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ABSTRACT

of the dissertation for the degree of Doctor of Philosophy

CLINICAL-EPIDEMIOLOGICAL, IMMONO-PATHOGENETIC FEATURES AND PRINCIPLES OF TREATMENT OF DERMATOSES OF PARASITIC ORIGIN

Specialty: 3222.01 – Dermatovenerology
3202.01 – Epidemiology

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INTRODUCTION

Relevance and development rate of the topic. Allergodermatoses occupy one of the important places among skin diseases due to their wide prevalence, variety of etiological factors, pathogenetic characteristics, polymorphic clinic, complexity of treatment and diagnosis.

The role of exogenous and endogenous factors in their etiology was studied. In addition to physical, chemical and biological factors, microorganisms, immune system, nervous system, genetic factors and dysbacteriosis played an important role in the etiopathogenesis of these diseases.[1;2;3;4;5;6]

The role of various antigens, allergens, insects, as well as a number of pathogenic microorganisms and parasites in the etiology, pathogenesis and clinical course of allergodermatoses is great. In the literature, scientific research works devoted to various aspects of skin pathologies of infectious-parasitic origin are found, which are mainly related to dermatoses with infectious etiology.[7;8]

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[1]Leung, D.Y. New insights into atopic dermatitis: role of skin barrier and immune dysregulation //Allergol.Int., - 2013. 62 (2), - p.151-161.

[2]Farajov, Z.H. Dermatologiya . – Bakı: - 2014. – 597 s.

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[4]Свиршевская, Е.В. и др. Роль инфекции в патогенезе аллергодерматозов // Клиническая дерматология и венерология, - Москва, - 2015. Том 14, №2, с.4-10.

[5]Кудрявцева, А.В. Нарушение кожного барьера как ведущий фактор формирования местного воспалительного процесса при атопическом дерматите // Вестник дерматологии и венерологии, - 2017. №4, - с.34-46.

[6]Караваева, Т.А., Королькова, Т.Н. Психологические механизмы и психосоматические соотношения при различных дерматозах // Клиническая дерматология и венерология, - 2018. Том 17, №5, - с.7-16.

[7]Слесаренко, Н.А. и др. Роль Helicobacter pylori как триггерного фактора в развитии розацеа и влияние ее эрадикации на течение дерматоза // Вестник дерматологии и венерологии, - Москва: - 2012. №2, - с.33-39

Although information on dermatoses of parasitic origin is found in the literature, they are insufficient and do not fully cover parasitosis, especially intestinal parasitosis. [9;10;11]

Considering the wide spread of parasitic diseases, mainly intestinal parasitosis in the world, including in the Republic of Azerbaijan, as well as the fact that they cause certain changes in the skin along with the internal organs and tissues of a person, there is no doubt that parasitosis can play a role of etiological factor in skin pathologies, especially allergodermatoses.

On the other hand, the frequent occurrence of atopic dermatitis and dermatoses of unknown etiology in children, and the prevalence of intestinal parasites among other groups of the population indicate that parasitosis plays a role in the etiology of these dermatoses in children.[12]

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[8]Матушевская, Е.В. Антибактериальные препараты в форме аэрозолей в топической терапии пиодермии и дерматозов, осложненных вторичной инфекцией // Вестник дерматологии и венерологии, - 2014. №2, - с.60-63.

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[10]Şəkərəliyeva, J.V. Azərbaycanın şirin su hövzələri balıqlarının trematodları: / biologiya üzrə elmlər doktoru dissertasiyasının avtoreferatı. / - Bakı, 2018. – 40s.

[11]Нефедьева, Ю.В., Зиганшин, О.Р., Устинова, Ю.В. Клинический случай harvamigrans // Клиническая дерматология и венерология, - 2018. Том 17, №3, - с.42-44.

[12]Сафронова, Н.А. Паразитофауна кишечника детей с аллергодерматозами (регион среднегоУрала): / автореф. дисс. канд. биол. наук./ - Москва, 2000. – 27 с.

[13]İbrahimova, M.V. Uşaqlarda disbakterioz fonunda bağırsaq parazitozlarının (askaridoz, enterobioz, lyamblioz) klinik immunoloji xüsusiyyətləri və müasir şəraitdə onların müalicə və profilaktikası: / tibb üzrə fəlsəfə doktoru, dissertasiyasının avtoreferatı. / - Bakı, 2014. - 21s.

Although various aspects of intestinal parasitosis in Azerbaijan have been thoroughly studied [13;14;15;16] their role in skin diseases and especially in allergodermatoses has not been adequately conducted.

Summing up all the above, the role of intestinal helminths and lyambliosis in the etiology of some dermatoses in the Republic of Azerbaijan, the determination of specific weight of parasitic allergodermatoses in common skin pathologies, their pathogenesis, clinical course, improvement of diagnosis and development of effective treatment schemes is an acute dermatological and parasitological problem facing medical departments.

Object and subject of research. Individuals with allergodermatoses (atopic dermatitis, urticaria, eczema) accompanied by intestinal parasitosis (ascariasis, enterobiasis, strongyloidiasis, trichocephalus, giardiasis), with only allergodermatosis, 46 with only parasitosis, against the background of normal microflora and dysbacteriosis, 1-65 year old practically healthy individuals were selected as the subject of the study as the object of observation and the results of their serological, coprological, bacteriological, immunological and biochemical examinations were selected as the subject of research.

The purpose of the study. Determination of the incidence of allergodermatoses associated with intestinal parasitosis, rationalization of diagnosis and treatment as a result of studying the clinical, immunological and microbiological aspects.

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[14]Salehov, A.Ə. və b. Uşaqlarda lyamblioz və himenoeyridozun rastgəlmə tezliyi və klinik mikrobioloji aspektləri / A.Ə. Salehov, F.J.Xanmirzəyev, R.Q.Quliyeva [və b.]. – Bakı: Azərbaycan Respublikası Səhiyyə Nazirliyi V.Axundov adına Milli ET Tibbi-profilaktika İnstitutunun elmi əsərləri, -2016. IX cild, - s.311-314.

[15]Salehov, A.Ə. və b. Müasir şəraitdə Bakı şəhəri və Abşeron yarımadasında geohelmintozların (askaridoz və trixosefalyoz) əhali arasında yayılma səviyyəsi və epidemioloji xüsusiyyətləri // Sağlamlıq, - Bakı: - 2018. - s.140-144.

[16]Salehova, G.B. Uşaqlarda larval askaridoz və toksokarozun klinik-epidemioloji xüsusiyyətləri: // tibb üzrə fəlsəfə doktoru dissertasiyasının avtoreferatı. / - Bakı, 2017. - 21s.

Objectives of the study.

– Study of the prevalence level and risk groups of parasitic-origin allergodermatoses among patients with skin pathology.

– Characterization of the results and diagnosis of parasitological examination of patients with dermatosis.

– Comparative study of the clinical course of allergodermatoses with intestinal parasitosis.

– Study of changes in immune system defense factors and biochemical indicators of blood in allergodermatoses.

– Comparative analysis of quantitative and qualitative indicators of the microflora of the intestines in allergodermatoses, accompanied by intestinal parasitosis.

– Comparative analysis and evaluation of the results of treatment of allergodermatoses against the background of normal microflora and dysbacteriosis.

The methods of the study. Clinical-anamnestic examinations, biochemical examinations, coprological examination methods, special helminthological examination methods, protozoological-coprological examination, serological examinations, immunological examinations, mathematical-statistical analysis methods.

Main provisions for defence.

