**TREATMENT OF PATIENTS WITH PSORIASIS USING PHOTOTHERAPY.**

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**Abstract**

**Aim** - to study the effectiveness and safety of 311 nm narrowband phototherapy in the treatment of psoriasis.

**Materials and methods.** 20 patients with psoriasis: 18 (90%) patients with psoriasis vulgaris, 2 (10%) - with psoriasis of the palm and soles, distributed into 2 groups (control and studied). Group 1 patients (studied) - 10 patients with psoriasis who underwent treatment by means of basic therapy and phototherapy.

**Results and discussion**. During the study, all participants were conducted following diagnostic and therapeutic procedures. Phototherapy patients spent only one group. Patients 1 and 2 groups administered basic therapy: magnesium sulfate, asparcam, fenkarol, pyridoxine hydrochloride, cyanocobalamin, topicaly – keratolytic ointment. Diagnostic manipulation - examination of patients, determining PASI-index. Clinical recovery in group 1 patients observed in 8 (80%) patients and a significant improvement in 2 (20%) patients (PASI reduction was 65-80%). Clinical recovery in group 2 patients was observed in 6 (60%) patients (PASI reduction was 75%), a significant improvement - in 3 (30%) patients (PASI reduction of 52%), a slight improvement in 1 (10%).**Conclusions.** Results of treatment showed that the therapeutic efficacy in patients with psoriasis who received basic treatment and phototherapy is higher than in patients who received only basic therapy. The advantage of 311 nm narrowband phototherapy is good tolerability, no side effects, minimal risk of carcinogenesis due to the relatively low total dose of radiation.

**Keywords:** psoriasis, phototherapy narrowband 311 nm.

Psoriasis is one of the most common chronic dermatoses. Recent data indicate that between 3 and 7 percent of the world's population suffer from psoriasis [6, p.1]. In recent years, psoriasis called psoriatic disease and talking about it as a systemic disease. The reason of it that in the pathological process is involved not only the skin but also the joints, kidney, liver. Despite the large amount of research devoted to the study of psoriasis, the cause of the disease has not been established so far. Psoriasis is considered as a multifactorial dermatosis, with participation genetic, immune factors, and environmental factors.

Psoriasis is characterized by hyper proliferation of epidermocytes , violation of keratinocyte differentiation, functioning of the immune system, which are accompanied by the formation of immune mediators and cytokines that induce an inflammatory reaction of the dermis. One of the major pathogenetic links of immune disorders is the deviation of the cytokine profile of Th1-type and along with the increased levels of interleukin (IL) -1α, 2, 6, 7, 8, interferon (INF) γ, the main role is played by an increase in levels of tumor necrosis factor (TNF) α [2, p.30, 3, p.43, 4, p.20, 8, p.1917].

In the first place of provoking factors of psoriasis is considered stress and psycho-emotional status of the patient. But the presence of infectious diseases (tonsillitis, sinusitis, urinary diseases), can also cause the appearance of the first signs of psoriasis. Psoriasis often occur in areas of mechanical damage to the skin, namely in the area of cuts, scrapes, burns, or after administration of drugs (β-blockers, nonsteroidal anti-inflammatory drugs, interleukins). Also we should consider the impact of climatic factors.

Currently, there are a large number of methods and drugs for the treatment of psoriasis. Despite this, there is a certain percentage of patients that are resistant to ongoing treatment of psoriasis. What contributes to ongoing search for the new and effective methods of treatment of psoriasis. Almost all patients with psoriasis notice the positive influence of the sun on the course of the disease. The reason for this lies in the action of ultraviolet radiation, which is the part of sunlight. Phototherapy is based on the use of ultraviolet rays A and B, it is widely used to treat a variety of dermatologic pathologies including psoriasis that occupies the first place [9, p.836].

For the treatment of psoriasis using photochemotherapy (PUVA), selective phototherapy, narrow-band ultraviolet B (NB-UVB) emitting a light with a peak around 311 nm has been demonstrated to be effective in the treatment of various skin disorders; currently it is one of the most commonly used phototherapy devices [7, p.8456]. Photo immunological effect of physiotherapy due to the depth of penetration of UV rays. UVB rays act mainly on epidermal keratinocytes and Langerhans cells. UVB therapy with a wavelength of 311 nm has a selective effect on the skin's immune system. In healthy volunteers in the skin decreases the expression of CD1 + cells, increases the number of HLA-DR + -cells in the absence of the dermo-epidermal infiltration of CD11b macrophages. In the upper layers of the epidermis marked increase in the binding of substance P in the dermis increases ICAM-1 expression and the induction of E-selectin expression by endothelial cells [5, p.64].

Some authors consider that narrow wavelength 311 nm UVB therapy has a more pronounced effect on the systemic immune response, which is displayed in the activity of natural killer cells, lymphoproliferation and cytokine response, than the wide wavelength UVB therapy. At this moment, we believe that the main mechanism for resolving psoriatic plaques after exposure narrow wavelength 311 nm UVB therapy lies in the induce T-cell apoptosis. Numerous studies have shown high efficiency of narrow wavelength 311 nm phototherapy with minimal side effects [7, p.8457].

**Aim.** To investigate the efficacy and safety of the narrow wavelength 311 nm phototherapy using UV radiation Apparatus dermatological UVB-311.

**Materials and methods.** The study involved patients aged over 18 years who were treated in the hospital environment (city clinical dermatological and venereal dispensary №5, Kharkov).

