



Comparative Analysis of the Content of Vascular Endothelial Growth Factor in Exudative Psoriasis

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Abstract: This article summarizes the study of the enzyme immunoassay determination of the concentration of vascular endothelial growth factor was carried out in the blood serum of 28 male patients with exudative psoriasis aged 16 to 76 years before treatment, their average age was 43.1 ± 3.9 years, of them, 16 - also after therapy. At the same time, 11 (39.3%) patients were aged 16 to 30 years, 4 (14.3%) were aged 31 to 50 years, and 13 (46.4%) were over 50 years of age. Of these, 27 (96.4%) patients were in the progressive stage of the disease, 1 (4.6%) was in the hospital. The duration of the disease ranged from 1 month to 50 years, averaging 18.6 ± 3.7 years. The task of our work included a comparative analysis of the content of vascular endothelial growth factor in the blood serum of healthy people and patients with exudative psoriasis, taking into account the PASI index.

Key words: exudative form of psoriasis, PASI index, vascular endothelium in blood serum.

Introduction: Psoriasis (ancient Greek ψωρίασις, from other Greek ψώρα - itching) is a chronic non-infectious autoimmune [1] disease, dermatosis, affecting mainly the skin [2][3][4]. Usually, psoriasis is manifested by the formation of red, excessively dry, raised spots above the surface of the skin - the so-called papules, which merge with each other, forming plaques. These papules are inherently sites of chronic inflammation and excessive proliferation of skin lymphocytes, macrophages, and keratinocytes, as well as excessive angiogenesis (formation of new small capillaries).

The incidence does not depend on gender [5]. Psoriasis affects 2-4% of the total population [6][7][8]. In Russia, this indicator also varies depending on the territory - from 0.72 to 11.8% [9]. The disease can begin at any age, but most often plaques appear between 15 and 25 years of age. Every third patient indicates the first symptoms before the age of 20 [10]. The highest prevalence of psoriasis is observed in Western Europe and Scandinavia [8][11]. Much less often, the disease occurs among representatives of the Negroid and Mongoloid races [8]. Psoriasis can occur in newborns as well as in infants [11].

Purpose: comparative analysis of the content of vascular endothelial growth factor in the blood serum of healthy people and patients with exudative psoriasis, taking into account the PASI index.

Materials and methods: enzyme immunoassay determination of the concentration of vascular endothelial growth factor was carried out in the blood serum of 28 male patients with exudative psoriasis aged 16 to 76 years before treatment, their average age was 43.1 ± 3.9 years, of which 16 also after therapy. At the same time, 11 (39.3%) patients were aged 16 to 30 years, 4 (14.3%) were aged 31 to 50 years, and 13 (46.4%) were over 50 years of age. Of these, 27 (96.4%) patients were in the progressive stage of the disease, 1 (4.6%) was in the hospital. The duration of the disease ranged from 1 month to 50 years, averaging 18.6 ± 3.7 years.

Patients underwent general clinical and laboratory research methods, after which standard methods of therapy were prescribed, which included detoxification, desensitizing (calcium preparations, antihistamines) therapy. Synthetic glucocorticoid ointments were applied locally to the lesions.

The control group consisted of 30 practically healthy men aged 21 to 65 years.

The concentration of vascular endothelial growth factor was determined in blood serum by enzyme immunoassay using R&D reagent kits (USA). Blood serum samples from patients with psoriasis and apparently healthy men were taken before treatment from the cubital vein from 8.00 to 9.00 on an empty stomach. The blood serum was separated from the formed elements by centrifugation in the cold for 10 min at $2500 \times g$, poured into aliquots and stored at a temperature of -20°C until the study.

Results: in the group of 30 practically healthy men (control), the concentration of vascular endothelial growth factor in blood serum ranged from 38 to 259 pg/ml (average was 121.8 ± 7.8 pg/ml) and significantly ($p < 0.001$) differed from baseline growth factor levels in male patients with exudative psoriasis. Thus, the value of vascular endothelial growth factor in the blood serum of patients with exudative psoriasis before treatment ranged from 63.5 to 2340.9 pg/ml (average was 433.8 ± 88.0 pg/ml). The concentration of vascular endothelial growth factor in the blood serum of patients before treatment was minimal in 7 patients with an exacerbation of the disease no more than 1 time in 3 years, slightly increased in 16 patients with an annual exacerbation and increased 3.5 times in the group of 6 patients with exacerbation of psoriasis 2-3 times a year ($p = 0.2$). The PASI psoriasis coverage and severity index, determined in 28 patients before treatment, was 47.1 ± 1.8 , the lowest and highest values were 28.3 and 61.3, respectively. The PASI index before treatment was minimal in the group of 4 patients with exacerbation of psoriasis no more than 1 time in 3 years, slightly increased in the group of 16 patients with annual exacerbation and significantly increased in the group of 8 patients with exacerbation of dermatosis 2-3 times a year ($p = 0.03$). At the same time, a significant positive correlation was found between the PASI indices before and after the therapy in 6 patients ($r = 0.95$; $p = 0.002$), which showed that the decrease in the PASI index is directly proportional to its primary value. No correlation was found between PASI values and the duration of the history of the disease and the age of men with psoriasis before treatment. In addition, in all 28 men with exudative psoriasis, a close correlation was found between PASI parameters and the concentration of vascular endothelial growth factor in the blood serum before treatment ($r = 0.77$; $p = 0.0001$). After treatment, there was no relationship between the above indicators.

Conclusions: the data obtained indicate that the content of the key activator of angiogenesis (vascular endothelial growth factor) in the blood serum of patients with exudative psoriasis is significantly higher than in the control, as well as the revealed close correlation between PASI parameters and the concentration of vascular endothelial growth factor in blood serum before treatment suggest that an increase in the level of vascular endothelial growth factor is one of the important links in the pathogenesis of psoriasis, the normalization of which may lead to a stable remission of the disease.

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