– Specific gravity and risk groups of parasitic origin allergodermatoses in common skin pathologies

– Comparative assessment of the role of helminthiasis and giardiasis in allergodermatoses of parasitic origin

– Clinical course of allergodermatoses in mono and mixed invasions

– Clinical course and pathogenetic features of allergodermatoses in the migration and intestinal phase of helminths

– The role of immune, biochemical indicators of blood, intestinal microflora in the evaluation of pathological processes in parasitic-origin allergodermatoses.

– Etiopatogenetic treatment of parasitic-origin allergodermatoses and its clinical-parasitological evaluation.

Scientific innovation.

– For the first time, the incidence and risk groups of intestinal helminthiases (ascariasis, strongyloidiasis, enterobiasis, trichocephalus) and allergodermatoses associated with giardiasis were identified among skin pathologies.

– For the first time, the clinical signs of allergy dermatoses accompanied by intestinal parasitosis against the background of normal microflora and dysbacteriosis were studied comparatively.

– Changes in the protective factors of the immune system, biochemical parameters of the blood in allergodermatoses accompanied by intestinal parasitosis have been studied comparatively.

– For the first time, changes in the normal intestinal microflora in allergodermatoses accompanied by intestinal parasitosis have been clarified.

– The effectiveness of treatment in allergy dermatitis with intestinal parasitosis has been evaluated comparatively.

Practical significance of the study.

Determination of the frequency of occurrence of parasitic-origin allergodermatoses among common skin diseases and improvement of diagnostics of concomitant parasitoses. Detection of changes in the immune system, blood biochemical parameters, normal intestinal microflora during these diseases allows to accurately assess the clinical course, pathogenesis of the disease and choose a reasonable effective treatment tactics.

Preliminary discussion of the dissertation.

The initial discussion of the dissertation was held at an interdepartmental (Department of Dermatovenerology and Epidemiology) meeting of the Azerbaijan Medical University (27.12.2019, protocol No.1).

Scientific seminar No.1 was held on 17.09.2021 operating at the meeting of the Dissertation council BFD 2.11.

Based on the research conducted on the topic of the dissertation, 8 journal articles, 3 dissertations and 1 methodological

recommendation were published, 4 of them abroad (Ukraine, Russia, Kazakhstan in the list of indexing bases EAC and Scopus).

The materials of the dissertation are used in the teaching process at the Department of Dermatovenerology of Azerbaijan Medical University. The developed methodical recommendations are applied in the Republican Dermatovenerological Dispensary, City Dermatovenerological Dispensary No. 1, children's polyclinic No.5.

Name of the organization where the dissertation work was conducted. The dissertation was performed at the Department of Dermatovenereology of the Azerbaijan Medical University.

The volume and structure of the dissertation. The dissertation was typed on a computer and printed on 142 pages. Introduction (7490 characters), literature review (56156 characters), research material and method chapter (10736 characters), 4 chapters reflecting the results of personal observations - (Chapter III – 13098 characters, Chapter IV - 21745 characters, Chapter V - 16561 characters, Chapter VI – 12763 characters), final (18703 characters), results (2444 characters), practical recommendations (853 characters) and a list of references.

The total volume of the dissertation by characters (26 tables, 18 figures and graphs, excluding spaces, additions in the text, bibliography) – 160549 characters.

The list of literature used in the dissertation includes 220 sources, which are also in Azerbaijan, Russian and other foreign languages.

CONTENT OF THE WORK

Materıals and methods of the study

Volume and place of examination the researches were carried out at the Department of Dermatovenerology of the Azerbaijan Medical University, at the Republican Dermatovenerological Dispensary, at the City Dermatovenerological Dispensary No. 1, at the “Omur” clinic.

For retrospective analysis, the medical histories and outpatient cards of patients treated in the indicated medical institutions in 2012-2017 were examined.

The incidence of intestinal parasitosis has been studied in patients with allergy dermatitis and in practically healthy individuals.

Persons who applied to the Dermatovenerologic Dispensary and the Department of Dermatovenerology of the Azerbaijan Medical University and were diagnosed with allergic dermatosis were also examined for intestinal parasitosis.

The clinical manifestations of dermatoses were compared comparatively in 74 individuals with allergy dermatosis alone and in 266 individuals with both allergy dermatosis and intestinal parasitosis. Clinical signs were studied comparatively against the background of normal microflora and dysbacteriosis.T, B lymphocytes, eosinophils and IgE were identified in 57 practically healthy individuals, 84 with both allergodermatosis and parasitosis, 67 with only allergodermatosis, 48 with only parasitosis. In addition, cytokines were tested in the blood of 84 patients with both dermatosis and parasitosis, 67 with dermatosis only, 48 with only parasitosis, and 57 practically healthy individuals.

Intestinal and skin microflora were studied in 81 individuals with dermatosis and parasitosis, in 52 individuals with only parasitosis, in 72 individuals with dermatosis only, and in 42 practically healthy individuals. On the other hand, biochemical examinations were carried out on these individuals.

Examination methods

– **Clinical-anamnestic examinations.**

– **Clinical and biochemical examinations.** Dermatoses and intestinal parasitosis were detected and general blood analysis, liver enzymes (ALT, AST, ALP), bilirubin, amylase, calcium (Ca), iron (Fe) were examined in practically healthy individuals. At the same time, feces and urine were examined.

Helminthological-coprological examination methods:

– Smear test
– Kato and Miura method

– Kalantarov method

Special sanitary-helminthological examination methods:

– Graham method

– Berman method

Protozoological-coprological examination method:

Formalin-ether sedimentation method.

Serological examination methods:

– Detection of specific lamblia antibodies in the blood by an immunoassay method

– Detection of specific ascaridia antibodies in the blood by an immunoassay method

Immunological examinations. In blood serum cytokines were determined by immunoenzyme method, subpopulations of lymphocytes by immunofluorescent method.

Microbiological examinations. Bacterial stool examination were performed by bacteriologists in special bacteriology laboratories using internationally accepted microbiological methods.

Statistical processing of the material. The digital results of the study were statistically processed according to modern requirements. To do this, linear discriminant analysis, variational analysis and analysis of variance were used. All calculations were carried out in the EXCEL-2010 and in the SPSS-20 program.

RESULTS OF THE STUDY AND THEIR DISCUSSION

To study the incidence and prevalence of intestinal parasitosis in people with allergy and other skin diseases, the medical histories and outpatient records of 1276 patients were examined.

541 of these patients were patients with allergodermatosis, 735 were patients with other dermatoses. For retrospect analysis, outpatient cards and disease histories have been selected, in which examinations for parasitosis are reflected.

In the examined patients, parasitosis was found in 510 out of 541 people with allergy dermatitis and in 553 out of 735 people with other dermatoses.

Allergodermatoses of intestinal parasitosis (ascariasis, enterobiasis, strongyloidiasis, trichocephalus, giardiasis), atopic dermatitis, urticaria, eczema, other skin diseases (psoriasis, scarlet fever, pemphigus, scarlet fever, dermatological dermatitis, scleroderma, scleroderma). The results of the distribution among individuals are shown in Table 1.

