მკურნალობის გამოსავალთან ასოცირების შეფასება.

2015-2020 წწ. ჩატარდა რეტროსპექტული კოჰორტული კვლევა 1581 მოზრდილი (18+) პაციენტთის, რომელთა მკურნალობის გამოსავალი ცნობილი იყო.

კვლევის მონაწილეთა მონაცემების დაზუსტებულმა ანალიზმა აჩვენა, რომ რეზისტენტული ტუბერკულოზის საწინაარმდეგო მკურნალობის წარმატებული გამოსავალი სარწმუნოდ ასოცირდება „მდედრობით სქესთან“ (adjusted OR 1.78, 95% CI: 1.33 – 2.39, p<0.001), „ახალ შემთხვევასთან“ (adjusted OR 2.34, 95% CI: 1.88–2.91, p<0.001) და „ახალ აივ ნეგატიურ სტატუსთან” (OR 2.33; 95% CI 1.53–3.55; p<0.001).

კვლევის მონაცემთა ბი- და მულტივარიაციულ ანალიზზე დაყრდნობით, მკურნალობის გამოსავლის სარწმუნო ასოცირება რეზისტენტული ტუბერკულოზის სხვა საკვანძო მახასიათებლებთან,მათ შორის „ახალი ტუბსაწინააღმდეგო მედიკამანტების შემცველი რეჟიმებით მკურნალობასთან“, არ გამოვლინდა.

რეზისტენტული ტუბერკულოზის ახალი, ეფექტური რეჟიმებით პროგრამული მკურნალობა ფართოდ რეკომენდებულია 2019 წლიდან, აქედან გამომდინარე, სადღეისოდ ამ რეჟიმებზე მყოფი ყველა პაციენტის მკურნალობის გამოსავალი არ არის შეფასებული. ავტორებს მიზანშეწონილად მიაჩნია რეზისტენტული ტუბერკულოზის სამკურნალო ახალ რეჟიმებზე მყოფი პაციენტების სრული მონაცემების და მათი მკურნალობის გამოსავალთან ასოცირების სრულყოფილად შესასწავლად დამატებითი კვლევების ჩატარება.

CYPRESS POLLEN SESITIZATION IN GEORGIA: CLINICAL AND MOLECULAR CHARACTERISTICS

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Cypress pollen allergy is a widely distributed, highly prevalent and severe winter pollinosis [3] that may be caused by several Cupresaceae species around the Mediterranean basin, in North America and Asia. Exposure to cypress pollen has increased steadily over the last few decades and the prevalence of allergy to cypress pollen has also dramatically increased from 0.6% to 9.8% in the general population and from 9% to 35% in allergic patients, probably because of the allergen load has become more intense [2]. The first cases of cypress pollinosis were described in South Africa in 1945 and in France in 1962. During the following decades, cypress species have been extensively planted for ornamental purpose, since they have low water needs, fast growth and have a low-cost maintenance [3]. These plants are anemophilous, shedding large amounts of pollen, being an important cause of allergic diseases, especially during the winter [5]. This increased exposure has been responsible for the increase in prevalence of sensitization and clinical manifestations of cypress pollen allergy [7].

Concerning the clinical expression, the main clinical symptom associated with allergy to cypress tree pollen is rhinitis, often associated with disabling conjunctivitis, whereas the incidence of asthma is generally lower than in patients sensitized to other allergenic sources [6]. The allergic reactions to *Cupressaceae* pollen, which usually occur in winter, could have overlapping symptoms with common cold or influenza [5]. Cypress pollinosis symptoms are often hard to control. Caimmi reported a 57.9% of cypress pollen allergic patients needing immunotherapy to control their symptoms [2].

In Mediterranean areas, C. sempervirens (Italian cypress or Mediterranean cypress) is by far the most common pollinating species. It accounts for half of the total pollination level [3]. According to Georgian pollen count data, cypress pollen is the major aeroallergen component in winter and early spring [1], but there have been no studies regarding the influence of cypress pollen high exposure in patients with pollen allergy. Thus, the objective of the study was to evaluate cypress pollen allergy in Georgia and describe clinical characteristics and the molecular profile of sensitization.