We observed 20 patients with psoriasis: 18 (90%) patients with plaque-type common-papular psoriasis, 2 (10%) patients with palmar-plantar psoriasis. 2 groups of patients participated in the study (investigated and control). The first group of patients (investigated) - 10 patients with psoriasis who were treated with basic therapy and phototherapy. Phototherapy performed by the dermatologycal apparatus of UVB-311 UV radiation after determining the minimal erythema dose (MED), it means the dose of UVB rays, which caused minimal redness or hyperpigmentation of the skin after exposure to the test fields. To determine the MED test field is irradiated with increasing doses of UV rays. After the determination of the minimum erythematous dose, treatment is initiated with a dose of 0.1 J / cm², gradually increasing to 0.1 J / cm². The duration of treatment was determined every time individually, depending on the radiation dose. The radiation frequency was between 3 to 7 times a week. The average duration of treatment 4 weeks.

The second group (the control group) - 10 patients with psoriasis who were treated only by means of basic therapy.

In the first group were patients aged 18 to 56 years, including 7 men and 3 women. The composition of patients of both groups according to age, disease duration and sex were not significantly different.

**Results and discussion**. During the study, all participants were conducted the following diagnostic and therapeutic procedures. Phototherapy was performed only for the patients of the first group. For the Patients of the 1st and the 2nd groups appoint magnesium sulfate 25% 5.0 mL intramuscularly - 10 days, asparkam 1 table. 3 times per day, Phencarolum 0.025 - 7 days, vitamins - pyridoxine hydrochloride 1.0 ml of 5% every other day intramuscularly 14 days, 1.0% cyanocobalamin 0.02 ml intramuscularly every other day 14 days, topically appoint ointment keratolytic action of 7 days.

In addition to drug therapy, patients were encouraged to adhere to these recommendations:

- adhere to the elimination diet (with the exception of alcoholic beverages, irritating foods, reduce the use of animal fats);

- enter the fasting days 1-2 times a week;

- avoid hypothermia;

-avoid mechanical and chemical irritation of the skin.

Diagnostic manipulations that were performed in patients 1st and 2nd groups: the definition of the local status (survey of patients), the data of the index PASI (Psoriasis Area and Severity Index) - the definition of the affected area of the body surface and the intensity of the main symptoms of psoriasis. Intensity of cutaneous manifestations were measured in points. We were using of indicators - erythema, infiltration, scaling. The criterion for the clinical efficacy of the treatment was to reduce the index of PASI scores: 1) 75% or more from the initial index - clinical recovery (lesions regressed, leaving only secondary depigmentation or hyperpigmentation) ; 2) at 74-50% - were noted a significant improvement in those cases when, after the treatment, most psoriatic plaques regressed, but large sections of infiltrated plaques remained residual poorly expressed, papular infiltration (corresponding stationary stage); 3) at 49-25% - a slight improvement in cases where there was a reduction of infiltration and blanching of the color intensity of psoriatic plaques, reducing flaking; 4) less than 25% - stated the lack of effect in cases where the lesion size did not change, remained infiltration.

The information of the therapeutic efficacy of treatment of psoriasis patients are shown in Table (Table. 1).

**Table 1. The results of treatment of patients with psoriasis**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| The treatment regimen | Clinical recovery | significant improvement | Insignificant improvement | With no effect |
| Аbs.. | % | Аbs. | % | Аbs. | % | Аbs. | % |
| 1st group (n=10) | 8 | 80 | 2 | 20 | 0 | 0 | 0 | 0 |
| 2nd group(n=10) | 6 | 60 | 3 | 30 | 1 | 10 | 0 | 0 |

From the Table 1 we can see that varying degrees of therapeutic effect was obtained in all 10 (100%) Group 1 patients. Clinical recovery was observed in 8 (80%) patients and a significant improvement in 2 (20%) patients (PASI reduction was 65-80%). Clinical recovery was observed in 8 (80%) patients and a significant improvement in 2 (20%) patients (PASI reduction was 65-80%). The patients from this group on the 4-5-th day from the beginning of the disease stopped the emergence of fresh elements. In the area of lesions was reduced hyperemia. Approximately on the 10th day was observed flattening and blanching of psoriatic elements. There was a central or peripheral completion of psoriatic rash, which was especially pronounced on the 14-15-th day. Complete clinical remission we were observed on the 27-28-day of treatment. This is manifested in the form of flattening and disappearance of psoriatic elements, in place of which there was only a secondary depigmentation or hyperpigmentation.

Clinical recovery of patients of the 2nd group observed in 6 (60%) patients (PASI reduction of 75%), a significant improvement - 3 (30%) patients (PASI reduction of 52%), a slight improvement in 1 (10%).

The average time resolution of psoriatic skin rashes in patients of Group 1 amounted 27,1±0,5 day. At the same time, the average time resolution of psoriatic skin rashes in patients of Group 2 accounted 32,6±0,2 day. So we can state the fact that the average duration of authorization of psoriatic lesions on the skin of patients receiving phototherapy an average of 5 days less in comparison with patients who were treated with drugs only basic therapy.

**Conclusions.** Treatment results have shown that therapeutic efficacy in the first group of patients with psoriasis who received basic treatment and phototherapy at 311 nm higher than that in the second group of patients who received only basic therapy. So as a result of treatment Group 1 clinical improvement was observed in 8 of 10 patients (80%) and in Group 2 - 6 (60%).

In this way, the best results have been obtained in the treatment of plaque-papular extensive psoriasis. With regard to of palmo-plantar psoriasis method narrow wavelength 311 nm phototherapy proved highly effective, since this form of psoriasis is characterized by resistance to various therapies.

The advantage of phototherapy at 311 nm is well tolerated, no side effects and minimal risk.

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