Table 1
Distribution of intestinal parasites among people with allergodermatoses and other skin diseases

Intestinal parasitosis	General patients (n=1276)				
	Allergodermatoses (n=541)		Other dermatoses (n=735)		P
	With intestinal parasitosis		With intestinal parasitosis		
	abs.	%	abs.	%	müt.
Ascariasis	139	25.69±1.88	122	16.60±1.37	<0.001
Enterobiasis	120	22.18±1.79	209	28.44±1.66	> 0.05
Strongyloidiasis	47	8.69±1.21	30	4.08±0.73	<0.001
Trichocephalus	77	14.23±1.50	85	11.57±1.18	> 0.05
Giardiasis	127	23.48±1.82	107	14.56±1.30	<0.001

As seen from the table among allergodermatoses, ascariasis (25.69±1.88%), strongyloidiasis (8.69±1.21%) and lyambliosis (23.48±1.82%) are detected much more frequently than other dermatoses (16.60±1.37%, respectively; $p<0.001$; 4.08±0.73%; $p<0.001$; 14.56±1.30%; $p<0.001$). Trichocephalus and enterobiasis are approximately equally common in individuals with allergy and other dermatoses ($p> 0.05$).

To determine the frequency of intestinal parasitosis in different nosoforms of allergodermatosis, the detection of these parasites in

patients with atopic dermatitis, urticaria and eczema was compared. The results are shown in Figure 1.

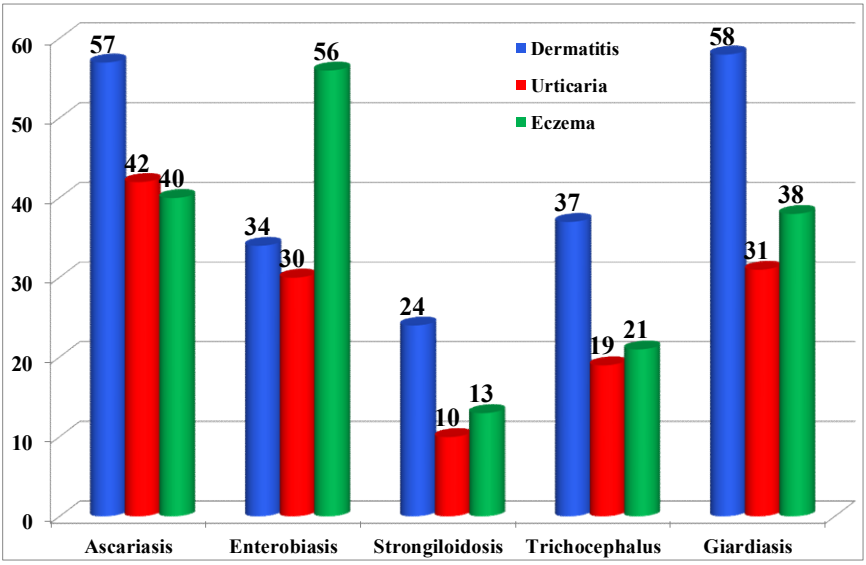

Figure 1. The incidence of various forms of allergic dermatitis in intestinal parasitoses

Among people with atopic dermatitis, giardiasis (58 people), ascariasis (57 people), trichocephalus (37 people), relatively few enterobiasis (34 people) and strongyloidiasis (24 people) were found.

Among patients with urticaria, ascariasis was found in 42 individuals, followed by giardiasis in 31 individuals, approximately the same number of enterobiasis in 30 individuals, relatively few trichocephalus in 19 individuals, and less severe strongyloidiasis in 10 individuals. Enterobiasis was more common in people with eczema, ascariasis and giardiasis were about the same, and strongyloidiasis and trichocephalus were about the same.

The persons examined were also examined according to their age groups, sex, and living in urban and rural areas.

There is a significant difference in the incidence of allergy dermatitis in urban and rural areas, which is accompanied by intestinal parasitosis. For example, allergic dermatoses accompanying ascariasis are least often found in children aged 1-3 years (2.98±1.42%) aged 51 and older (5.04±1.82%), and most often at the age of 8-11 years (27.34±3.78%) and relatively lower at the age of 4-7 years (23.02±3.57%) and relatively little and at about the same level at the age of 12-17 years old (12.95±2.85%), 18-30 years old (16.55±3.15%) and 31-50 years old (12.23±2.78%). The same situation is observed in allergic dermatoses with enterobiasis. Here, in contrast to ascariasis, the smallest number of patients was 51 years and older (4.17±1.82%), then 1-3 years (7.5-2.40%) and the largest number of 4-7 years (26.67±4.04%) and 8-11 years old (23.33±3.86%), relatively few and approximately the same number of 12-17 years old (13.33±3.10%), 18-30 years old (12.50±3.02%) and 31-50 years old (12.50±3.02%).

In addition, allergic dermatoses associated with various intestinal parasites have been studied, depending on the habitat. There is a significant difference in the incidence of allergic dermatoses in urban and rural areas, accompanied by intestinal parasitosis. The majority of allergic dermatoses with strongyloidiasis, trichocephalus and ascariasis occurs in rural areas (85.11±5.19%; 61.04±5.56% and 63.31±4.09%), while a small part - in urban areas (14.89±5.19%; 38.96±5.56 and 36.69±4.09%).

The number of people with allergodermatosis with enterobiasis is higher in urban areas (54.17±4.55%) than in rural areas (45.83±4.55%, $p>0.05$). The number of patients living in urban and rural areas with allergodermatoses associated with giardiasis is approximately the same (50.39±4.44% and 49.61±4.44%, respectively, $p>0.05$).

Among patients with intestinal parasitosis and allergodermatosis, more women (53.33±2.21%) than men (46.67±2.21%; $p<0.05$).

Taking into account the widespread prevalence of parasitic diseases in the Republic of Azerbaijan, a comparison of the clinical course of allergic dermatosis was carried out. For this purpose, 340 people with allergic dermatosis were under observation. Of these,

266 people with various parasitosis: 67 people with ascariasis, 61 people with enterobiasis, 24 people with strongyloidiasis, 38 people with trichocephalus, 76 people with giardiasis and 74 people with allergodermatoses only.

The results show that in patients with allergodermatoses and ascariasis (74.63±5.32%; $p<0.001$), allergodermatoses and strongyloidiasis (79.17±8.29%; $p<0.001$), allergodermatoses and giardiasis (78.95±4.68%; $p<0.001$), skin rashes are more severe and widespread than in patients with allergodermatoses alone (44.6±5.78%), allergodermatosis and trichocephalosis (63.16±7.83%; $p>0.05$), allergodermatosis and enterobiasis (47.54±6.30%; $p>0.05$).

Erythematous lesion occurs more often in people with ascariasis and allergodermatoses (73.13±5.42%; $p>0.05$), with strongyloidiasis and allergodermatoses (79.17±8.29%; $p>0.05$), with allergodermatoses and giardiasis (69.74±5.27%; $p>0.05$) than in patients with only allergodermatoses (59.46±5.71%), allergodermatoses and trichocephaliosis (57.8±8.01%; $p>0.05$), enterobiasis (50.82±6.4%; $p>0.05$).

If skin edema most often occurs in individuals with strongyloidiasis and allergodermatoses (62.50±9.88%; $p>0.05$) and in persons with both giardiasis and allergodermatoses (57.90±5.66%; $p>0.05$), then in people with only allergodermatoses (50.0±5.81%), with ascariasis and allergodermatoses (52.24±6.10%; $p>0.05$), with trichocephalus and allergodermatoses (42.11±8.01%; $p>0.05$), with allergodermatoses and enterobiasis (47.54±6.30%; $p>0.05$) skin edema occurs approximately equally often.