Material and methods. Patients attended to allergy clinic with suspected cypress pollen allergy (n=492) were included. Diagnostic workup was performed according to local guidelines, specific IgE antibody against cypress allergen was performed using ImmunoCAP and ISAC assay platform. Primary cypress pollen reactivity was confirmed by measuring IgE specific to *Cupressus arizonica* component Cup a 1 (t226) and *Cupressus Sempervirens* extract (t23) by ImmunoCAP (ThermoFisher, Uppsala, Sweden). IgE levels exceeding 0.35 kU/L were considered positive. The allergen microarray assay (ImmunoCAP ISAC; ThermoFisher) was used to analyse the specific IgE repertoire of cypress positive patient's serum. ISAC is a test for semi-quantitative determination of IgE in serum samples. The solid phase in this test is provided by the surface of a plate on which 112 components (43 native and 69 recombinant) have been adsorbed and arranged in triplets. Antibody levels were expressed in standardised units, ISU-E (ISAC Standardised Unit for specific IgE). The measured values ranged from 0.3 to 100 ISU-E, and values ≥ 0.30 ISU-E were considered to be positive results.

Symptoms Diary. Cypress positive patients were interviewed with the seasonal symptom's questionnaire. The severity of eye (itching and/or tear flow and/or conjunctival redness), nose (sneezing and/or runny nose and/or blocked nose), and bronchial (cough and/or wheezing and/or asthma) symptoms were recorded on a 4-point scale (0, no symptoms; 1, mild symptoms; 2, moderate symptoms; 3, severe symptoms). They were asked regarding medication use (antihistamines, local treatment for conjunctivitis and/or rhinitis and asthma) during the cypress season.

Plant Aeroallergens/Pollen Monitoring. The airborne pollen

monitoring was performed with a Burkard Seven Day Volumetric Spore-trap (Burkard Manufacturing Co Ltd, UK) during the seasons of 2019-2020, following the recommendations of European Aerobiology Society [4]. This trap is placed on the roof of Botanical Institute building of the Ilia State University of Georgia, Tbilisi, approximately 15 m above ground level. A strip of silicone-coated Melinex tape was exposed to the air for trapping the plant aeroallergens, and was changed once a week. The exposed tape was cut into 48 mm segments representing 24 h periods. These segments were mounted on microscopic slides using Mowiol mixed with a stain (basic fuchsine) to enable visualization under a high resolution light microscope at 400× magnification. Pollens concentration was calculated and expressed as the number of pollen grains per cubic meter of air (p/m^3). The criteria used to describe the dinamics and patterns of airborne pollen are as follows: the peak pollen concentration; pollen index, which was defined as the total number of pollen grains during the pollination period; the corresponding to the beginning and end of pollination (season begins at 1%, ends at 95% of total sum); the duration of the pollen season [3].

We summarized data as numbers (n) and frequencies (%) if they were categorical and as mean or median and standard deviation or interquartile range if quantitative. Data were entered and analyzed using the Statistical Package for Social Sciences database (SPSS, Inc., Chicago, IL, USA).

Results and discussion. A positive cypress diagnostic test was detected in 183 individuals from 492 allergic patients included in the study (37.2% of studied cases). Demographic and clinical characteristics of studied cypress positive patients are summarized in Table 1. Among cypress positive cases the male/female proportion was 108/75 (59%/41%), mean age (with standard deviation) – 22.7±1.4 years (for children (<18 years old) - 8.8±3.7 and adults - 33.2±9.8). The mean sIgE was 4.02±0.48 kUA/l for C. Sempervirens extract and 29.2±3.23 kUA/l for cup a 1. Diagnosis of allergic rhinitis has occurred in 92.3%, atopic conjunctivitis – 56.8%, asthma – 6% and atopic dermatitis – 10.4%.

Table 1. Baseline characteristics of study patients

Demographic characteristics	
age (±Std. Deviation)	22.7±1.4
Children (<18 years old)	8.8±3.7
Adults (≥18 years old)	33.2±9.8
Female	41%
Male	59%
IgE results	
ImmunoCAP Cypress Sempervirens t23 (KUA/l±S.D.mean)	4.02±0.48
ImmunoCAP nCup a 1 Cypress arizonica t226 (KUA/l±S.D.mean)	29.2±3.23
Diagnosis	
Acute atopic conjunctivitis	56.8%
Allergic rhinitis	92.3%
Asthma	6.0%
Atopic dermatitis	10.4%
Urticaria	7.1%
Cough	8.2%
Angioneurotic edema	6.0%

Table 2. Frequency of reported symptoms during the allergy season

List of symptoms	**Symptoms (n/%)**	**Severe symptoms (n/%)**
ocular itching	145/82,9%	82/44.8%
sneezing	145/82,9%	106/57.9%
nasal obstruction	142/81,1%	101/55.2%
rhinorrhea	136/77,7%	90/49.2%
ocular redness	116/66,3%	62/33.9%
watery eyes	99/56,6%	39/21.3%
nasal itching	82/46,9%	43/23.5%
shortness of breath	39/22,3%	8/4.4%
dry cough	39/22,3%	13/7.1%
foreign body sensation (eye)	33/18,9%	11/6.0%
chest tightness	16/9,1%	5/2.7%
wheezing	15/8,6%	7/3.8%

