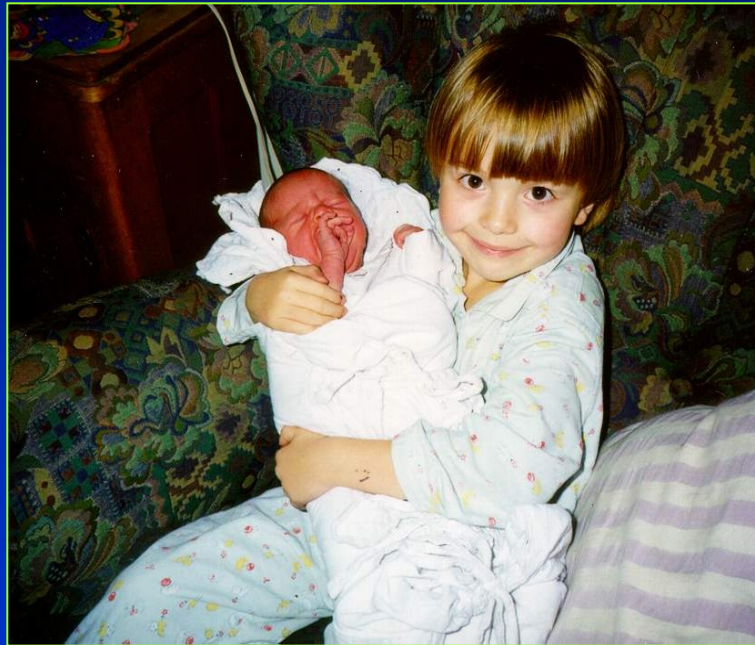


Allergy in childhood: Need for early detection and treatment



Ondřej Rybníček
Allergy unit, Paediatric Dept., FN BRNO

INCREASE IN ALLERGY PREVALENCE



Sensitization

- allergic rhinitis
- atopic eczema
- bronchial asthma

 Allergy drug consumption increase

ATOPIC SENSITIZATION

- **Sequential and progressive occurrence of atopy symptoms in childhood**
 - **Food allergy**
 - **Atopic dermatitis**
 - **Bronchial asthma**
 - **Allergic rhinitis**

„Atopic march“



PREVENTION OF ALLERGY AND ASTHMA

- **No contact with tobacco smoke both pre- and postnatally**
- **Encouragement of spontaneous delivery (contact with vaginal microflora)**
- **Encouragement of breastfeeding (also other reasons than allergy prevention)**
- **Avoiding broad-spectrum antibiotics and paracetamol prenatally and during the first year of life when possible**

ALLERGIC DISEASES: DIAGNOSIS

- **History, physical examination**
- **Skin tests**
- **Laboratory evaluation**
- **Functional evaluation**
- **Elimination-exposition tests
(provocation tests)**
- **Involvement of different
specialists**

ALLERGY THERAPY - APPROACH

• **COMPLEX APPROACH**

- **Environmental adjustments**
 - In- and outdoor allergens, pollutants, dietary alterations
- **Specific allergen immunotherapy**
- **Pharmacotherapy**
- **Permanent patient education**
- **Adjuvant methods**
 - Physiotherapy, climato/balneotherapy, diet, psychotherapy, vaccination....

ALLERGEN IMMUNOTHERAPY (AIT)

Treatment approach where defined doses of therapeutic allergen are being administered to the allergic person in regular intervals.

The therapeutic allergen must be a cause of allergic problems + IgE mediated hypersensitivity (1st type) must be confirmed.



WHEN AIT IS INDICATED?

- **Allergic rhinitis** and **asthma** caused by known aeroallergens
- History of severe systemic reaction caused by **Hymenoptera venom allergy**.
- AIT in urticaria, angioedema, atopic dermatitis and food allergy is up to now considered experimental and is not recommended for daily practice.