Skin dryness is more common in people with allergodermatoses and intestinal parasitosis than in people with only allergodermatoses. This condition more often occurs in patients with allergodermatoses accompanied by giardiasis (71.05±5.2%; $p<0.01$), ascariasis (55.22±6.08%; $p>0.05$), strongyloidiasis (54.17±10.17%; $p>0.05$) compared with patients with only allergodermatoses (48.65±5.81%). Itchy-itchy skin occurs less often in patients with only allergodermatoses (64.87±5.55%) and with allergodermatoses and enterobiasis (63.93±6.15%; $p>0.05$) than in patients with ascariasis and allergodermatoses (94.03±2.9%; $p<0.001$),

strongyloidiasis and allergodermatoses (87.5±6.75%; $p<0.05$), giardiasis and allergodermatoses (84.21±4.18%; $p<0.01$), trichocephalus and allergodermatoses (76.32±6.9%). The same situation is observed in damage of 20.0-30.0% of the skin surface.

Lichenification occurs at approximately the same level in individuals with only allergodermatoses and allergodermatoses accompanied by intestinal parasitosis ($p>0.05$). The same situation is observed in excoriation.

Skin desquamation was much more common in people with giardiasis and allergic dermatosis (72.37±5.13%; $p<0.001$), strongyloidiasis and allergodermatoses (62.5±9.88%; $p<0.05$), relatively more common in people with trichocephaliosis and allergic dermatosis (55.26±8.07%; $p>0.05$), enterobiasis and allergic dermatosis (52.46±6.39%; $p>0.05$) than in people with only allergic dermatoses (36.49±5.6%) and least often in people with allergic dermatosis and ascariasis (47.76±6.1%; $p>0.05$).

Damage to 5.0-10.0% of the skin surface was also observed in individuals with only allergic dermatitis (59.46±5.71%) much less common than in people with allergic dermatosis accompanied by giardiasis (88.16±3.71%; $p<0.001$), ascariasis (74.63±5.32%; $p>0.05$), enterobiasis (60.66±6.26%; $p>0.05$), strongyloidiasis (75.0±8.84%; $p>0.05$) and trichocephaliosis (57.9±8.01%; $p>0.05$).

Damage to 5.0-10.0% of the skin surface in persons with only allergic dermatosis (27.03±5.16%) and allergodermatosis accompanied by trichocephaliosis (26.32±7.14%), enterobiasis (26.23±5.62%) and strongyloidiasis (29.17±9.28%; $p>0.05$) was approximately the same, but in persons with allergic dermatosis accompanied by giardiasis (36.84±5.53%) and ascariasis (34.33±5.8%) relatively more often. The same situation is observed in damage to 5.0-10.0% of the skin surface.

Nausea is observed in persons with intestinal parasitosis and allergodermatoses, more rare than in persons who have only allergodermatoses. For example, if nausea is observed only in 13.51±3.97% of persons with dermatosis, 68.42±5.33% of those infected with lyambliosis, 75.0±8.84% of those infected with strongyloidiasis, 59.02±6.3% of those infected with enterobiasis,

65.79±7.7% of those infected with trichocephalosis and it was observed in 71.64±5.51% of those infected with ascariasis.

Diarrhea is more common in those with only allergy (12.16±3.8%) than in those with giardiasis and allergodermatosis (56.58±5.69%), strongiloidosis and dermatosis (50.0±10.21%), trichocephalus and dermatosis (42.11±8.01%), followed by enterobiasis and dermatosis (24.59±5.51%), and relatively less ascariasis and dermatosis (22.39±5.09%).

Constipation is also more common in people with intestinal parasitosis and dermatosis than in only allergodermatoses. Constipation is most common in people with enterobiasis and allergodermatosis (52.46±6.39%; $p<0.001$), ascariasis and dermatosis (47.76±6.1%; $p<0.001$).

Headaches were observed only in individuals with allergy dermatitis (22.97±4.89%), ascariasis (17.91±4.68%; $p>0.05$), trichocephalus (15.79±5.92%; $p>0.05$), approximately the same as those with strongiloidosis (16.67±7.61%; $p>0.05$), enterobiasis (47.54±6.3%; $p<0.01$), and giardiasis (48.68±5.73%; $p<0.001$).

Hepatomegaly is also found only in persons with allergy dermatitis (56.76±5.76%), ascariasis and dermatosis (94.03±2.9%), giardiasis and dermatosis (89.47±3.52%), strongyloidiasis and dermatosis (91.67±5.64%), trichocephalus and dermatosis (73.68±7.14%), enterobiasis and dermatosis (62.3±6.21%).

Bruxism occurs only in 16.22±4.29% of patients with allergodermatosis, in 77.05±5.38% of patients with enterobiasis and allergodermatosis, in 34.21±5.44% of patients with giardiasis and dermatosis, in 33.33±9.62% of patients with strongiloidosis and dermatosis, in 31.34±5.67% of patients with ascariasis and dermatosis and the least common in people with trichocephalus and dermatosis (23.68±6.7%). Insomnia is only at the same level in people with allergy dermatitis (47.3±5.8%), most in those with intestinal parasitosis and dermatosis, most in those with severe thyroiditis and dermatosis (75.0±8.84%; $p<0.01$) and the least enterobiasis and dermatosis (21.31±5.24%; $p<0.001$). Abdominal pain is more common in people with intestinal parasitosis and allergic dermatitis than in people with only allergic dermatitis.

The clinical course of allergic dermatitis is highly dependent on the intestinal microflora. Taking this into account, the clinical course of allergodermatoses was observed against the background of normal microflora and dysbacteriosis. The results are shown in Figure 2.

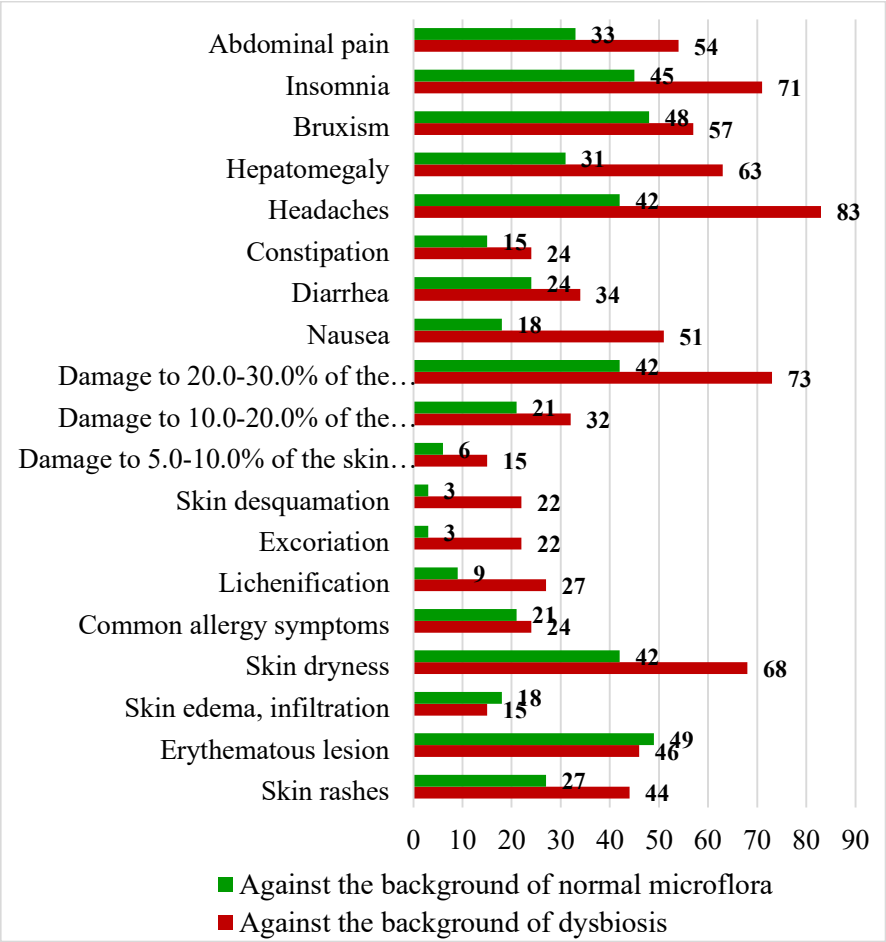

Figure 2. Clinical signs of allergodermatoses with intestinal parasitosis against the background of normal microflora and dysbacteriosis

Against the background of dysbacteriosis, most clinical signs of allergy dermatitis are more pronounced than those with normal microflora.