Table 3. Cypress pollen count data (average values for 2019-2020 year)

Season Start (date)	Peak day (date)	Season End (date)	Peak value (p/m$^{3)}$	Pollen index	Duration (#days)	% total annual amount of pollens
February 7	March 12	April 6	2811	19823	145	48,7%

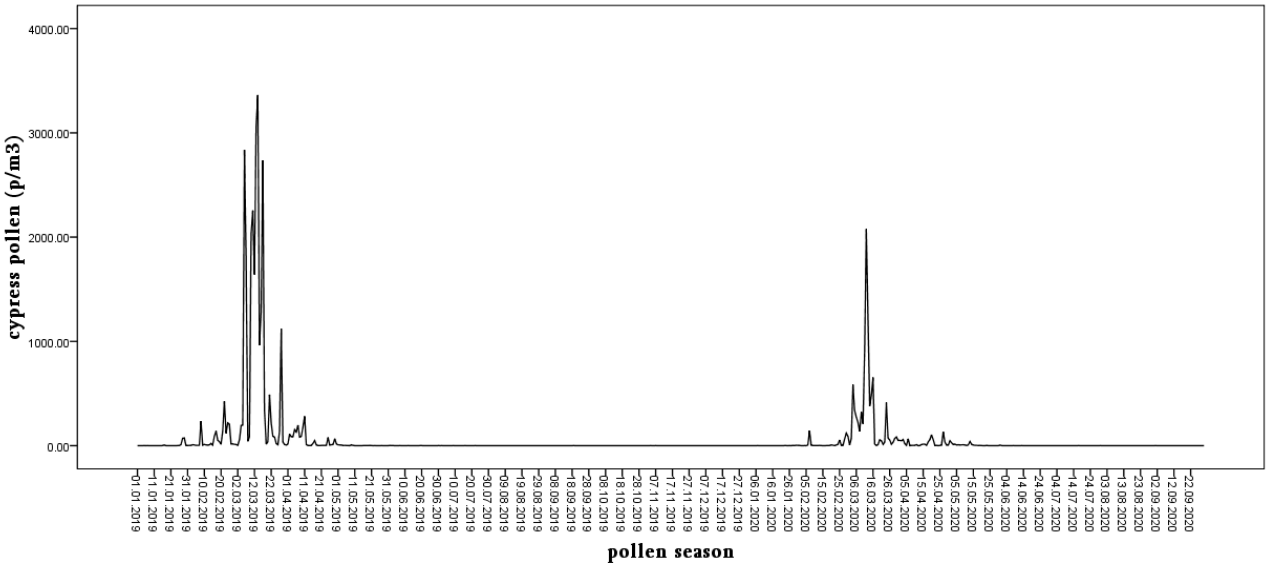

Fig. 1. The major distribution of cypress pollen during its pollination at 2019-2020

