular testing

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- ii Nose
 - 1 Acoustic rhinometry/rhinomanometry
 - 2 Nasal cytology/biopsy
 - 3 Nasal/paranasal sinus culture
 - 4 Nasal endoscopy
 - 5 Olfactory testing
 - 6 Radiologic testing
 - iii Larynx
 - 1 Laryngoscopy
 - iv Pulmonary
 - 1 Pulmonary function testing
 - 2 Radiologic testing
 - v Sleep
 - 1 Polysomnography
 - d Allergy testing:
 - i Antigen selection
 - 1 Antigen characteristics
 - a Aeroallergen physical characteristics
 - b Biologic activity/potency
 - c Antigen cross reactivity
 - d Antigen extraction/standardization
 - 2 Aeroallergen distribution
 - a Principles of distribution
 - b Local and Regional differences
 - ii Aeroallergen tests
 - 1 Expanded specific allergen testing
 - a In vivo
 - i Principles of in vivo testing
 - 1 Pathophysiology of the skin whealing response
 - a Immediate response
 - b Delayed response
 - 2 Factors that affect the skin whealing response
 - ii Specific methodologies
 - 1 Percutaneous (Prick) testing
 - a Single-percutaneous (prick) testing
 - b Multi-percutaneous (prick) testing
 - 2 Intradermal testing
 - a Single intradermal testing
 - b Intradermal dilutional testing
 - 3 Blended techniques of in vivo testing
 - 4 Scratch testing (*mentioned only for historical purposes*)
 - 5 Provocation
 - b In vitro
 - i Principles of in vitro testing
 - ii Methodologies
 - 2 Principles of the allergen screen
 - iii Ingestants (Food allergy)
 - 1 History
 - a Food diary
 - b Anaphylaxis
 - 2 Testing
 - iv Injectants
 - v Contactants
 - 1 Contact tests (patch)
 - e Immunologic Evaluation (including rheumatologic)
 - i Humoral
 - ii Cellular
- ## VI Allergy Treatment
- a Environmental control
 - b Pharmacotherapy/pharmacology
 - i Antihistamines
 - ii Decongestants
 - iii Mast cell stabilizers
 - iv Mucolytics
 - v Leukotriene modifiers
 - vi Corticosteroids
 - c Dietary control
 - d Immunotherapy
 - i Desensitization
 - 1 Route of delivery
 - a Subcutaneous
 - b Mucosal (e.g., sublingual)
 - 2 Mechanism of action
 - 3 Indications/contraindications
 - 4 Antigen dosing
 - a Starting dose
 - b Escalation
 - c Maintenance
 - d Withdrawal
 - 5 Mixing of treatment vial
 - 6 Duration of therapy
 - 7 Outcomes of immunotherapy
 - ii Monoclonal antibody
- ## VII Allergy Emergencies
- a Epidemiology
 - i Risk factors
 - ii Recognition
 - iii Differential diagnosis
 - b Management
 - i High-risk population recognition
 - ii Preparation
 - iii Prevention
 - iv Intervention
- * Adapted from Marple, BF, et al. "American Academy of Otolaryngic Allergy CME Report: Allergy, Scope of Knowledge." *Otolaryngology—Head and Neck Surgery*, 136(1): 8-10, 2007 Jan.