ALLERGENS SUITABLE FOR AIT

A/ Aeroallergens

- pollen allergens
- house dust mites
- cockroaches
- pet allergens
- moulds

B/ Hymenoptera venom



ANTIALLERGIC DRUGS

ANTIINFLAMMATORY DRUGS

- systemic and topical GCS
- antileukotriens
- antihistamines
 - suppressed adverse effects
 - broader spectrum of effects:
 - antihistaminic
 - antiinflammatory
 - antiallergic
- theophylline
- cromons



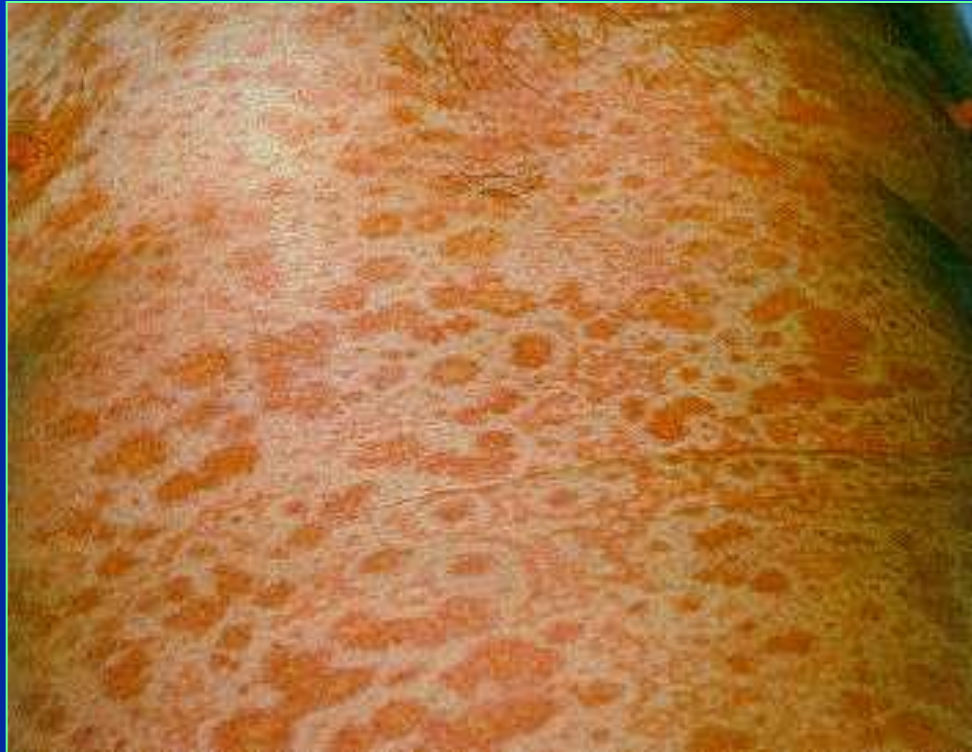
FOOD ALLERGY

FOOD ALLERGY: DIAGNOSTIC APPROACH

- **History, physical exam**
- **Skin testing**
 - **prick tests, i.d. tests**
 - **atopy patch test**
- **Specific IgE antibodies**
- **Component diagnostics**
- **Elimination-exposition tests**

FOOD ALLERGY: MANAGEMENT

- **Elimination of causal allergens from diet, incl. cross-reacting allergens**
- **Nalcrom**
- **Epipen**
- **(Antihistamines)**



SKIN ALLERGY

ATOPIIC DERMATITIS

Delayed hypersensitivity

**Basic therapy: topical treatment
regimen adjustment
pruritus → antihistamines**

MECHANISMS OF URTICARIA

Degranulation of skin mastocytes
Effects of histamine on tissue receptors

Diverse etiology: allergy (food, drugs...)
physical factors (cold, pressure...)
focal infections
other diseases (hepatitis,
diabetes, haemophilia...)
C1-esterase inhibitor defect

 **comprehensive evaluation is necessary**

CHRONIC URTICARIA THERAPY

Drugs of the choice – non-sedating antihistamines

- **Symptom control (itching)**
- **Higher doses usually necessary**
 - increase the dose of non-sedating antihistamine
 - add first generation antihistamine
- **Continue 2-3 weeks after symptoms disappear (relaps prevention)**
- **Plus:** Regimen adjustment
Additional drugs according to clinical course (GCS, adrenaline)