In people with allergic dermatosis against the background of dysbiosis erythematous lesion (70.73±7.11%), skin dryness (63.42±7.52%), common allergy symptoms (82.93±5.88%), skin desquamation (51.22±7.81%), damage to 5.0-10.0% of the skin surface (73.17±6.92%), nausea (21.95±6.46%), diarrhea (21.95±6.46%), constipation (26.83±6.92%), hepatomegaly (68.29±7.27%) are more pronounced than against the background of normal microflora (45.46±8.67%, $p<0.05$; 30.61±8.02%, $p<0.01$; 42.42±8.6%, $p<0.001$; 18.18±6.71%, $p<0.01$; 42.42±8.6%, $p<0.01$; 3.03±2.98%, $p<0.01$; 3.03±2.98; 9.09±5.0%, $p<0.05$; 42.42±8.6%, $p<0.01$, respectively).

Allergodermatosis and parasitosis, as well as the total amount of total lymphocytes, CD_3, CD_4, CD_8 lymphocytes, eosinophils, IgE in the blood of practically healthy individuals were compared.

Several nonspecific and specific protective factors have been investigated in the blood of people with parasitic allergic dermatosis. In the blood of 84 people with both dermatosis and parasitosis, 48 people with dermatosis only, 67 people with only parasitosis and 57 practically healthy people, the total number of lymphocytes, CD_3, CD_4, CD_8 lymphocytes and eosinophils, the concentration of interleukins (IL-4, IL -8, İL-1B, TNF-a) and IgE.

The total number of lymphocytes is higher in practically healthy individuals (35.85±6.59%) in those with parasitosis (50.0±7.37%), only in those with allergodermatosis (45.31±6.22%) and combined with parasitosis and allergodermatosis were relatively high in those (48.68±5.73%; $p>0.05$).

The number of CD_3 lymphocytes, on the contrary, are most often found in practically healthy people (69.81±6.31%) with a relatively small number in patients with only parasitosis (60.87±7.2%; $p>0.05$) and only with allergic dermatosis (54.69±6.22%; $p>0.05$), and to a lesser extent in people with parasitosis and allergic dermatosis (46.05±5.72%; $p<0.01$).

The same case manifests itself in the number of lymphocytes CD_4 and CD_8. In practically healthy people (41.51±6.77%), CD_4 lymphocytes were the most common, with a relatively small number in patients with only allergic dermatosis (28.13±5.62%; p>0.05) and only parasitosis (32.61±6.91%; p>0.05), the smallest number is observed in persons with allergic dermatosis accompanied by parasitosis (26.32±5.05%; p> 0.05).

CD8 lymphocytes are observed in patients with allergic dermatosis and parasitosis together (19.74±4.57%; p>0.05), only with allergic dermatosis (20.31±5.03%; p>0.05), only with parasitosis (21.74±6.08%; p>0.05) approximately the same, but less than in practically healthy individuals (24.53±5.91%).

In addition, if the ratio of CD4 / CD8 lymphocytes is 1.69 in practically healthy people, then in people with only parasitosis it was 1.50, in people only with allergic dermatosis 1.39 and 1.33 in people with both allergodermatitis and parasitosis.

As can be seen, the number of T-lymphocytes and their subpopulations in the blood decreases in individuals with allergy dermatitis and parasitosis compared to practically healthy individuals. The reduction is more pronounced in people with allergy dermatitis and parasitosis.

The number of eosinophils in the blood is higher in people with only parasitosis (15.22±5.3%; p>0.05) and with only allergic dermatosis (14.06±4.35%; p<0.05), and much higher in people with combined allergic dermatosis and parasitosis (23.68±4.88%; p<0.001) compared with practically healthy people (3.77±2.62%).

Relative to practically healthy persons (142.36±8.57 IU/ml), the amount of IgE is higher in patients with only parasitosis (253.08±11.48 IU/ml; p<0.001), only with allergic dermatosis allergodermatosis (289.38±11.92 IU/ml; p<0.001) and much more in patients with parasitosis and allergic dermatosis together (376.48±11.09 IU/ml; p<0.001).

Taking into account the important role of cytokines, which are nonspecific factors of protection of the immune system in a number of diseases, including parasitosis, the amount of IL-4, IL-8, IL-1β and TNF in the blood was determined.

The concentration of İL-1β interleukin is higher in people with only allergodermatosis (46.2±1.31 pg/ml; p<0.001), in people with parasitosis (42.3±1.61 pq/ml; p<0.001) and significantly higher in individuals with both parasitosis and allergodermatosis (54.2±1.33 pg/ml; p<0.001) than in healthy individuals (15.6±0.81 pg/ml).

The level of IL-8 was higher in individuals with only allergodermatosis (41.4±1.28 pg/ml; p<0.001), with only parasitosis (43.5±1.65 pq/ml; p<0.001) than in healthy individuals (21.2±0.93 pg/ml). The most common are allergy dermatitis and parasitosis (62.1±1.47 pg/ml; p<0.001).

Despite the fact that the increase in the concentration of anti-inflammatory interleukin 4 (IL-4) in the blood is lower than in the previous cytokines, their amount in practically healthy people (16.8±0.89 pg/ml) is slightly less than in people with only allergodermatosis (24.2±0.92 pg/ml; p<0.001), in persons with only parasitosis (22.5±1.42 pg/ml; p<0.001), in persons with both parasitosis and allergodermatosis (32.7±1.26 pg/ml; p<0.001).

Since allergodermatosis and parasitosis are mostly chronic, lymphocyte activity is more common. An increase in the amount of cytokines secreted by them leads to an increase in the number of eosinophils in the blood and the concentration of IgE. Against the background of an increase in the total number of lymphocytes, the number of T-lymphocytes (CD) and their subpopulations of CD_4 and CD_3 lymphocytes also decreases in comparison with practically healthy people.

On the other hand, the ratio of CD_4 helpers to CD_3 suppressors is significantly reduced in patients with allergies and parasitosis than in otherwise healthy people. Hence, it can be concluded that with allergic dermatoses of parasitic origin, the disease is more severe, allergic processes are more pronounced, and pathogenetic changes are more likely in these individuals due to immunosuppressive conditions.

To study the effect of allergic dermatosis and intestinal parasitosis on various organs and tissues of the body, especially on the liver, pancreas and other organs, as well as on metabolic

processes, a number of biochemical analyzes were carried out in 79 people with both allergodermatosis and parasitosis, 68 people only with allergic dermatosis and 49 people with only parasitosis.

An increase in bilirubin is detected only in those with allergodermatosis and parasitosis of the joint (10.13±3.4%) than in those with allergodermatosis (7.35±3.17%; $p>0.05$) and only in those with parasitosis (6.12±3.42%; $p>0.05$).

The increase in alanineaminotransferase (ALT) is approximately the same in people with only parasitosis (26.53±6.31%; $p>0.05$) and with only allergodermatosis (25.0±5.25%; $p>0.05$), but it is less common in both parasitosis and allergodermatosis (41.77±5.55%).

