Medicinal properties of biologically active glauconite in patients with atopic dermatitis caused by endogenous intoxication.

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SUMMARY

Improving approaches to the treatment of diseases associated with endogenous intoxication syndrome is one of the socially significant problems of practical dermatology. Almost all severe skin diseases are accompanied by endogenous intoxication, and in many cases it determines the outcome of the disease.

Research objective: development of a new method for treating endogenous intoxication in patients with atopic dermatitis based on activated glauconite.

Material and methods of research. The study involved 79 patients with atopic dermatitis (AD) aged 14 to 41 years. All patients underwent clinical (SCORAD index determination), immunological, microbiological and statistical studies.

Study results. Patients with atopic dermatitis showed bacterial sensitization due to increased contamination of opportunistic microorganisms staphylococcus spp. on the skin and procalcitonin concentration in the blood by 2.7 times compared to healthy individuals, which contributed to the development of endogenous intoxication of the body. Endogenous intoxication was characterized by an increase in the concentration of the sorption capacity of erythrocytes (SCE) by 1.5 and medium-molecule peptides (MMP) - by 2.1 times compared to the healthy control group .($P < 0.05$)

Conclusion: The use of activated glauconite (fatifiltrum) in complex therapy in patients with atopic dermatitis contributes to a more pronounced decrease in the degree of endogenous intoxication of the body, the SCORAD index by 4.04 times than standard therapy. The data obtained indicate the detoxifying ability of activated glauconite "fatifiltrum", which can be recommended for widespread implementation in dermatological practice.

Improving the methods of treating diseases associated with endogenous intoxication syndrome is a priority area of dermatological practice. [1,2,4,6,12,13,14,16] Since the occurrence of skin diseases with a chronic and often recurring course is based on endogenous intoxication of the body. Among them, special attention is paid to atopic dermatitis. [2,6,7,8] An important role in the genesis of endogenous intoxication of the body is played by the morphofunctional state of the gastrointestinal tract and hepatobiliary system. [3,7,17] Since the liver is an exceptionally multifunctional organ that takes indirect or direct part in most vital processes for the body. [8,13,16] The allergic state of the body has a negative impact on the liver, which is accompanied by the release of a large number of inflammatory mediators that can damage hepatocytes and provoke increased formation of acute phase proteins of inflammation (interleukins) in the liver. [6,7] Studies have shown that bacterial sensitization plays an important role in the pathogenesis of endogenous intoxication. The presence of changes in the innate and acquired immune responses in patients with AD induces increased sensitivity to bacterial, fungal and viral infections. At the same time, some participants in the normobiota of the skin, for example, dandruff yeast fungi (Malassezia spp.), epidermal staphylococcus (st.epidermidis) and can be sources of allergens and the cause of exacerbation and / or complications of the disease. [6,7]

Thus, studies have established that the contamination of the skin with staphylococcal flora in patients with AD increases by 3.2-4.7 times compared to healthy individuals. Chronic course of the disease, imbalance in the immune system with hyperproduction of proinflammatory cytokines and decreased production of anti-inflammatory cytokines affects the enzymatic capacity of opportunistic pathogens and thereby contributes to the development of opportunistic persistent forms of bacterial infection with sensitization. Bacterial sensitization in the body of patients is accompanied by endogenous intoxication, which in turn aggravates the course of the disease.

In order to find new methods for treating endogenous intoxication, Uzbek scientists have developed a biologically active additive based on mineral raw materials - glauconite "Fatifiltrum" according to the applied project. Fatifiltrum - activated glauconite (mineral, aqueous iron aluminosilicate, silica and potassium oxide of variable composition, belongs to the group of hydromicas) - 300 mg. Detoxifying agents, including antidotes, adsorbents, dietary supplements containing iron; containing silicon. It has a tonic, immunocorrective, enterosorbent and detoxifying effect.

The uniqueness of glauconite is that it can be used as a highly effective immunosorbent, characterized by binding and extracting antibodies or antigens from the blood. [9,11,14]

The aim of our research was to develop a new method for treating endogenous intoxication in patients with atopic dermatitis based on activated glauconite.

Material and methods of research. We observed 79 patients with atopic dermatitis (AD) aged from 14 to 41 years. Among them, 36 were male and 43 were female. The control group consisted of 35 practically healthy individuals. All patients underwent clinical (determination of the SCORAD index), immunological and microbiological, statistical studies. Clinical studies of the SCORAD index were determined using software diagnostics (Scoring of AtopicDermatitis, 1993) (DGU 17865; DGU 17814)

The assessment of the degree of endogenous intoxication was carried out by studying the sorption capacity of erythrocytes and the level of medium-molecule peptides. Determination of the sorption capacity of erythrocytes was carried out using the method of A.A. Togaybaev. and co-authors [13] and the level of medium-molecule peptides by the method of Gabrielyan N.I. and co-authors [4]. The results of the study were statistically processed using standard methods of variation statistics using Student's t-test using the Excel-Office-2010 application program on a Pentium IV computer.