BRONCHIAL ASTHMA

2018 UPDATE OF GLOBAL STRATEGY FOR ASTHMA MANAGEMENT AND PREVENTION (GINA):

- <http://ginasthma.org/2018-gina-report-global-strategy-for-asthma-management-and-prevention>
free download (pdf)

Early childhood asthma



- **Childhood asthma: whole life importance**
 - **2/3 of all asthma cases start in the first 3 years of life**
 - **majority of severe asthma cases start in the first 3 years of life**
 - **hypothesis that the severity of asthma in children decreases with age has not been proofed correct**

Fernando D. Martinez

A clinical index to define risk of asthma in young children

Major criteria:

- parental asthma
- atopic eczema

Minor criteria:

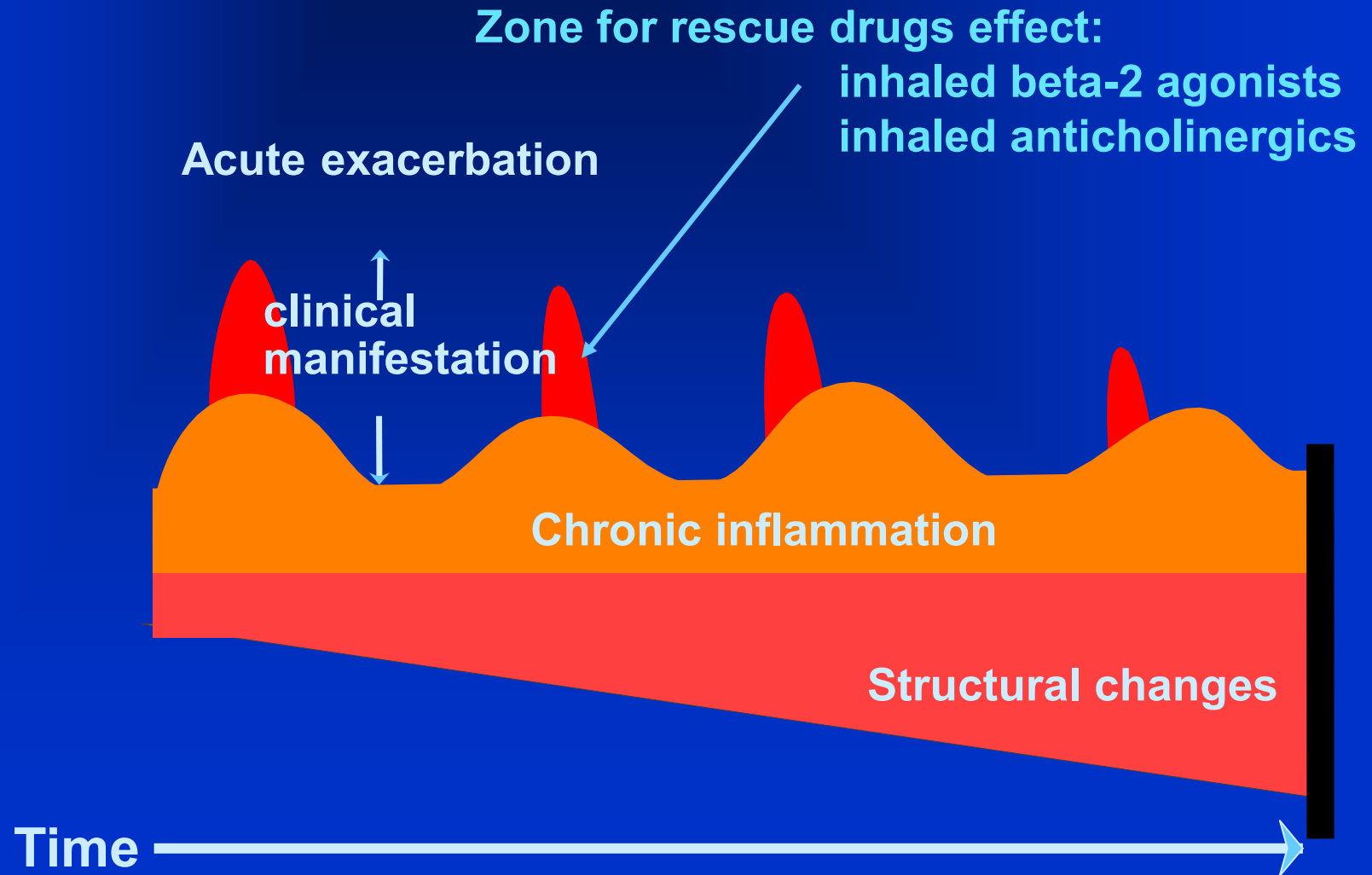
- allergic rhinitis
- wheezing apart from colds
- eosinophilia (>4%)