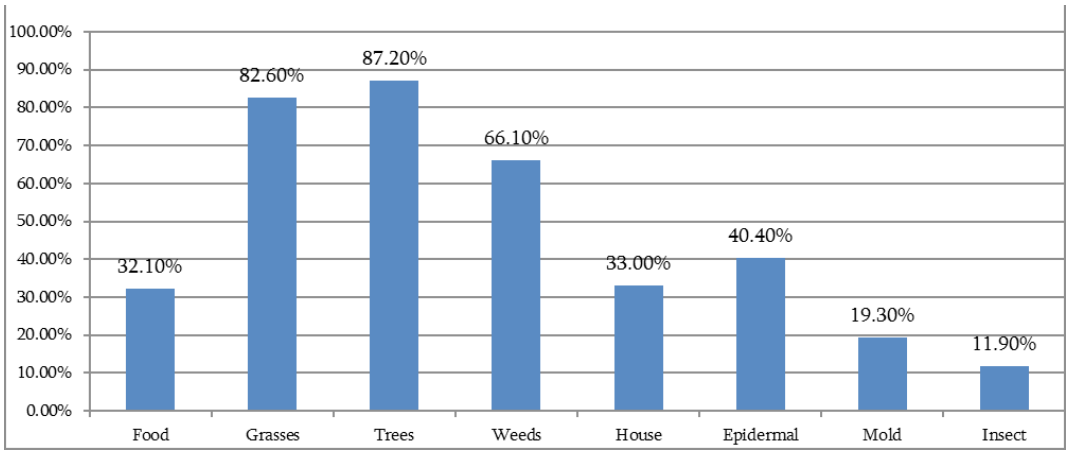

Fig. 2. Sensitization to mainly species-specific components`

From cypress positive 183 patients only 17 patients (9.2%) had no symptoms during the cypress season. As reported in Table 2, the most frequent symptoms were sneezing and ocular itching (82.9% of patients for both symptoms), rhinorrhea was reported in 77.7% of cases and dry cough and shortness of breath - only in 22.3% (each symptoms). More than half of frequent symptoms were reported as severe. Concerning the medication use during the pollen season, 65% of patients used eye drops, 86% - nose drops, 89.6% - antihistamine medications and only 6% the inhalation steroids.

Environmental Data. Table 3 describes the cypress pollen count data in Tbilisi during last two years and the changes in daily pollen levels are shown in Fig. 1. The main cypress pollen season in Tbilisi occurs from beginning of February to beginning of April, being March the month with the highest recorded airborne pollen concentration (average 2811 pollen grains p/m$^{3/}$ day). The average total pollen index for cypress was the total 19823 p/m^3. *Cupressus* pollen accounts for 48.7% of total annual pollen in Tbilisi, season duration is 145 days. The graph shows that the majority of Cupressaceae pollen is produced between January and April.

Sensitization profile. According to ISAC results all patients were poly-sensitized. The molecular profiles of *Cupressaceae* pollen-sensitized patients revealed followings (Fig. 2.): 1) sensitization to mainly species-specific food components (including storage proteins) – 32.1%, 2) sensitization to mainly species-specific aeroallergen components among them grass pollen – 82.6%, tree pollen components – 87.2%, weed pollen – 66.1%, mites – 33.0%, epidermal – 40.4%, mold – 19.3%; 3) sensitization to other mainly species-specific component (insect venom) – 11.9%.

Fig. 3 shows the sensitization to cross-reactive components: low co-sensitization to serum albumin (5,50%), tropomyosin (1,80%), thaumatin like protein (11%) and polcalcin (3.7%); moderate co-sensitization to LTP (20.2%), PR-10 (29.4%), Profilin (24.8%) and CCD (21.1%).

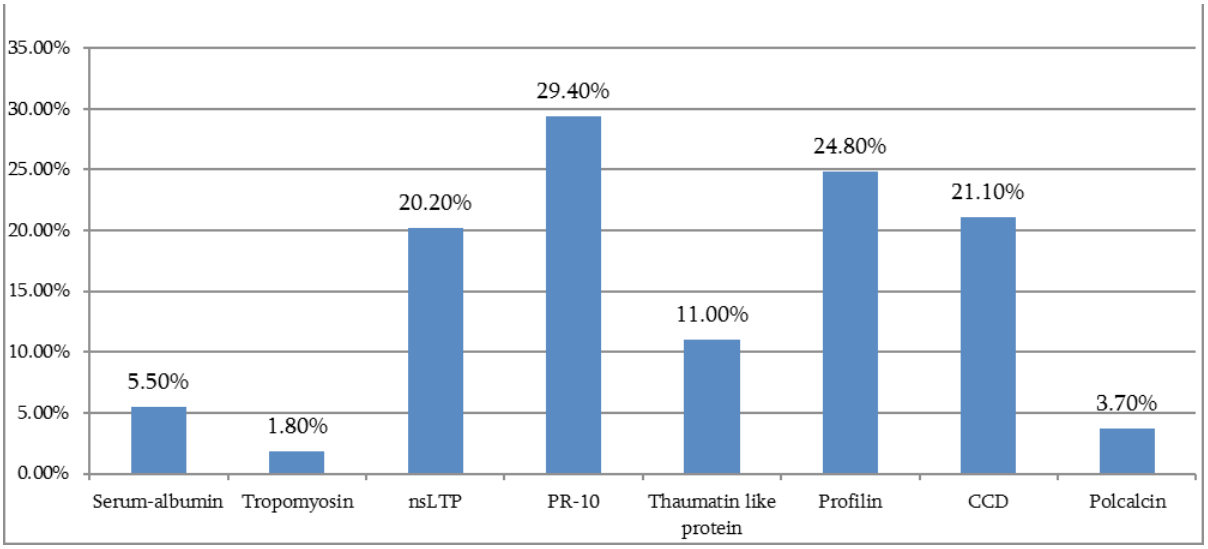

Fig. 3. Sensitization to crodd-reactive components

Table 4. Mostly co-sensitized allergen components

Grasses		
Bermuda grass	nCyn d 1	61,5%
Timothy grass	rPhl p 1	72,5%
	rPhl p 5	46,8%
Trees		
Birch	rBet v 1	27,5%
Japanese cedar	nCry j 1	78,9%
Plane tree	rPla a 1	7,3%
	nPla a 2	32,1%
Weeds		
Ragweed	nAmb a 1	48,6%
Mugwort	nArt v 1	20,2%

