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Background: The airways and the upper digestive tract have a common embryonal origin, and in sensitized subjects they can respond to allergens with an immediate reaction (asthma, rhinitis or oral allergy syndrome). We investigated the possible functional connection between respiratory tract and upper digestive tract by means of specific oral allergen challenges.

Methods: Patients sensitized to birch and apple were subdivided in GROUP A (N = 12; asthma and rhinitis due to birch and OAS due to apple) GROUP B (N = 10; OAS due to apple without asthma/rhinitis); GROUP C (N = 8; asthma and rhinitis due to birch without OAS). Healthy subjects represented the control group D (N = 6). Oral provocation test with apple was performed out of the pollen season. Visual analog scale for eye, nose and mouth symptoms, spirometry, nasal eosinophil count and exhaled nitric oxide were assessed before and 6 hours after challenge.

Results: There was no change in nasal and ocular symptoms before versus after challenge in all groups. On the contrary, in groups A and B the oral scores significantly increased after challenge (P < .001), whereas no change was seen in groups C and D. Exhaled nitric oxide and nasal eosinophils showed no change before versus after challenge in all groups. Nitric oxide was higher before and after challenge in groups A and C versus groups B and D. No change was seen as well in forced vital capacity and forced expiratory volume in one second.

Conclusions: In the case of birch-apple syndrome, eating apple does not functionally or clinically affect the respiratory tract.

410 Epidemiological and Clinical Characteristics of Allergic Conjunctivitis Patients in a Reference Center of Mexico City

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Background: In our country (Mexico) there are few reports about epidemiological characteristics of allergic conjunctivitis patients; despite these studies give us some information about patient profile, in most cases these studies are not always comparable due to the use of different methodologies, that is, Include only a portion of the population (elderly, infants) or there are limited to one region of the city. The purpose of this study was to know the epidemiological and clinical characteristics of allergic conjunctivitis (AC)-patients in the biggest reference center of ocular diseases in Mexico (Institute of Ophthalmology “Conde de Valenciana”)

Methods: Data were obtained from clinical records. Six hundred fifteen patients with diagnosis of AC were included. Epidemiological characteristics included sex, age, residence; clinical-immunological characteristics included atopy, coexistence of other allergies, total IgE, cutaneous reactivity to skin prick test (SPT), sixty allergens were evaluated. Descriptive statistics were performed to obtain frequencies and t test was used to find significant differences. P < 0.05 was considered statistically significant.

Results: AC-Patients who received medical consultation at the Instituto de Ophthalmology where predominantly from State of Mexico (47.25%), Mexico City (37.5%), and in less frequency Hidalgo, Puebla, Tlaxcala, Michoacan, Veracruz, Oaxaca, Guerrero, Chiapas and Guanajuato. 88% of AC-patients were positive to SPT (SPT+), while 12% were negative to SPT (SPT-). Age of diagnosis was significant different between SPT-AC-patients and SPT+AC-patients (14.5-years vs 17.9-years, P = 0.002). Male SPT-AC-patients were diagnosed younger than male SPT+AC-patients (P = 0.001). IgE concentration was significantly increased in male SPT+AC-patients than female SPT+AC-patients (P = 0.006). The most common skin reactivity was against Dermatophagoides sp (59.1%), Aedes sp (54.55%) and Blatella-Periplaneta sp (31.14%); we did not observe significant differences in skin reactivity between male or female SPT+AC-patient.

Conclusions: It was considered that AC-patients were negative to SPT; contrary to reported, this study showed that most of AC-patients were positive to some allergy; this result is relevant because open the possibility to offer specific desensitization as conventional treatment instead anti-histamine drugs in SPT+ population. This is the first study covering the central and southern part of our country.

411 The Classification of Allergic Rhinitis and Its Cytological Correlate

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Background: The ARIA document introduced a new classification of allergic rhinitis, based on its duration and severity, which is graded on the basis of the impact of AR on daily activities and quality of life. Nasal cytology is a simple and reliable diagnostic tool to identify the presence and type of inflammation in rhinitis. Thus, we assessed severity of AR by nasal cytology on the basis of the ARIA classification.