Early wheezer

+

at least 1 major criteria
or at least 2 minor criteria

CLINICAL COURSE OF ASTHMA



FULL ASTHMA CONTROL

- **No** chronic symptoms incl. nocturnal problems
- **No** asthma exacerbations
- **No** need for ED visits
- **No** need for rescue beta-2 agonists use
- **No** limitation of daily activities including physical activities and sport
- **Physiological** circadian PEF variability
- **Normal** lung function
- **No** adverse effects of medication

ASTHMA PHARMACOTHERAPY

- **Two key parts of asthma therapy:**
- Preventive (antiinflammatory) medication
- Rescue medication (SABA)
- Stepwise treatment approach



ALLERGIC RHINITIS

ALLERGIC RHINITIS CLASSIFICATION

with regard to the quality of life

intermittent

symptoms
<4 days/week
or <4 consecutive weeks

persistent

symptoms
>4 days/week
and >4 consecutive weeks



mild

(all of the following)
normal sleep
no impairment of daily activities,
sport, leisure
no impairment of work and school
symptoms present, not troublesome

moderate/severe

(one or more items)
sleep disturbed
impairment of daily activities,
sport, leisure
impairment of school or work
troublesome symptoms

ALLERGIC RHINOCONJUNCTIVITIS: DIAGNOSTIC APPROACH

- **History, physical exam**
- **Skin testing, specific IgE**
- **Component diagnostics**
- **Functional tests (flow-volume)**
- **ENT, sinus X-ray (diff. dg.)**
- **Ophthalmology (diff. dg.)**

ALLERGIC CONJUNCTIVITIS

**Ist type allergic reaction
(immediate reaction)**

**Symptoms: itchy eyes
conjunctival injection
lacrimation
conjunctival oedema
usually together with AR**

ALLERGIC RHINITIS PHARMACOTHERAPY

TREATMENT GOAL

- **block of pathophysiological mechanisms that induce chronic inflammation**
- **prophylaxis of allergy symptoms**

Allergy 1998;53(suppl 41)7-31

Rachelefsky GS. J Allergy Clin Immunol 1998;101:2, part 2, 367-69

RHINITIS – PRINCIPLES OF PHARMACOTHERAPY

When choosing a suitable and effective medication, consider:

- aetiology
- pathophysiology
- main symptoms
- safety (side effects, drug interactions)
- age
- other specific conditions (pregnancy, athletes...)
- coexisting airway disease (sinusitis, asthma)
- patient preference and compliance

PHARMACOTHERAPY

- **Glucocorticosteroids (GCS)**
 - Intranasal GCS are considered drugs of choice when nasal congestion is the leading symptom (persistent rhinitis)
- **Decongestive drugs**
 - Topical
 - Systemic
- **Antihistamines**
- **Decongestant/antihistamine combination**
- **Mast cell stabilizers**
- **Leukotriene receptor antagonists**

Corey et al. *Ear Nose Throat J.* 2000;79:690.

American Academy of Allergy, Asthma and Immunology. *The Allergy Report. Volume 2: Diseases of the Atopic Diathesis.* Milwaukee, WI: American Academy of Allergy, Asthma and Immunology; 2000:13–50.