The increase in aspartate aminotransferase (AST) is most common in patients with parasitosis associated with allergodermatosis (39.24±5.49%), but in patient with only allergodermatosis (23.53±5.14%; $p>0.05$) and only parasitosis (20.41±5.76%; $p>0.05$) is observed in the same amount.

An increase in alkaline phosphatase is observed at least in persons with only allergodermatosis (33.82±5.74%; $p<0.001$), relatively more often in persons with only parasitosis (38.78±6.96%; $p>0.05$), and more often in those with both allergodermatosis and parasitosis (62.03±5.46%).

The increase in amylase is found relatively low in persons with only allergodermatosis (26.47±5.35%; $p>0.05$) and in persons with only parasitosis (24.49±6.14%; $p>0.05$), approximately the same and most often in persons with both allergodermatosis and parasitosis (32.91±5.29%).

Elevation of thymol in the blood is found at least only in people with only parasitosis (8.16±3.91%; $p>0.05$), relatively often in people with only allergodermatosis (14.71±4.3%; $p>0.05$), and most often in patients with mixed pathology (24.05±4.81%).

The decrease in iron (Fe) in the blood is most often found in persons with both allergodermatosis and parasitosis (51.9±5.62%),

then persons with only parasitosis (42.86±7.07%; $p>0.05$), and least often in persons with only allergodermatosis (30.88±5.6%; $p<0.01$).

The decrease in level of calcium in the blood is most common in people with combined allergodermatosis and parasitosis (58.23±5.55%), then in people with only allergodermatosis (36.77±5.85%), and less in those with only parasitosis (28.57±6.45%; $p<0.001$).

The results of the research analyzes show that allergic dermatoses and parasitosis cause a number of pathological processes in the body, in particular, a change in the amount of liver and pancreatic enzymes, thymol, iron and calcium in the blood.

Taking into account that the normal intestinal microflora plays an active role in many different processes in the human body, quantitative and qualitative changes in its composition can play a role in the etiology of a number of diseases, including dermatoses, microbiological studies have been carried out in this area.

Intestinal and skin microflora were studied in 81 individuals with dermatosis and parasitosis, in 52 individuals with only parasitosis, in 72 individuals with dermatosis only, and in 42 practically healthy individuals.

In individuals with only allergodermatosis (54.17±5.87%; $p<0.001$), with only parasitosis (75.0±6.01%; $p<0.001$) and with both parasitosis and allergodermatosis (90.12±3.32%; $p<0.001$) general dysbacteriosis is more common than in practically healthy individuals (16.67±5.75%).

Decreased normal microflora was found in 22.22±4.90% of patients with allergodermatosis ($p>0.05$), while in 32.69±6.51% of patients with only parasitosis ($p<0.01$), in 40.74±5.46% of patients with both parasitosis and allergodermatosis ($p<0.001$) and in only 9.52±4.53% of practically healthy individuals.

Conditional pathogens and pathogenic microflora was found in 7.14±3.97% of practically healthy individuals, only in 31.94±5.50% of individuals with only allergodermatosis ($p<0.001$), in 42.31±6.85% of individuals with only parasitosis ($p<0.001$) and in 49.38±5.56% of individuals with both parasitosis and allergodermatosis ($p<0.001$).

Decreased normal microflora occurs most often in patients with strongyloidiasis and allergodermatosis (33.33±19.24%; $p>0.05$), more in patients with enterobiasis and allergodermatosis (27.27±9.5; $p>0.05$), relatively more and equally often in patients with ascariasis and allergodermatosis (25.0±9.68%; $p>0.05$), with trichocephalus and allergodermatosis (25.0±12.5%; $p>0.05$) than in practically healthy individuals (9.5±4.53%) and a least in patients with giardiasis and allergodermatosis (19.05±8.57; $p>0.05$).

Pathogenic and conditionally pathogenic microflora are also more common in practically healthy individuals (7.14±3.97%) than in persons with strongyloidiasis and allergodermatosis (50.0±20.41%; $p<0.05$), then with giardiasis and allergodermatosis. (47.62±10.9%; $p<0.001$), then those with enterobiasis and allergodermatosis (45.46±10.62%; $p<0.001$), with trichocephalus and allergodermatosis (41.67±14.23%; $p<0.05$), and relatively more were found in ascariasis and allergodermatosis (40.0±10.95%; $p<0.01$).

General dysbacteriosis occurs moste often in individuals with strongyloidiasis and allergodermatosis (83.33±15.22%; $p<0.001$), with enterobiasis and allergodermatosis (72.73±9.50%; $p<0.001$), then in individuals with giardiasis and allergodermatosis (66.67±10.29%; $p<0.001$), with trichocephalus and allergodermatosis (66.67±13.61%; $p<0.001$), relatively more in people with ascariasis and allergodermatosis (65.0±10.67%; $p<0.001$) than in practically healthy people (16.69±5.75%).

When comparing different types of allergodermatoses accompanied by intestinal parasites, a decrease in normal microflora is most often found in allergodermatoses with strongyloidiasis, and at least in allergodermatoses with lyambliosis. In allergodermatoses with ascariasis, trichosephalyosis, enterobiasis a decrease in normal microflora is observed approximately at the same level.

Pathogenic and conditionally pathogenic microflora are most commonly found in allergodermatoses with strongilloidosis, then in allergodermatoses with giardiasis, relatively low in allergodermatoses with enterobiasis, and less commonly in allergodermatosis with trichocephalus and ascariasis.

To clarify the role of intestinal parasitosis and intestinal microflora in the occurrence, clinical course and pathogenesis of allergic dermatoses, complex treatment was prescribed to 74 patients with allergic dermatosis only, 108 patients with allergodermatoses accompanied by parasitosis, taking into account the intestinal microflora.

Treatment outcomes were evaluated for clinical signs. The treatment was complex against allergic dermatitis, intestinal parasitosis and dysbacteriosis. For this purpose, antihistamines, systemic corticosteroids, immunomodulators, enterosorbents, detoxification hyposensitizers, creams with topical corticosteroids, ointments, gels, biologically active ointments, moisturizers, as well as prebiotics, probiotics, taking into account quantitative and qualitative changes in the intestinal microflora, was prescribed and against intestinal parasites anthelminthic drugs were used.

In addition, if indicated, hepatoprotectors, sedatives, antifungal agents, enzymes, and vitamins were prescribed. Treatment is determined individually, taking into account the main diagnosis of each patient, the clinical course of the disease, the immune status, the presence or absence of intestinal parasitosis and dysbiosis.

The results of treatment of allergodermatoses were evaluated on the basis of the dynamic observation of clinical symptoms, the results of treatment of intestinal parasitosis were evaluated on the basis of repeated parasitological examination, and dysbacteriosis on the basis of repeated bacteriological examination.

To study the effect of intestinal microflora on the results of treatment of allergodermatoses, out of 74 people with only allergodermatoses 41 people with dysbiosis were given treatment taking into account the state of the microflora. The results of the study were evaluated comparatively for clinical signs observed before and after treatment, the results are shown in Table 2.