The cypress positive patients were mostly co-sensitized to plant allergen components: grasses (nCyn d1- 61.5% of ISAC positive cases, rPhl p 1 -72.5%, rPhl p 5 – 46.8%), trees (rBet v 1 – 27.5%, nCry j 1 – 78.9%, nPla a 2 – 32.1%) and weeds (nAmb a 1 – 48.6%, nArt v 1 – 20.2%) (Table 4).

Allergy to *Cupressaceae* pollen is a worldwide pollinosis caused by several species. The epidemiological data are alarming: in Montpellier, southern France, 19.5% of tested patients reacted positively to the *Cupressaceae* skin test, whereas in Italy and Spain, in some areas, the cypress pollen allergy affected approximately 30% of the allergic population. In an Israeli survey, 24 to 32% of patients attending an allergy clinic had an allergy to cypress pollen [8]. In a larger Italian study from Rome, 23,077 outpatient sera were studied and 42.7% of the subjects exhibited specific IgEs against cypress pollen [3]. In the present study, we show that 37.2% of patients referred to our clinic and suspected to have specific IgE to cypress pollen present sensitization. Moreover, we observed that most of the patients (90.8%) sensitized to cypress pollen were symptomatic during the cypress pollen season. We found that nasal and ocular were the most prevalent symptoms studied patients; asthma like symptoms was less frequent in this group, consistent with the findings of other studies [9]. This observation is probably due to the large aerodynamic size of cypress pollen grains (20-30 µm), which do not reach the lower airway, as they become trapped in the nasal or nasopharyngeal mucous membranes, thus causing mainly rhinitis and conjunctivitis [3].

Cupressaceae pollen frequently predominates in the winter period, but is also present throughout the remainder of the year. *Cupressaceae/Taxaceae* pollen is one of the 12 most abundant aeroallergenic pollens in Europe. Cypress pollen accounts for 40% of the total annual pollen counts in Marseille, in southern France, 38% in Antalya, and 35% in Istanbul, Turkey, 25% in Thessaloniki, Greece, 23 and 24% in Toledo and Cuenca, Spain, 18% in Nicosia, Cyprus, 17% in Palma de Mallorca, Balearic Islands, Spain, and 14%in Nerja, southern Spain. *Cupressaceae* pollen is also abundant or present outside of the Mediterranean region [3]. High cypress pollen count has been observed in our study, which accounts almost half (48.7%) of the total annual pollen counts in Tbilisi (capital of the country). The *Cupressaceae* main pollen season in Tbilisi occurs during the winter-early spring months, beginning, most of years, in January and ending in the beginning of April, in line to what has been reported in other studies [5]. High sensitization to cypress pollen among patients in our study could be explained by high exposure to *Cupressaceae* pollen, particularly - high pollen burden (48.7%), high peak pollen concentration (2811 p/m^3) and long duration of the season (145 days).

An aspect to be highlighted is that *Cupressus* sensitization is commonly associated with poly-sensitization. This phenomenon warrants a more in-depth investigation, not only to establish a correlation with other non-taxonomically related pollen species, but also to elucidate the mechanism involved in the origin of this sensitization or the responsible allergens [6]. A very interesting finding of our study was that all of the cypress-sensitized patients showed positive reactions to different allergens, especially other pollens components. 78.9% of patients sensitized to nCup a 1 were sensitized to nCry j 1, which is consistent with the high cross-reactivity reported between both allergens. It well known that there is high cross-reactivity within the cypress family, as well as cross-reactivity to mugwort and ragweed also been described [10]. High co-sensitization to Bermuda and Thimoty grass components, among studied patients, could be affected by CCD recognition, as natural (n) Cyn d 1, nPhl p 4, like nApi g 5, nCup a1, and MUXF3, express cross-reactive carbohydrate determinants (CCDs), which could lead in principal to nonspecific IgE binding. According to our data MUXF3 were positive 21.1% of cypress sensitized patients. In polysensitized patients, cypress sensitization could be the result of IgE cross-reactivity to proteins/epitopes with structures similar to those of allergens. IgE antibodies against a given allergen may bind to homologous molecules of panallergens (profilin, calcium-binding protein, lipid transfer protein, thaumatin-like protein) in different plant species [9]. In our study we observed low or moderate co-sensitization with panallergens, thus the poly-sensitization could not be explained only by cross-reactivity, especially in regards to high co-sensitization with recombinant allergens as rPhl p 1 (72,5%) and rPhl p 5 (46,8%). Futher investigations are required to clarify cross-reactivity and co-sensitization issues.

