

## Sensitization Factors in Dermo-Respiratory Syndrome

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**Abstract:** Dermo-respiratory syndrome (DRS) is an urgent problem for many States and its medical and social significance is currently increasing. Early diagnosis and prevention of complications of DRS can reduce morbidity and disability. The research conducted by the author on the differential diagnosis of DRS depending on allergic sensitization contributes to improving the quality of preventive allergological, gastroenterological and therapeutic services with a subsequent reduction in morbidity and disability, as well as improves the continuity of patient management by GPs, gastroenterologists, allergists at the primary health care stage.

**Keywords:** allergic sensitization, dermorespiratory syndrome, immunity, allergen, diagnosis.

### Introduction.

The frequency of combined skin and respiratory manifestations of allergies in the structure of allergic diseases in children depends on age and reaches 50-65%.

It should be noted that DRS should not be considered as a set of various allergic diseases, but as a natural course of the "allergic march", i.e. the natural course of atopy, characterized by an age-related sequence of clinical picture development and sensitization [1,3].

According to world statistics, atopic dermatitis (AtD) affects 15-30% of the child population, 2-10% of adults. 15% of patients with AtD are patients with a very severe course of the disease [4,7].

Today, no one doubts that AtD is a chronic systemic disease that develops against the background of activation of the immune system. 46% of AtD patients have other allergic diseases, in particular allergic rhinitis and bronchial asthma. In addition, patients with AtD often have concomitant diseases of other organs and systems (gastrointestinal tract, cardiovascular system) [2,5,6].

**The purpose of the research** development of a method for assessing the factors of allergic sensitization in dermo-respiratory syndrome.

### Materials and methods of research:

A survey of 213 patients with dermo-respiratory syndrome aged 19 to 74 years was conducted. Of these, there were slightly more women-134 (62.9%) than men-79 (37.1%). The ratio of men and women is 1:1.7. The age structure consisted of 100 (46.9%) patients aged 19-44 years, 69 (32.4%) patients aged 45-59 years and 44 (20.7%) patients aged 60-74 years. The analysis of the morbidity characteristics of patients at the place of residence showed a predominance of urban residents - 121 (56.8%) than those living in rural areas - 92 (43.2%).

The spectrum of allergic sensitization was studied at the International Center for Molecular Allergology (Tashkent), 295 types of allergens were tested.

At the beginning of the study, a blood test for IgE was performed. The results of the IgE content in the blood were evaluated according to the degree:

- ✓ degree 0 (negative or indefinite)  $<0.3$  kUA/L;
- ✓ grade 1 (low IgE level)  $0.3-1.0$  kUA/L;
- ✓ grade 2 (moderate IgE level)  $1-5$  kUA/L;
- ✓ Grade 3 (high IgE level)  $5-15$  kUA/L;

✓ grade 4 (very high IgE level) ->15.0 kUA/L.

## Results and discussion.

In order to develop a program for the prevention of bronchial asthma in patients with dermo-respiratory syndrome, allergological and molecular allergological studies were conducted in 60 young patients with dermo-respiratory syndrome and 60 young patients with respiratory allergies.

To develop an optimal way to assess sensitization factors in patients with subsequent decision of their management tactics, the anamnesis was carefully studied and the results of the study were analyzed.

To assess the significance of differences in outcomes depending on exposure and/or the presence of a sensitization factor, the Chi-square criterion was calculated. A four-complete conjugacy table was compiled to analyze the study data and compare the percentages of features in the two survey groups. All patients were divided into 4 groups: A, B, C, D.

At the same time, the A-group includes patients with dermo-respiratory syndrome and the presence of a sensitization factor; The B-group includes patients with respiratory allergies without atopic dermatitis and with the presence of a sensitization factor; the C-group included patients with dermo-respiratory syndrome, without a sensitization factor; the D-group included patients with respiratory allergoses without atopic dermatitis and sensitization factor.

The groups of patients selected for the study were randomized according to the main clinical, laboratory and functional indicators. They differed only in the presence of dermo-respiratory syndrome. A four-field prognostic table was compiled to determine the risk of developing bronchial asthma and determine the tactics of managing patients with dermo-respiratory syndrome.