CLINICAL FEATURES OF RHINITIS

symptoms

„sneezers/secretors“

„blocked nose“

Sneezing	Paroxysmal	Not common
Rhinorrhoea	Watery secretion	Thick mucus
	Anterior + posterior	Mainly posterior
Itching	Yes	No
Blocked nose	Sometimes	Common, intense
Intensity variation during the day	Daytime worsening, nighttime improvement	Permanent problems often worse at night
Conjunctivitis	Often	Not common

Preferred therapy:

antihistamines

topical nasal steroids

UNITED AIRWAY DISEASE

rhinitis



asthma

- * changes almost always detectable on the other organ
- * intensity of nasal and bronchial symptoms correlate
- * bronchial reaction after nasal provocation
- * primary worsening usually on nasal mucosa

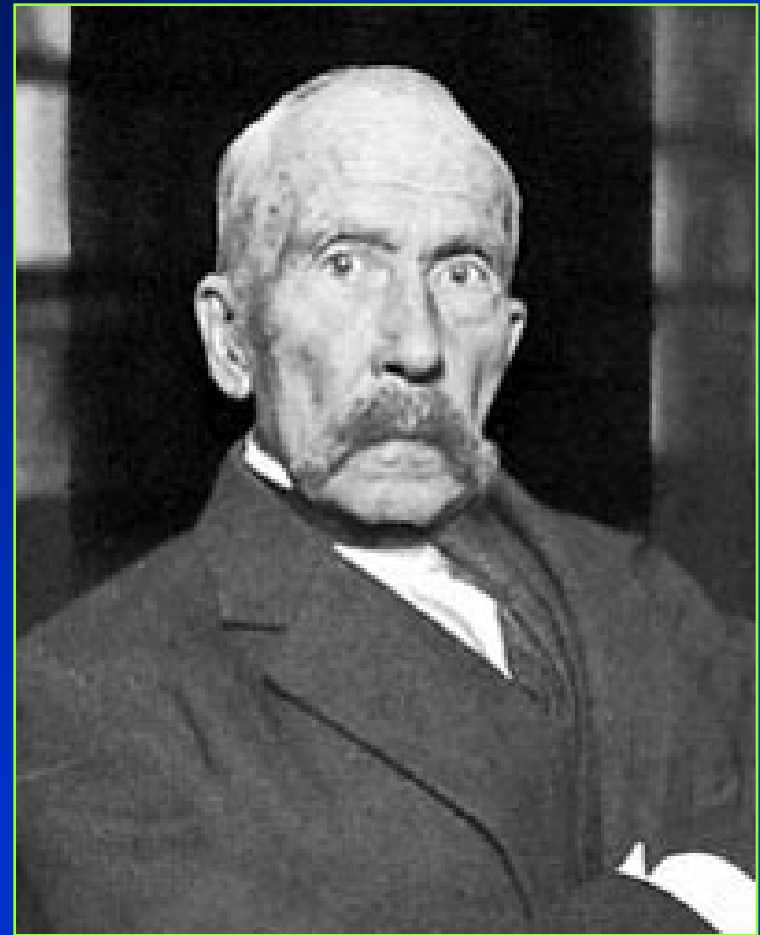
DEFINITION OF ANAPHYLAXIS

- **PATHOPHYSIOLOGY**

Anaphylaxis is an acute allergic reaction based on 1st type, IgE mediated immunopathologic reaction

- **CLINICAL DEFINITION**

- Multiorgan involvement
- No generally accepted clinical definition exists



Ch. Richet, 1850-1935

MANAGEMENT OF ANAPHYLACTIC REACTION

- check vital functions
- adrenaline i.m. 0,1 ml/10 kg
- oxygen, maintain adequate oxygenation, relieve bronchospasm, intubate
- I.V. fluids, maintain adequate blood pressure (noradrenaline, dopamine)
- antihistamine
- systemic GCS