Our study has some limitations. The present study does not have an epidemiological value, as it was not carried out on the general population, but it shows the importance of cypress pollen allergy for Georgian population. In the frame of evaluation of the co-sensitization, since we relied on results from ISAC112, our analysis is restricted to the allergens covered by this procedure.

In conclusion, our data show that in Georgia, the prevalence of sensitization to cypress pollen in patients attending the allergy clinic is high (every third patient). The clinical symptoms predominantly associated with allergic rhinitis and atopic conjunctivitis, in most cases which are expressing by acute sneezing and ocular itching during the pollen season and all patients are poly-sensitized. This was the first study to give a detailed description of the clinical and molecular characteristics of cypress pollen allergic patients in Georgia.

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SUMMARY

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The objective of the study was to evaluate cypress pollen allergy in Georgia and describe clinical characteristics and the molecular profile of sensitization. Patients attended to allergy clinic with suspected cypress pollen allergy (n=492) were included in the study. Diagnostic workup was performed according to local guidelines, specific IgE antibody against cypress allergen was performed using ImmunoCAP and ISAC assay platform. The airborne pollen monitoring was performed with a Burkard Seven Day Volumetric Spore-trap (Burkard Manufacturing Co Ltd, UK) during the seasons of 2019-2020, following the recommendations of European Aerobiology Society. 37.2% of studied cases were positive to cypress diagnostic test. From cypress positive 183 patients only 17 patients (9.2%) had no symptoms during the cypress season. The most frequent symptoms were sneezing and ocular itching (82.9% of patients for both symptoms), rhinorrhea was reported in 77.7% of cases and

dry cough and shortness of breath - only in 22.3% (each symptoms). More than half of frequent symptoms were reported as severe. The cypress positive patients were mostly co-sensitized to plant allergen components: grasses (nCyn d1- 61.5% of ISAC positive cases, rPhl p 1 -72.5%, rPhl p 5 – 46.8%), trees (rBet v 1 – 27.5%, nCry j 1 – 78.9%, nPla a 2 – 32.1%) and weeds (nAmb a 1 – 48.6%, nArt v 1 – 20.2%).

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Keywords: cypress, allergy, sensitization

РЕЗЮМЕ

СЕНСИБИЛИЗАЦИЯ К ПЫЛЬЦЕ КИПАРИСА В ГРУЗИИ: КЛИНИЧЕСКАЯ И МОЛЕКУЛЯРНАЯ ХАРАКТЕРИСТИКА

Абрамидзе Т.Г., Готуа М.А., Бочоришвили Е.Т., Меликидзе Н.Р., Гамкрелидзе А.Г.

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Аллергия к пыльце кипариса является весьма распространенным острым зимним полинозом, вызванным различными видами Cupresaceae в странах Средиземноморья, Северной Америки и Азии. В течение последних нескольких десятилетий распространенность аллергии к пыльце кипариса резко возросла (с 0,6% до 9,8%) среди населения в целом и у пациентов с аллергией (с 9% до 35%), по всей вероятности, ввиду более интенсивной экспозиции аллергена.

Целью исследования явилась оценка показателей распространенности аллергии к пыльце кипариса в Грузии и определение ее клинических характеристик и молекулярного профиля сенсибилизации.

В исследование включены пациенты, обратившиеся в аллергологическую клинику с подозрением на аллергию к пыльце кипариса (n=492). Диагностическое обследование проводилось в соответствии с местными инструкциями, специфические антитела IgE к аллергену кипариса определялись с использованием платформы ImmunoCAP и ISAC. Мониторинг переносимой по воздуху пыльцы проводился с использованием аппарата Burkard (Burkard Manufacturing, Англия) в течение сезонов 2019-2020 гг. в соответствии с рекомендациями Европейского Аэробиологического Общества.