A total of 295 varieties of allergens were studied, taking into account the identified allergens-sensitization factors, the ratio of chances of transformation of dermo-respiratory syndrome into bronchial asthma in young people was calculated using a new online program - StatTech service (Table 1).

**Table 1. Sensitization factors with a chance of developing bronchial asthma in young people**

The sensitization factor	Odds ratio (OR)	95% confidence interval	$\chi^2$	Significance level	Min expectation
Piggy Dusty (Cyn d)	17,818	7,173-44,259	45,646	<0,001	29,5
Piggy dusty (Cyn d 1, Beta-Expansin)	2,786	1,329- 5,841	7,519	0,007	28,5
Perennial chaff (Lol p 1, Beta-Expansin)	0,175	0,075- 0,408	17,729	<0,001	21,0
Long-term chaff (Lol p 1, Beta-Expansion)	4,929	2,236- 10,86	16,594	<0,001	25,0
Paspalum/buckwheat at noticeable (Pas n)	3,898	1,704- 8,917	10,978	<0,001	19,5
Timofeevka lugovaya (Phl p 1, Beta-Expansion)	1,494	0,728- 3,067	1,200	0,274	30,0
Timofeevka lugovaya (Phlum p 2, Expansion)	0,278	0,129- 0,599	11,109	<0,001	25,0
Timofeevka	7,667	3,397- 17,305	26,250	<0,001	28,0

lugovaya (Ph p 5.0101 Grass Group 5/6)					
Timofeevka lugovaya (Ph p 6, Grass Group 5/6)	0,278	0,129- 0,599	11,109	<0,001	25,0
Timofeevka lugovaya (Phl p 12, Profilin)	0,786	0,300- 2,062	0,240	0,625	10,0
Reed (Phrc)	0,335	0,160- 0,704	8,533	0,004	30,0
Rye, pollen (Sec c_pollen)	2,307	1,097-4,850	4,937	0,027	25,0
Hanging birch (Bet v 2, Profiling)	4,697	2,170- 10,171	16,205	<0,001	28,0
Walnut, pollen (Jugr_pollen)	3,898	1,704- 8,917	10,978	<0,001	19,5
Date palm (Ph d 2, Profile)	0,278	0,129- 0,599	11,109	<0,001	25,0
Ambrosia (Amba)	0,583	0,252-1,351	1,600	0,206	15,0
Wormwood (Art v)	2,429	1,163-5,071	5,673	0,018	27,5
Wormwood (Art v 1, Plant Defensin)	3,471	1,635-7,370	10,848	<0,001	28,0
Wormwood (Art v 3, nsLTP)	1,464	0,679-3,159	0,950	0,330	19,5
Amaranth (Schiritsa) Amaranthus	0,278	0,129-0,599	11,109	<0,001	25,0
Common mar (Amar)	0,434	0,206-0,911	4,937	0,027	25,0
Mary is white ((Cheat 1, Oleg 1-Family)	1,909	0,901-4,044	2,880	0,090	22,5
Annual sprout (Mera 1, Profiling)	1,413	0,680-2,936	0,862	0,354	24,5
Plantain (Pla L)	1,481	0,679-3,231	0,977	0,323	18,5
Plantain ((Play 1, Play 1-Family)	0,417	0,180-0,968	4,261	0,039	16,0
Solyanka ((Salk)	0,345	0,146-0,815	6,136	0,014	16,0
Solyanka ((Salk 1, Pectin Methylesterase)	0,329	0,109-0,990	4,183	0,041	9,0
Cannabis	0,434	0,161-1,167	2,828	0,093	10,5
European house dust mite (Derp 20, Arginine kinase)	1,232	0,502-3,022	0,208	0,649	12,0
Kiwi (Act d 1, Cysteine protease)	2,0	0,872-4,585	2,727	0,099	16,0
Kiwi (Act d 5, Kiwellin)	2,064	0,882-4,833	2,844	0,092	15,0