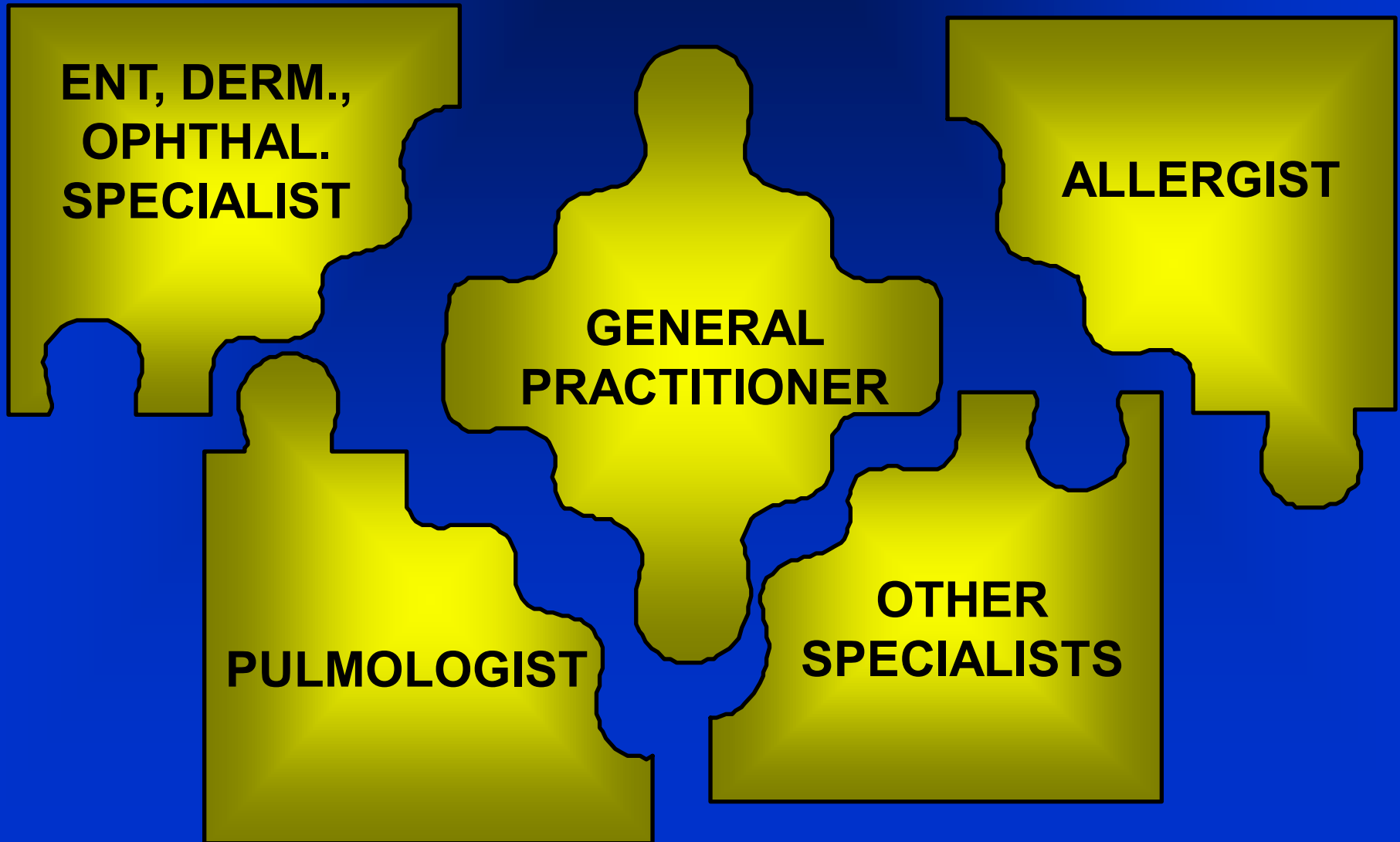


MANAGEMENT OF ANAPHYLACTIC REACTION

- **Adrenaline - effective in the early phase of anaphylactic reaction. Administer if in doubts, do not wait!**
- **In fully developed anaphylactic reaction administration of I.V. fluids is necessary (up to 50% of vessel content can become extravasated within 10 minutes)**



ALLERGIC PATIENT - CARE



**Thank you for
your attention!**