37,2% изученных случаев дали положительный результат на диагностический тест кипариса. Из 183 позитивных к кипарису пациентов только 17 (9,2%) не имели симптомов в течение сезона цветения кипариса. Наиболее частыми симптомами были чихание и зуд вокруг глаз (82,9% пациентов по обоим симптомам), ринорея зарегистрирована в 77,7% случаев, сухой кашель и одышка - в 22,3%. Более половины частых симптомов были тяжелыми. Пациенты с положительной реакцией на кипарис в большинстве случаев были сенсибилизированы к компонентам растительных аллергенов: травы (nCyn d1 - 61,5% случаев с положительным результатом ISAC, rPhl p 1 - 72,5%, rPhl p 5 - 46,8%), деревья (rBet v 1 - 27,5%, nCry j 1 - 78,9%, nPla a 2 - 32,1%) и сорняки (nAmb a 1 - 48,6%, nArt v 1 - 20,2%). Полученные в результате исследования данные выявили высокую (каждый третий пациент с аллергией) распространенность аллергии к пыльце кипариса у исследуемых пациентов. Клинические симптомы, связанные с аллергическим ринитом и атопическим конъюнктивитом, в большинстве случаев проявляются в частом чихании и зуде вокруг глаз во время сезона цветения кипариса, все пациенты полисенсибилизированы.

Проведенное исследование является первой попыткой подробного описания клинических и молекулярных характеристик пациентов с аллергией на пыльцу кипариса в Грузии.

რეზიუმე

საქართველოში კვიპაროსის ყვავილის მტვრის მარცვლის მიმართ სენსიბილიზაცია: კლინიკური და მოლეკულური მახასიათებლები

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ალერგიისა და იმუნოლოგიის კვლევითი ცენტრი, თბილისი, საქართველო

კვიპაროსის ყვავილის მტვრის მარცვლის მიმართ ალერგია საკმაოდ გავრცელებული, მაღალი პრევალენსის მქონე ზამთრის მძიმე პოლინოზია. ბოლო ათწლეულების მანძილზე ძალიან გაიზარდა კვიპაროსის ყვავილის მტვრის მარცვლის ექსპოზიცია და, შესაბამისად, დრამატულად იმატა (0.6% დან 9.8% ზოგად პოპულაციაში და 9% დან 35% ალერგიულ პაციენტებში) მის მიმართ ალერგიის შემთხვევებმა.

კვლევის მიზანს წარმოადგენდა კვიპაროსის მიმართ ალერგიის შემთხვევების და მისი კლინიკური და მოლეკულური მახასიათებლების შესწავლა საქართველოში.

კვლევაში ჩართული იყო ალერგიის ცენტრის 492 პაციენტი, რომლებთანაც სავარაუდო იყო კვიპაროსის მიმართ ალერგია. სადიაგნოსტიკოდ გამოყენებულია ImmunoCAP და ISAC პლატფორმა. ყვავილის მტვრის მარცვლის მონიტორინგი განხორციელდა მცენარეული მტვრის მარცვლის შემაგროვებელი აპარატით (Burkard 7-day sampler) 2019-2020 წწ. ევროპის აერობიოლოგიური საზოგადოების მოთხოვნების შესაბამისად. კვიპაროსის სადიაგნოსტიკო ტესტი დადებითი აღმოჩნდა შესწავლილი პაციენტების 37,2%-ში. პოზიტიური 183 პაციენტიდან მხოლოდ 17 (9.2%) პაციენტს არ აღენიშნა სიმპტომები კვიპაროსის ყვავილობის სეზონზე. ყველაზე გავრცელებულ სიმპტომებს განეკუთვნებოდა ცემინება და თვალის ქავილი (82.9% ორივე სიმპტომისთვის), რინორეა აღინიშნებოდა 77.7%-ში, ხოლო მშრალი ხველა და სუნთქვის უკმარისობა - 22.3%-ში. სიმპტომების უმეტესობა იყო მძიმე მიმდინარეობის. კვიპაროსის მიმართ ალერგიულ პაციენტებში უმეტესად აღინიშნებოდა კო-სენსიბილიზაცია მცენარეული ალერგენული კომპონენტების მიმართ: ბალახები (nCyn d1- 61.5% ISAC დადებითი შემთხვევების, rPhl p 1 -72.5%, rPhl p 5 – 46.8%), ხეები (rBet v 1 – 27.5%, nCry j 1 – 78.9%, nPla a 2 – 32.1%) და სარეველები (nAmb a 1 – 48.6%, nArt v 1 – 20.2%).

ჩატარებულმა კვლევამ ალერგიის მქონე პაციენტებში გამოავლინა კვიპაროსის მიმართ სენსიბილიზაციის მაღალი პრევალენტობა საქართველოში (ყოველი მესამე პაციენტი). სიმპტომები უპირატესად ასოცირებული იყო ალერგიულ რინიტთან და ატოპიურ კონიუნქტივიტთან, კერძოთ მწვავე ცემინებითა და თვალების ქავილით კვიპაროსის ყვავილობის სეზონის დროს. ყველასთვის დამახასიათებელი იყო პოლისენსიბილიზაცია. საქართველოში ეს იყო პირველი კვლევა, რომელიც აღწერს კვიპაროსის მიმართ ალერგიულ პაციენტებში კლინიკურ და მოლეკულურ მახასიათებლებს.

