



IMPACT ON DLQI OF A MODIFIED IMMUNOCORRECTIVE COMPLEX TREATMENT DEVELOPED USING AN EXCIMER LASER FOR PATIENTS WITH VITILIGO.

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Abstract: For the period from 2020 to 2023, 118 patients (Group I (main group) n=60, Group II (comparison group) n=58) from patients with two clinical forms of vitiligo were examined. The study included patients of both sexes: 66 women and 52 men, aged 18 to 75 years (mean age 38.5 ± 6.8 years). In Group I (n=60), patients received combined phototherapy with narrow-band UVB therapy at 311 nm and therapy with an excimer laser with a length of 308 nm and, in addition, pentaxophylline, a minipulse corticosteroid therapy (dexamethasone) with topical therapy of 0.1% tacrolimus ointment. Group II (comparison group), where patients received combined phototherapy - narrow-band UVB therapy 311 nm and therapy with an excimer laser with a length of 308 nm. and topical therapy with tacrolimus ointment. It also greatly affects the dermatology life quality index (DLQI) of vitiligo patients. Before treatment, the mean value of DIQ was 10.9 ± 3.7 and 10.6 ± 2.0 points in both groups, which, according to the assessment scale, corresponds to a strong negative effect of the disease on the life of the patient. At the same time, the average levels of this parameter in patients of group I decreased to 2.1 ± 0.7 points, and in Group II they were 3.3 ± 0.4 points.

Key words: vitiligo, immunocorrective complex therapy, excimer laser, UVB therapy, dermatology life quality index (DLQI)

Introduction

Vitiligo is characterized by acquired hypomelanosis, often symmetrical, with the appearance of white spots on the skin, which enlarge over time due to the dysfunction of epidermal melanocytes and, in turn, the dysfunction of hair follicles. According to the World Health Organization (WHO), patients with vitiligo make up more than 2% of the world's population, and in southern countries and regions it is 3-4% [6,12,15]. The incidence of vitiligo is highest in Central Asia and reaches 10% in some regions [1,3]. The development of the disease does not depend on the gender, age or race of the patient. In 2/3 of patients, the disease begins between 10 and 25 years of age and is observed in children under 10 years of age, including newborns and children of nursing age [9,13,14].

Vitiligo is immunological, genetic and metabolic of diseases combination as a result surface coming a lot factorial is a disease. In melanocytes regeneration and proliferation processes of violation existence and this in cells defects existence shows [8,11]. Vitiligo to the beginning some kind of impulse factors cause happening still unknown. A series of researchers to his opinion according to genetic factors and in the antioxidant system only defects this of the disease development reason not and external factors too of vitiligo manifestation to be for necessary [2,6,7,10,12]. Of the disease progressive development stage autoimmune and hidden inflammation processes plays a certain role [19,16].

Of course, genetic predisposition in the development of vitiligo important importance

occupation which of the factors is one too big important have _ Many scientific research results that's it showed that vitiligo family to meet level in 6-40% of cases observed and one egg from the cell advanced monozygotic twins between too illness cases note [4,16] . Etiology of vitiligo and pathogenesis until now complete own the proof not found due to , in dermatology this dermatosis treatment solution not done from problems one being remains _ High efficient and reliable treatment methods work not released new , pathogenetic point of view from the point of view proven treatment methods constant respectively search necessity shows .

Treatment of vitiligo is still one of the most difficult tasks for doctors and patients. The existing treatment methods are not perfect, and the significant negative impact of the disease on the quality of life of patients causes certain difficulties. Theoretically, the best results can be obtained at the stage without clinical signs, when melanocytes are preserved in the foci and an immune-mediated inflammatory reaction is noted, but it cannot be diagnosed clinically, since the depigmentation characteristic of this stage is still not clearly manifested . At the same time, it is possible to affect the initial process and slow down its development by using general therapy (phototherapy methods, systematic treatment).

In the progressive period of vitiligo, systemic corticosteroids are administered in a small amount of 2.5-10 mg twice a week, the ultimate goal of this treatment is to stop the progression of the disease. When patients received 10 mg of dexamethasone twice weekly, i.e. mini-pulse therapy, 88% of patients were shown to stop developing vitiligo [18,17]. As a result of the combined treatment of systemic corticosteroid therapy and physiotherapy with narrow-band UV rays, not only the development of vitiligo can be stopped, but also recovery - repigmentation can be achieved in the area of white spots [5,9]. Currently, the relevance of this disease is primarily related to the significant impact of vitiligo on the patient's psychological state and quality of life. An external cosmetic defect that attracts the attention of others leads to the development of clear psychoemotional deviations in the form of a disorder of social relations, restriction from social relations, labile psyche [14] .