Methods: Patients suffering from AR caused by grass pollen only, and healthy subjects were studied. The severity of rhinitis was defined according to ARIA. All subjects underwent nasal cytology, using a Rhino-probe. Scrapings were air-dried and stained by May-Grünwald-Giemsa. Differential cell count was expressed as % of the total leukocytes. Unpaired t test was used for comparisons.

Results: Sixty-two grass-allergic patients (34 men, mean age 35.2 years) and 18 healthy subjects (10 men, mean age 32) were studied. 67.8% of patients had intermittent AR (33.9% mild and 33.9% moderate-severe) and 32.2% had persistent AR (14.5% mild and 17.7% moderate-severe). The patients with moderate-severe AR had significantly more mast cells and lymphocytes than those with mild AR, with a relatively smaller number of neutrophils and eosinophils. Mast cells and/or lymphocytes could be detected in only 3/30 patients with mild rhinitis, and in 19/32 patients with moderate/severe rhinitis. No difference in cell counts was found when comparing intermittent and persistent AR.

Conclusions: Moderate/severe allergic rhinitis displays a cytological inflammatory pattern different from mild rhinitis.

412 Incidence of Allergic Diseases on Children under 5 Years in Juarez Hospital Mexico

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Background: Allergic diseases such as asthma, atopic dermatitis and allergic rhinitis are common disorders that have increased its prevalence over the past thirty years. Atopic diseases have a genetic basis, with expression of different phenotypes associated with chromosome 5 (5q23-25, IL-4, IL-5, IL-9, IL-13 and GM-CSF), 6 (molecules of class I and II human leukocyte antigen) 11 (11q13: β subunit of high affinity receptor for IgE) and 12 (IgE: IFN-gamma,
Effect of Hydrolysis and Polymerization on Bovine Beta-lactoglobulin Immunoreactivity

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Background: Enzymatic treatments such as hydrolysis with proteases and polymerization using transglutaminase (TG) have been studied to reduce the immunoreactivity of β-Lactoglobulin (β-Lg). Bromelain is a cistene protease that is not usually used for production of hypoallergenic hydrolysates. TG is an enzyme that catalyses the formation of inter and intramolecular isopeptide bonds between glutamine and lysine residues. The present study is aimed at investigating the antigenic response of β-Lg polymerized by TG pre or post hydrolysis with bromelain.

Methods: β-Lg (donated by Davisco Inc.) was hydrolyzed with bromelain (3% protein w/w in distilled water, 25 U enzyme g⁻¹ of substrate, pH 7.5, 240 min) and then polymerized by TG (7% hydrolysate, 10 U β-Lg g⁻¹ protein, 50°C/180 min). When polymerization was carried out pre hydrolysis, β-Lg (7% w/w) was polymerized by TG (10 U β-Lg g⁻¹ protein, 50°C/180 min) in 0.1 M Cys or after heat treatment (80°C/60 min), and then hydrolyzed under the same conditions previously described. The hydrolysis reaction was monitored by pH-stat method and the samples were evaluated by SDS-PAGE/tricine. Antigenicity was evaluated by Immunoblotting and ELISA assays using sera from mice sensitized with β-Lg (IgE anti-β-Lg).

Results: The treatment with TG (10 or 25 U TG g⁻¹), post hydrolysis, lead to formation of products with a wide molecular weight (MW) distribution (3 to 26 kDa), and other products with high MW, indicating partial polymerization. The samples obtained from polymerization pre hydrolysis showed bands with low MM (<6.5 kDa) and also products >26 kDa, indicating a partial hydrolysis of the polymers. Immunoblotting analysis showed no reaction towards specific IgE with any of the samples. ELISA assay showed that the IgE-binding response to sample polymerized by TG post or pre hydrolysis with bromelain were significantly reduced (IgE ≤ 0.35 µg mL⁻¹) as compared to untreated β-Lg (IgE 216.20 µg mL⁻¹ ± 27.58) (P < 0.05).

Conclusions: These results suggested that hydrolysis with bromelain combined with polymerization by TG was capable of reducing the antigenicity of β-Lg, being a potential method for modifying the antigenic properties of proteins.

Identification of Novel Allergens in the Fish Parasite Anisakis Simplex

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Background: The nematode Anisakis simplex is a marine parasite that causes allergy as well as anisakiasis in humans. Here, we describe the identification of 4 novel allergens in anisakis.