ОСОБЕННОСТИ МОЗГОВОЙ ГЕМОДИНАМИКИ У ПАЦИЕНТОВ С СИНДРОМОМ ХРОНИЧЕСКОЙ ЦЕРЕБРАЛЬНОЙ ВЕНОЗНОЙ ДИСФУНКЦИИ И РАЗНЫМ УРОВНЕМ АРТЕРИАЛЬНОГО ДАВЛЕНИЯ

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Актуальность исследования венозной патологии головного мозга определяется не только ее большим распространением (более 80% пациентов с артериальной гипертензией и атеросклеротическим поражением сосудов мозга имеют признаки нарушения венозного оттока), но и отсутствием определенных критериев диагностики наряду с недостатками терапевтического подхода. В большинстве клинических наблюдений доминируют нарушения артериальной гемодинамики, которые сопровождаются венозной дисциркуляцией, однако в ряде случаев нарушения интракраниального венозного кровообращения преобладают над артериальной недостаточностью. Неполноценность венозной гемодинамики и артериальная недостаточность часто сочетаются в различных соотношениях. Степень компенсации венозной дисгемии зависит от возможностей коллатерального кровообращения и скорости развития интракраниального венозного застоя [1-5]. Недооценка состояния венозного звена мозгового кровообращения препятствует правильному пониманию патогенеза и клинической картины хронической церебральной ишемии. Сложность верификации нарушений венозного мозгового кровообращения является причиной ложного представления неврологов о неполноценности венозной дисгемии в патогенезе дисциркуляторной энцефалопатии [4-9].

Верификация церебральной венозной дисгемии, кроме клинической диагностики, неоднозначна, поскольку степень визуализации интракраниального и экстракраниального венозного кровотоков и трактовка параметров нередко противоречивы. При транскраниальном дуплексном сканировании хорошо визуализируются базальные вены мозга (вены Розенталя), которые являются притоками большой мозговой вены (вена Галена). Допплерографическое исследование позволяет оценить характер кровотока в базальных венах мозга и измерить его линейную скорость. В отличие от вены Розенталя большинство глубоких вен мозга весьма вариабельны и не всегда доступны к локации [5-11]. Исходя из вышеизложенного, состояние кровотока в базальных венах Розенталя (локация через височное окно) является весьма информативным показателем церебрального венозного кровотока [2]. Особенно интересным является сравнительное определение изменений церебрального кровотока у лиц с различным уровнем артериального давления (АД) с использованием стандартной методики ультразвукового исследования [8-14].

Цель исследования - сравнительный анализ особенностей церебрального кровотока у лиц с клиническими признаками синдрома хронической церебральной венозной дисфункции и различными уровнями артериального давления.

Материал и методы. За 2016-2019 гг. на базе Коммунального некоммерческого предприятия «Консультативно-диагностический центр» Святошинского района г. Киева обследовано 104 (82 женщины и 22 мужчины, средний возраст 53,60±10,27 л.) пациента, которым проведено ультразвуковое дуплексное сканирование (УЗДС) головы и шеи.

Основную группу (ОГ) составили 78 больных с клиническими признаками синдрома хронической церебральной венозной дисфункции (СХЦВД) и различным уровнем артериального давления (АД), которые распределены на 3 клинические группы, 33 - пациенты с повышенным уровнем АД (157,2±12,2/98,3±4,2) - гипертоники; 24 - с лабильным АД с преимущественно нормальными средними цифрами АД (125,23±12,2/82,22±4,14) - условные нормотоники; 21 - с пониженным АД (100,32±7,23/65,45±6,4) - гипотоники.

Контрольную группу составили 26 пациентов без клинических признаков СХЦВД и различным уровнем АД, которые распределены по такому же принципу: гипертоники - 8, нормотоники - 13, гипотоники - 5 пациентов.

Всем пациентам проведено клинико-неврологическое обследование с детализацией жалоб и анамнеза, анализ амбулаторных карт. Кровоток исследовали по стандартной методике с двух сторон во внешней сонной (ВнешСА), внутренней сонной (ВнутСА), переднемозговой (ПМА), заднемозговой (ЗМА), позвоночной артерии на уровне 2 позвонка (ХА2), позвоночной артерии на уровне 4 позвонка (ХА4), базилярной артерии (БА) и вене Розенталя (ВР). Измерялась средняя систолическая скорость кровотока, индекс резистентности [8-14].