Dobrzhanska Y.

ANALYSIS OF CHANGES IN THE IMMUNOLOGICAL CHARACTERISTICS IN PATIENTS WITH PSORIASIS

Kharkov National Medical University, Ukraine

Abstract. *We studied the changes of immune status in 46 patients with psoriasis in the dynamics of complex treatment, which included the administration of dalargin and amizon. There have been studied and analyzed, some immunological parameters (cellular link CD3+, CD4+, CD8+, CD22, humoral link Ig A, M, G, CIC), which are integral reflection interrelationship and interdependence of individual components of immunity in patients treated with dalargin and amizon. Effectiveness analysis was carried out this treatment. After treatment there was a normalization of the level of cellular immunity. This testifies to the restoration of functional reserves of immunocompetent cells.*

Keywords*: psoriasis, immune system, immune modulators, Amizon, Dalargin.*

Psoriasis is a multifactor skin disease affecting 1 % to 3 % of population worldwide [1]. Both Ukrainian and foreign researchers notice the following features of psoriasis: a chronic disease associated with characteristic skin rash in a form of epidermal and dermal papules considerable skin flaking. A psoriatic patch is formed on the basis of the impaired proliferation and differentiation of keratinocytes in combination with increases processes of angiogenesis and epidermal and dermal infiltration with mononuclear cells [2, 3].

In spite of numerous studies performed, pathogenesis of psoriasis and mechanisms of its onset have not been clarified yet. Therefore, therapy of psoriasis is a rather sophisticated task of dermatology today. Main current therapies include Methotrexate, Cyclosporine, retinoids, phototheratpy and photochemotherapy. Such therapies are efficacious, however, they may cause a series of adverse events (hepato- and nephrotoxicity, myelosuppression and teratogenic effects etc.) [6]. Conventional methods of systemic therapy of psoriases fail to cause a complete recovery and are

aimed on an alleviation of the severity of the disease and a prolongation of the remission period only. The aforementioned facts necessitate a search for new pathogenetic approaches to the treatment of psoriatic disease.

In recent years, agents modulating immune reactions in the skin have been used in the treatment of patients with psoriasis. The use of such agents is substantiated with the data on the features of the interaction of cells of the skin and immune system. The onset of an inflammatory process is known to make the skin a part of the immune system without the central analytical link. In particular, in patients with psoriasis, activated antigen-presenting cells migrate to regional lymph nodes to trigger a pathway followed with the activation and proliferation of lymphocytes - cells of the immune system. Before the activation of antigen-presenting cells and lymphocytes, a pathogen introduction causes reactions by keratinocytes, tissue basophils, macrophages and vascular endothelial cells to produce various mediators, including anti-inflammatory tumour necrosis factor alpha [5, 4].

Impaired immune response is another element of pathogenesis of psoriasis. Numerous studies of the immune system status in patients with psoriasis have revealed a reduction of the absolute and relative levels of circulating T-lymphocytes as a result of the prevailing reduction of T-suppressor subpopulation as compared with T-helper subpopulation manifested through the changes in immunoregulatory index TH/TS (helper-suppressor cell ratio). Certain authors consider such immune dysfunctions an important element of pathogenesis of psoriatic disease. The levels of B-lymphocytes decrease in the blood of patients with psoriasis, and the levels of IgA, IgM and IgG also turn changed [7, 8].

Subjects and methods of examination. Immunological characteristics were analysed in 46 patients with psoriases of 21 to 58 years of age staying on an in-patient treatment at the Dermatologic Department of the 5th Kharkiv City Clinical Dermatovenerologic Dispensary. Patients were divided into 3 groups:

Group 1 comprised 20 patients treated basic therapy for psoriasis;

Group 2a comprised 14 patients treated basic therapy with Dalargin;

Group 2b comprised 12 patients with psoriases treated with basic therapy plus Dalargin and Amizonum.

In patients with psoriases, immune status changes manifested in an impaired interaction of immune competent cells – suppression of T- and B-mediated immunity, increase in the levels of circulating immune complexes (CIC) and activation of the antibody-mediated immunity – are noticed. Regulatory and effector cell imbalance causes an inadequate immune response in patients with psoriasis, which is the core element of the pathogenesis of this disease. Regulatory T-cells are a subpopulation of T-lymphocytes playing an important role in the maintenance of the immune tolerance in the organism. Such cells control the intensity and duration of an immune response via a suppression of the activity of T-helpers and T-cytotoxic cells. An inflammatory process in a psoriatic patch is supported on account of T-cell immune mechanisms. Activation of T-lymphocytes in the affected skin is accompanied with the production of anti-inflammatory cytokines and growth factors causing the proliferation of keratinocytes and an impairment of their differentiation.

A study of the immune status of patients has revealed the excessive formation of CIC – natural components of complex immunopathological processes – in the blood. The study subjects showed a significant increase in the serum levels of IgG, which was particularly marked during psoriasis progression. Such antibodies are responsible for the formation of CIC in patients with psoriasis above all. We believe that a reduction of serum levels of IgG in patients after treatment with a combination of Dalargin and Amizonum is associated with a reduced IgG production owing to the alleviation of the pathological process (Table 1).

Increase in the blood levels of T-suppressors after basic treatment of patients was not significant and could be associated with the lack of mechanisms favouring the inhibition of autoimmune reactions in such patients. Such opinion was confirmed with a reduction of blood levels of CIC and increase in the blood levels of IgG in patients after the basic therapy.

Table 1.

Dynamics of the immune system characteristics of patients with psoriases in a course of treatment

Immunological characteristic	Before treatment n = 46	After treatment		
		Group 2a n = 14	Group 2b n = 12	Group 1 n = 20
CD3+, %	48.0±2.2 [1]	54.1±0.43 [1]	57.0±2.7 [1]	59.6±1.3
CD4+, %	22.5±1.0	24.3±1.0	26.4±1.0	29.4±0.9
CD8+, %	23.1±1.7 [1]	21.0±2.2 [1]	20.8±2.4	16.6±0.3
CD22+, %	8.5±0.8	9.7±1.6	10.1±0.9	10.6±0.3
IgA, g/L	2.2±0.2 [1]	1.9±0.2 [1]	2.0±0.1 [1]	3.3±0.3
IgM, g/L	1.7±0.4	1.5±0.05	1.4±1.2	1.4±0.2
IgG, g/L	14.2±1.6 [1]	14.4±1.3 [1]	12.2±0.8	10.6±0.7
Circulating immune complex, U	94.2±10.0[1]	100.0±12.6[1]	111.2±12.8[1]	56.2±5.0

[1] $p \leq 0.05$

An analysis of the immunological characteristics of patients with psoriasis has revealed the correlation between the changes in such characteristics as CD4+, CD3+, CD8+, CD22+, IgA and IgM in the course of treatment of patients of all study groups. Such characteristics have shown the same trends of changes in all treatment groups. We believe this is quite natural, since patients with psoriasis treated with Dalargin and Amizonum plus basic therapy have shown normalisation of their immunological characteristics and different extent of improvement of the process of recovery.

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