Melon (Cucm 2, Profilin)	4.455	1,948-10,184	13,374	<0,001	20,5
Grapes (Vit v 1, nsLTP)	0,762	0,369-1,571	0,543	0,462	26,0
LATEX	1,761	0,744-4,170	1,677	0,196	14,0
(Hev b 8, Profilin)	0,530	0,252-1,114	2,833	0,093	23,5
Black Tiger shrimp (Pen m 2, Arginine kinase)	0,056	0,023-0,139	45,646	<0,001	29,5
Mussel edible (Mute)	0,337	0,146-0,775	6,817	0,010	17,5
Oyster (Ostrea)	2,625	1,211-5,691	6,125	0,014	21,5
Squid (Lol spp.)	0,443	0,213-0,921	4,821	0,029	28,0
Lobster (Hom g)	0,478	0,213-1,072	3,267	0,071	17,5
Northern shrimp (Plan b)	3,512	1,604-7,691	10,276	0,002	22,5
German cockroach (Bla g 9, Arginine kinase)	3,051	1,259-7,395	6,400	0,012	15,0
Cat (Fel d 1, Uteroglobulin)	1,839	0,889-3,803	2,719	0,100	27,5
Ficus (Ficus)	1,172	0,536-2,562	0,159	0,691	18,0

As a result of calculations, an increase in the chances of development in patients with DRS, with sensitization to:

- ✓ Lead-mud (cyn D) -17,818 (OH), 95% Di-7,173-44,259);
- ✓ Timofeevka lugovaya (Phl p 6, Grass Group 5/6) - 7,667 (OR), 95% DI - 3,397-17,305;
- ✓ Latex (Hev B 8, PROFILIN) -7.429 (OH), 95% Di-3.254-16.961;
- ✓ Paspalum/buckwheat noticeable (pas N) -4.929 (OH), 95% Di - 2.236-10.86;
- ✓ Walnut, pollen (JUG R\_POLLEN)-4.697 (OR), 95% DI - 2.170-10.171;
- ✓ Squid (LoL spp.)- 4.455 (OR), 95% CI-1.948-10.184;
- ✓ European domestic bee mite (Der p 20, Arginine kinase)-4.0 (OR), 95% Ci-1,779-8,993;
- ✓ Timofeevka lugovaya (PHL P 1, beta-expansin) -3,898 (OH), 95% Di - 1,704-8,917;
- ✓ Date PALM (Pho D 2, profilin) -3,898 (OH), 95% Di - 1,704-8,917;
- ✓ Bee venom (bee honey venom Api M 10, Icarapin version 2) -3.512 (OR), 95% CI-1.604-7.691;
- ✓ Wormwood (Art V 3, NSLTP)-3.471 (OR), 95% CI-1.635-7.370;
- ✓ Common wasp (VES V)-3.051 (OH), 95% DI-1,259-7,395;
- ✓ Paprika (CAP A)-2.625 (OR), 95% Di-1,211-5,691;
- ✓ Wormwood (Art V 1, Plant DEFENSIN)-2.429 (OR), 95% DI-1,163-5,071;
- ✓ Hanging birch (Bet V 2, profilin)-2.307 (OR), 95% DI-1,097-4,850;
- ✓ Oysters (OST E)-2.064 (OST E), 95% DI-0.882-4.833;
- ✓ Edible mussel (MYT E)-2.0 (OH), 95% Di-0.872-4.585.

As a result of a comparative analysis of the relationship of the studied sensitization factors with the development of asthma in young people, the forces of connection with the outcome of DRS were

established, while a strong relationship was established in the presence of sensitization to pig dust (Cyn d) and cat allergen (Fel d 1, Uteroglobin).

### Conclusions:

1. DRS is more common in young people (46.9%), predominates in women and urban residents (56.7%).
2. A strong relationship has been established between the transformation of DRS into AD in patients with sensitization to pig pollen (Cind) and cat allergen (Fel d 1, Uteroglobin).
3. For the early prevention of complications of DRS, it is recommended to put into practice the scheme of differential diagnosis of DRS

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