Results of the study. The results of the study (Table 1) showed that in patients with atopic dermatitis, there is a reliable increase in the sorption capacity of erythrocytes in the blood serum compared to the control group, and on average it was 40.2 ± 0.2% versus 26.46 ± 0.61% in the norm. ($p < 0.001$). The level of medium-molecule peptides also increased significantly by 2.1 times (0.416 ± 0.005 EU, $p < 0.001$) in relation to the control group (0.213 ± 0.003 EU). (Table 2)

The above indicates that in patients with atopic dermatitis, endogenous intoxication of the body is detected, characterized by an increase in the concentration of SSE and medium-molecule peptides. For the treatment of endogenous intoxication, patients were prescribed the biologically active supplement "fatifiltrum" based on activated glauconite at a dose of 300 mg, 1 capsule 3 times a day 30 minutes before meals for 10 days.

The inclusion criteria for the study were:

1. Patient age 18-65 years.

2. Severe severity of the disease.

3. Development of endogenous intoxication.

4. Availability of voluntary informed consent of patients.

The exclusion criteria for the study were:

1. Pregnant and lactating women.

2. Failure to comply with the requirements of the staff and the researcher.

To assess the therapeutic activity of the drug "fatifiltrum", the patients were divided into two groups: the first group (traditional therapy) included 23 patients, constituting the comparison group and receiving treatment according to the standard and clinical protocol, activated carbon 250 mg (1 tablet 4 times a day) was prescribed as an enterosorbent against the background of complex therapy and external treatment with topical anti-inflammatory drugs; the second group (complex therapy) included 56 patients, constituting the main group, who were prescribed activated glauconite (fatifiltrum) against the background of therapy. Fatifiltrum 0.3 g was prescribed for children over 12 years of age, 1 capsule 3 times, and for adults, 2 capsules 3 times a day before meals for 10 days.

The results of the study showed (Table 1) that after traditional therapy in patients with atopic dermatitis, the SSE indicators in the blood decreased compared to the data before treatment and were reliable ($P < 0.05$), on average it was 33.7 ± 0.27% versus 39.31 ± 0.47% before treatment, but it remained higher than the data of the healthy control group (29.08 ± 0.88%). The study of the effect of traditional therapy using Lactofiltrum on the content of medium-molecule peptides in the blood serum indicates that in patients with atopic dermatitis after the end of treatment, the SMP level decreases by 1.3 times ($p> 0.05$), and did not reach the control level.

Table 1. Comparative analysis of the effect of the therapy on endogenous intoxication indicators in patients with atopic dermatitis (M ± m)

Treatment method	Number of persons examined	Research	sorption capacity of erythrocytes (SCE) (%)	medium-molecule peptides (MMP) (ЕЭ)
Traditional (activated carbon)	23	before treatment	39,31 ± 0,47	0,363 ± 0,004
		after treatment	33,7 ± 0,27	0,28 ± 0,005
innovative	56	before treatment	40,2 ± 0,2	0,416 ± 0,005

(fatifiltrum)		after treatment	28,8 ± 0,3*	0,201 ± 0,003*
control healthy group	36		29,08 ± 0,88	0,218 ± 0,005

Note: p – reliability of data after treatment in relation to indicators before treatment
* – p<0.01;

In the group of patients with AD who received activated glauconite, the SCE indices and the MMP level in the blood statistically significantly decreased compared to the data before treatment (p<0.05) and on average they were 28.8 ± 0.2% and 0.201 ± 0.003 EE, respectively, with 40.2 ± 0.2% and 0.416 ± 0.005 EE, respectively, before treatment. Thus, the use of fatifiltrum in the complex therapy of patients with atopic dermatitis contributes to a significant decrease in the degree of endogenous intoxication of the body than traditional therapy.

The SCORAD index in the group of patients with AD who received the innovative treatment method decreased by 4.04 times and averaged 17.5+0.6 (before treatment 70.7+1.9), while in the group of patients with AD who received traditional therapy with Lactofiltrum, the index decreased by 3.02 times and averaged 24.6+0.5 (before treatment 74.4+1.2), respectively. (P <0.05)

Thus, the obtained data indicate that endogenous intoxication of the body is detected in patients with atopic dermatitis. The use of activated glauconite (fatifiltrum) in the complex therapy of patients with atopic dermatitis contributes to a significant decrease in the degree of endogenous intoxication of the body, which can be recommended for practical dermatology.

Conclusions:

The use of activated glauconite (fatifiltrum) in the complex therapy of patients with atopic dermatitis contributes to a more pronounced decrease in the degree of endogenous intoxication of the body, the SCORAD index by 4.04 times, than standard therapy. The obtained data indicate the detoxifying ability of activated glauconite "fatifiltrum", which can be recommended for widespread implementation in dermatological practice.

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