Table 2

The results of the treatment of allergic dermatosis associated with intestinal parasitoses against the background of normal microflora

Clinical signs	Before treatment n = 41		After treatment n = 41		P
	abs.	%	abs.	%	
Skin rashes	22	53.66±7.79	11	26.82±6.92	< 0.05
Erythematous lesion	29	70.73±7.11	15	36.59±7.52	< 0.001
Skin edema, infiltration	23	56.10±7.75	12	22.97±7.11	< 0.01
Skin dryness	26	63.42±7.52	11	26.83±6.92	< 0.001
Common allergy symptoms	34	82.93±5.88	16	39.02±7.62	< 0.001
Lichenification	10	24.39±6.71	7	17.07±5.88	> 0.05
Excoriation	14	34.15±7.41	9	21.95±6.46	> 0.05
Skin desquamation	21	51.23±7.81	10	24.39±6.71	< 0.01
Damage to 5.0-10.0% of the skin surface	30	73.17±6.92	15	36.59±7.52	< 0.01
Damage to 10.0-20.0% of the skin surface	13	31.71±7.27	6	14.63±5.52	> 0.05
Damage to 20.0-30.0% of the skin surface	6	14.63±5.52	4	9.76±4.64	> 0.05
Nausea	9	21.95±6.46	3	7.32±4.07	> 0.05
Diarrhea	9	21.95±6.46	5	12.20±5.11	> 0.05
Constipation	39	95.12±3.37	16	39.02±7.62	< 0.001
Headaches	12	29.27±7.11	6	14.63±5.52	> 0.05
Hepatomegaly	28	68.29±7.27	22	53.66±7.79	> 0.05
Bruxism	6	14.63±5.52	3	7.32±4.07	> 0.05
Insomnia	19	46.34±7.79	12	29.27±7.11	> 0.05
Abdominal pain	18	43.90±7.75	9	21.95±6.46	< 0.05

As seen from the table skin rashes were observed in 53.66±7.72% before treatment and in 26.82±6.92% ($p<0.05$) after treatment. The same situation manifests itself in erythematous lesion. Erythematous lesion was observed in 70.73±7.11% of patients before treatment and in 36.59±7.52% ($p<0.01$) of patients after treatment.

Skin edema and infiltration (56.10±7.75%), skin dryness (63.42±7.52%), common allergy symptoms (82.93±5.88%) decreased 2 times after treatment (22.27±7.11%, $p<0.01$; 26.83±6.92%, $p<0.001$; 39.02±7.62%, $p<0.001$ respectively).

Lichenification (24.3±6.71%), excoriation (34.15±7.41%) also deacreased after treatment (17.07±5.88%, $p>0.05$; 21.95±6.46%, $p>0.05$ respectively).

Skin desquamation (51.23±7.81%) and damage to the skin surface of 5.0-10.0% also (73.17±6.92%) decreased after treatment (24.39±6.71, $p>0.001$ and 36.59±7.52%, $p<0.01$, respectively).

Damage to 10.0-20.0% (31.71±7.27) and 20.0-30.0% (14.63±5.52%) of the skin surface has not decreased much after tratment (14.63±5.52%, $p>0.05$; 9.76±4.64%, $p>0.05$, respectively).

Symptoms such as nausea (21.95±6.46%), diarrhea (21.95±6.46%), constipation (95.12±3.37%), headaches (29.12±7.11%), bruxism (14.63±5.52%) also decreased 2 times after treatment (respectively 7.32±4.07%, $p>0.05$; 12.20±5.11%, $p>0.05$; 39.02±7.62%, $p<0.001$; 14.63±5.52%, $p>0.05$; 7.32±4.07%, $p>0.05$).

Hepatomegaly (68.29±7.27%) was relatively reduced after treatment (53.66±7.79%, $p>0.05$).

The effectiveness of treatment of 35 patients with intestinal parasitosis combined allergodermatoses against the background of normal microflora was studied.

The results are shown in Table 3.

As it can be seen from this table, after the treatment of allergodermatoses associated with intestinal parasitoses against the background of normal microflora, there was a significant decrease in clinical signs.

Table 3

The results of the treatment of allergodermatoses with intestinal parasitoses against the background of normal microflora

Clinical signs	Before treatment n = 35		After treatment n = 35		P
	abs	%	abs	%	
Skin rashes	15	42.86±8.37	5	14.29±5.92	< 0.01
Erythematous lesion	17	48.57±8.45	6	17.14±6.37	< 0.01
Skin edema, infiltration	13	37.14±8.17	4	11.43±5.38	< 0.05
Skin dryness	14	40.0±8.28	5	14.29±5.92	< 0.05
Common allergy symptoms	20	57.14±8.37	7	20.0±6.76	< 0.001
Lichenification	8	22.86±7.10	3	8.57±4.73	> 0.05
Excoriation	10	28.57±7.64	3	8.57±4.73	< 0.05
Skin desquamation	14	40.0±8.28	5	14.29±5.92	< 0.05
Damage to 5.0-10.0% of the skin surface	18	51.43±8.45	6	17.14±6.37	< 0.01
Damage to 10.0-20.0% of the skin surface	7	20.0±6.76	2	5.71±3.92	> 0.05
Damage to 20.0-30.0% of the skin surface	5	14.29±5.92	2	5.71±3.92	> 0.05
Nausea	18	51.43±8.45	6	17.14±6.37	< 0.01
Diarrhea	8	22.86±7.10	3	8.57±4.73	< 0.05
Constipation	7	20.0±6.76	2	5.71±3.92	> 0.05
Headaches	10	28.57±7.64	4	11.43±5.38	< 0.05
Hepatomegaly	22	62.86±8.17	14	40.0±7.28	< 0.05
Bruxism	14	40.0±8.28	6	17.14±6.37	< 0.05
Insomnia	16	45.71±8.42	5	14.29±5.92	< 0.01
Abdominal pain	18	51.43±8.45	6	17.14±6.37	< 0.01

Skin rashes (42.86±8.37%), erythematous lesion (48.57±8.45%), skin edema, infiltration (38.14±8.17%), skin dryness (40.0±8.28%), common allergy symptoms (57.14±8.37%) decreased after treatment (14.29±5.92%, $p<0.01$; 17.14±6.37%, $p<0.01$; 11.43±5.38%, $p<0.05$; 14.29±5.92%, $p<0.05$; 20.0±6.76%, $p<0.001$, respectively). Hepatomegaly (62.86±8.17%) also decreased after treatment (40.0±8.28%, $p<0.05$).

Signs such as skin desquamation, damage of 5.0–10.0% of the skin, nausea, diarrhea, constipation, headaches, bruxism, insomnia, abdominal pain decreased 2-3 times after treatment.

In order to study the results of treatment of allergodermatoses against the background of dysbiosis, 73 patients with intestinal parasitosis and allergic dermatitis were prescribed treatment. The results are shown in Table 4.

Table 4

The results of the treatment of allergodermatoses associated with intestinal parasitoses against the background of dysbacteriosis

Clinical signs	Before treatment n = 73		After treatment n = 73		P
	abs	%	abs	%	
Skin rashes	59	80.82±4.61	30	41.09±5.76	<0.001
Erythematous lesion	54	73.97±5.14	28	38.36±5.69	<0.001
Skin edema, infiltration	44	60.27±5.73	23	31.51±5.44	<0.001
Skin dryness	52	71.23±5.30	27	36.99±5.65	<0.001
Common allergy symptoms	68	93.15±2.96	35	47.95±5.85	<0.001
Lichenification	18	24.66±5.04	9	12.33±3.85	>0.05
Excoriation	29	39.73±5.73	15	20.55±4.73	<0.01
Skin desquamation	49	67.12±5.50	26	35.62±5.61	<0.001
Damage to 5.0-10.0% of the skin surface	59	80.82±4.61	30	41.09±5.76	<0.001
Damage to 10.0-20.0% of the skin surface	26	35.62±5.61	14	19.18±4.61	<0.05
Damage to 20.0-30.0% of the skin surface	12	16.44±4.34	6	8.22±3.22	>0.05
Nausea	55	75.34±5.05	29	39.73±5.73	<0.001
Diarrhea	34	46.58±5.84	18	24.66±5.05	<0.01
Constipation	32	43.84±5.81	17	23.99±4.95	<0.05
Headaches	22	30.14±5.37	11	15.07±4.19	<0.05
Hepatomegaly	67	91.78±3.22	35	47.95±5.85	<0.001
Bruxism	29	39.73±5.73	15	20.55±4.73	<0.01
Insomnia	35	47.95±5.85	18	24.66±5.05	<0.01
Abdominal pain	61	83.56±4.34	32	43.84±5.81	<0.001

As can be seen from the table, against the background of dysbacteriosis, a decrease in most clinical symptoms is observed after treatment of allergodermatoses with intestinal parasitosis.

