FIFTH EXERCISE

MEDICAL HYSTORY AND PHYSICAL EXAMINATION OF PATIENT WITH ALLERGIC RHINOCONJUNCTIVITIS. SPECIFIC LABORATORY PROCEDURES

I ALLERGIC RHINITIS

1 Natural history
2. Skin prick tests
3. Allergen-Specific Nasal Provocation Testing
4. Nasal smear for eosinophils
5. Rhinomanometry

I.3. Specific nasal provocation testing (NPT) consists of eliciting a response from the nasal mucosa by controlled exposure to allergens. It is indicated in the diagnostic confirmation of allergic rhinitis for evaluating the clinical significance of individual allergens in multisensitized patients. The response is characterized by itching, sneezing, rhinorrhea, and edema of the nasal mucosa with increased resistance to airflow.

Preliminary Considerations

- The patient should be asymptomatic
- Drugs that can modify nasal response should be discontinued before testing:

1. Oral antihistamines: 48 hours to 1-2 weeks, depending on the drug
2. Topical antihistamines: 4-5 days
3. Nasal corticosteroids: 48-72 hours
4. Oral corticosteroids: 2-3 weeks
5. Sodium cromoglycate: 1-3 weeks
6. Nasal decongestants in general: 2 days
7. Tricyclic antidepressants: 2-3 weeks
8. Nonsteroidal anti-inflammatory drugs (NSAIDs): 1 Week
9. Reserpine-type or clonidine-type antihypertensives: 3 weeks

The initial allergen concentration applied will depend on the patient's sensitivity, the local environmental pressure of the allergen, and the characteristics and potency of the extract. The dose used to initiate nasal provocation can be calculated from the dose used in skin prick tests. Some authors propose the concentration necessary to produce a 3-mm papule in a skin prick test or 1/100 of the concentration that elicits a positive skin prick test.

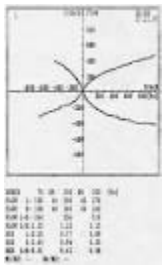
The allergen can be applied unilaterally or bilaterally; bilateral application is considered to be more physiological. In any case, the evaluation of the nasal response should always be bilateral, because the parasympathetic reflex

mechanism of the opposite nasal cavity must be taken into account. NPT starts with the application of an inert substance. Fifteen minutes later, the nasal response is assessed (eg, symptom score, rhinoscopy, rhinometry). If the nasal response is within pre- established reproducibility value the test proceeds with the serial application of different concentrations at intervals of 15 to 60 minutes. The patient should remain seated and hold his or her breath during application in order to prevent the allergen from entering the larynx and lower respiratory tract. The patient must be kept under observation for 2 hours and should be informed that symptoms may appear later at home. Measures should be taken to ensure that the patient has treatment for any eventual symptoms. Baseline forced spirometry is recommended at the beginning and end of NPT, even for nonasthmatic patients. In order to avoid the priming effect between several NPTs, a minimum interval of 1 week must be left between tests. Testing of only 1 allergen per day is advised.
The interpretation of the response to NPT is based exclusively on the symptom score (rhinorrhea, obstruction, itching, and sneezing). However, symptoms are a subjective criterion the assessment of symptoms should be accompanied by more objective measurements:
- Measurement of nasal peak inspiratory flow (PIFn). Airflow is measured using a specially adapted peak flow meter. The technique is easy to perform and inexpensive, but less exact than rhinomanometry in evaluating NPT results.
- **Measurement of nasal airflow and resistance to airflow: rhinomanometry**
- Measurement of the nasal surface area: acoustic rhinometry. This is a noninvasive technique for studying the geometry of the nasal cavity.

I.4. The clinical significance of nasal smear for eosinophils and the type of cells found in nasal secretions is important to define distinction between allergic and non-allergic rhinitis. In nasal discharges due to allergy, the exudates may be purely eosinophilic, or at least eosinophils will be the predominant leukocyte. In contrast, a "runny nose" due to non-allergic causes will either show a predominance of neutrophils or acellular mucus. The nasal smear for eosinophils is a reliable test with moderately high specificity especially in children with seasonal allergic rhinitis since nasal secretions of patients with allergic rhinitis usually contains increased numbers of eosinophils. The cytological method consists of:
- Sample collection
- Processing (Fixing and staining)
- Microscopic observation

I.5. Rhinomanometry is used to assess **nasal resistance by measuring airflow at specific pressures.** It calculates the difference between external pressure and pressure in the nasal choana. Rhinomanometry can be either anterior or posterior, depending on the placement of the measurement instruments, and

either active or passive, depending on whether the measurement is performed with the patient breathing or holding his/her breath. The technique is sensitive and highly specific, but cannot be used in cases of perforated septum, intense rhinorrhea, or nasal obstruction.



II CONJUNCTIVAL PROVOCATION TESTING

The conjunctival provocation test is a human model of ocular allergy that has been used to study the ocular response to allergenic stimuli and to evaluate antiallergic therapy.