Skin rash (80.82±4.61%), erythematosus (73.97±5.14%), skin edema, infiltration (60.27±5.73%), skin dryness (71.23±5.30%), common allergy symptoms (93.15±2.96%), skin desquamation (67.12±5.50%), damage to 5.0-10.0% of the skin surface and other symptoms decreased 2 times after treatment (respectively 41.09±5.76%, $p<0.001$; 38.36±5.67%, $p<0.001$; 31.51±5.44%, $p<0.001$; 36.99±5.65%, $p<0.001$; 47.95±5.83%, $p<0.001$; 35.62±5.61%, $p<0.001$; 41.09±5.76%, $p<0.001$).

After the treatment of allergic dermatoses associated with intestinal parasitoses against the background of normal microflora there was a decrease in clinical signs by 3–4 times, but after the treatment of allergic dermatoses associated with intestinal parasitoses against the background of dysbacteriosis, there was a decrease in similar clinical signs only by 2 times.

In general, the effectiveness of the treatment of allergodermatoses associated with intestinal parasitoses against the background of normal microflora averaged 65.85±7.41%, against the background of dysbacteriosis – 47.95±5.85%.

To clarify the role of parasitosis in the clinical course and the effectiveness of treatment of allergodermatoses in patients with intestinal parasitosis, the patients were divided into 2 groups. 63 patients with intestinal parasitosis and allergodermatoses were prescribed complex treatment i.e. in addition to allergodermatoses, intestinal parasitoses have also been treated. 45 people with intestinal parasitosis and allergodermatoses were treated only for allergodermatoses.

If skin rashes were detected in 68.52±4.47% of patients before treatment, after treatment in 15.87±4.60% of patients treated concomitantly with antiparasitic drugs, but in 55.56±7.41% of patients ($p<0.001$) who received treatment only against allergodermatoses. Edema and infiltration of the skin (12.70±4.20%), skin dryness (19.04±4.95%), common allergy symptoms (23.81±5.37%), skin desquamation (19.05±4.95%), damage to the

skin surface of 5.0-10.0% (20.64±5.10%), nausea (15.87±4.60%), diarrhea (9.52±3.40), constipation (7.94±3.41%), headaches (6.34±3.04%), bruxism (9.52±3.40%), insomnia (11.11±3.96%), abdominal pain (17.46±4.78%) in patients with complex treatment of intestinal parasites the results were 2-3 times better than in patients treated for only allergodermatoses (respectively 42.22±7.36, $p<0.001$; 44.44±7.41%, $p<0.01$; 60.0±7.30%, $p<0.001$; 42.22±7.36%, $p<0.01$; 51.11±7.45%, $p<0.001$; 55.56±7.41%, $p<0.001$; 33.33±7.03%, $p<0.01$; 31.11±6.90%, $p<0.01$; 24.44±6.41%, $p<0.05$; 33.33±7.03%, $p<0.05$; 35.56±7.14%, $p<0.01$; 60.0±7.30%, $p<0.05$).

It showed significantly better results in patients receiving complex treatment for hepatomegaly (22.22±5.24) than in patients treated only for allergodermatoses (77.78±6.20%, $p<0.001$).

RESULTS

1. Intestinal parasitosis (ascariasis, strongyloidiasis, lyambliosis) is more common in people with allergodermatosis (from 8.69±1.21% to 25.69±1.88%), than in people with other dermatosis (from 4.08±0.73% to 16.60±1.37%). Allergodermatoses with ascariasis, trichosephalyosis, enterobiasis, lyambliosis are most common at the age of 4-7 and 8-11 years, allergodermatoses with strongyloidiasis at the age of 18-30 and 31-50 years.
   Allergodermatoses in combination with intestinal parasitosis are more common among the rural population (57.45±2.19%) than among the urban population (42.55±2.19%). There is no such difference in the morbidity of women and men.
2. Clinical symptoms (skin rash, erythematous lesion, dry skin, itching, common allergy symptoms, skin desquamation, etc.) are more common in people with allergic dermatitis accompanied by intestinal parasitosis than in people with only allergic dermatitis. These symptoms are more

pronounced in the background of dysbacteriosis than in the background of normal microflora.

3. Changes in some immune defense factors (CD3, CD4, CD8, IL-4, IL-8, IL-1β, TNF), an increase in total bilirubin, ALT, AST, ALP, amylase, thymol and a decrease in iron (Fe), calcium (Ca) in the blood are more common in people with allergodermatosis accompanied by intestinal parasitosis than in people with only allergic dermatitis.
4. General dysbacteriosis is detected in persons with both parasitosis and allergodermatosis (90.12±3.32%), more than in persons with only allergodermatosis (54.17±5.88%), only parasitosis (75.0±6.01%). Conventional pathogenic and pathogenic microflora was found in 7.14±3.97% of practically healthy individuals, in 31.94±5.50% of persons with only allergodermatosis, in 42.31±6.85% of persons with only parasitosis, and 49.38±5.56% of persons with allergodermatosis accompanied by intestinal parasitosis.

   Gram (-) trash of Proteus origin, microbes of the type of Klebsiella were not found in practically healthy individuals, but they were found in people with intestinal parasitosis and allergodermatosis (respectively 7.41±2.91%; 3.70±2.10%). Fungi of Candida origin were found 2 times more often in people with parasitosis and allergic dermatitis (16.05±4.08%) than in practically healthy people (7.14±3.97%).
5. According to the results of the study, the treatment are more effective in allergodermatoses (65.85±7.41%) combined with intestinal parasitoses and only allergodermatosis (72.73±7.75%) against the background of normal microflora than against the background of dysbacteriosis (respectively 47.95±5.85% and 51.22±7.81%).

   The effectiveness of complex treatment of allergic dermatosis taking into account intestinal parasitosis in patients with allergodermatosis accompanied by intestinal parasitosis (70.80±5.59%) is significantly higher than the treatment of allergic dermatosis alone, excluding intestinal parasitosis (27.91±6.79%).

PRACTICAL RECOMMENDATIONS

1. Persons with allergodermatosis should be examined for parasitosis, taking into account the epidemiological history and clinical signs.
2. Suspects of enterobiasis should be examined by the Graham method, suspects of ascariasis and trichocephalus by Kato-Miura, suspects of strongiloidosis by Berman, suspects of giardiasis by formalin-ether precipitation. Examinations for ascariasis and giardiasis should be performed in parallel with coprological and serological (IFA) methods.
3. In patients with allergodermatosis, especially with allergodermatosis accompanied by intestinal parasitosis it is advisable to study the intestinal microflora, conduct a series of immunological, bacteriological and biochemical examinations.
4. In patients with intestinal parasitosis with allergic dermatitis, it is necessary to prescribe drugs against parasitosis in complex treatment, taking into account the state of the immune system and changes in the intestinal microflora.

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