Thus, despite the efforts aimed at identifying the pathogenesis of the worldwide dermatosis vitiligo and developing many treatment methods, this disease continues to be on the list of little-studied diseases.

The purpose of the study: to evaluate the effect of the modified immunocorrective complex treatment developed by the use of excimer laser for patients with vitiligo on the dermatological quality of life index of patients.

Material and methods

In our study, from 2020 to 2023, 118 patients (group I (main group) n=60 , group II (comparison group) n=58) with various clinical forms of vitiligo were studied. All patients underwent general clinical and immunological examinations. Before and after the treatment, patients underwent a series of general clinical examinations to determine the combined pathology of various organs and systems, and the identified pathological conditions were consulted by relevant specialties. In order to rule out concomitant diseases and contraindications, the following examinations were performed: general clinical and biochemical analyzes of blood, general urinalysis, instrumental examinations (ultrasound examination of the thyroid gland, abdominal organs, kidneys, pelvic organs, electrocardiography (ECG), if necessary) if so, the patients were given advice by a therapist, endocrinologist, gynecologist (urologist) and other specialists.

Patients in group 1 (main group) (n=60) received combined phototherapy - narrow-band UVB therapy with a wavelength of 311 nm and an excimer laser with a wavelength of 308 nm, and in addition, a daily dose of pentaxofylline 1200 mg (400 mg 3 times for 3 months) with minipulse corticosteroid therapy (dexamethasone 5 mg orally - 2 days a week from 3 to 6 months) local (3 to 6 months) treatment with ointment tacrolimus 0.1% was carried out.

In group 2 (comparison group) (n=58), patients received combined phototherapy - narrow-band UVB therapy with a wavelength of 311 nm and excimer laser with a wavelength of 308 nm and local treatment (from 3 to 6 months) with 0.1% tacrolimus ointment. The course of phototherapy received by patients in both groups did not last more than 20 weeks.

Phototherapy with 311 nm UVB rays was performed 3 times a week. Patients started phototherapy without a minimum erythematous dose. The initial dose was 0.05-0.1 J / cm² , then it was increased to 0.1 J / cm² when erythema did not occur, depending on the reaction of the skin to ultraviolet light. For

phototherapy, a general radiation booth (Kernel UV Phototherapy, MSLKN05 UVB/UVA 311 nm, China) equipped with fluorescent lamps operating in long and medium wavelength ranges was used. The structure of the cabin ensures an even distribution of UV rays (UVA, UVB, UVA + UVB, UVB 311 nm) over the entire surface of the skin. Sensors with monitors are installed on the outside of the cabin door, which allow you to monitor and take into account the intensity of UV radiation, as in any spectrum.

The excimer laser device is equipped with a convenient nozzle that forms a field radiation with an area of 3.2 cm^2 . The laser produces high-intensity radiation of $2-3 \text{ mJ/cm}^2$ (radiation head size $2.3 \times 2.3 \text{ mm}$). The pulse repetition rate is up to 200 Hz, the pulse duration is 30 ns. This type of phototherapy practice was carried out 2 times a week. It was started after determining the minimum erythematous dose (MED) to the skin outside the affected foci. To determine the MED test, 6 points are initially determined and evaluated 48 hours after irradiation with a $3 \times 3 \text{ cm}^2$ nozzle. The MED test is the area where the erythema is first detected, which is the individually determined dose for the patient. The course of phototherapy received by patients in both groups did not last more than 20 weeks.

The quality of life of patients with vitiligo was evaluated using the Dermatological Quality of Life Index (DHSI), for this purpose, questionnaires were administered to patients. This questionnaire was developed by UK researchers Finlay A. and It was proposed by Khan (1994) and adapted for use in the CIS countries by N.G. Kochergin in 2001. The questionnaire was administered before and after 6 and 12 months of treatment. The questionnaire consists of 10 criteria covering different aspects of the patient's life: professional, domestic, sexual, social, personal. The purpose of the study is to assess the extent to which the skin disease affects the patient's lifestyle.

For each question, 4 possible answers are offered, each answer is assigned from 0 to 3 points. The maximum score can be 30, the dermatological quality of life of the patient is inversely proportional to the accumulated points.

Analysis of DHSI values:

0-1 points - does not affect the patient's life;

2-5 points - the disease has a small impact on the patient's life;

6-10 points - the disease moderately affects the patient's life.

11-20 points - the disease strongly affects the patient's life

21-30 points - the disease affects the patient's life very strongly.

The dermatological index of quality of life is used as a criterion for evaluating the severity of the patient's condition, as well as for evaluating the effectiveness of treatment. At the same time, a decrease in DHSI values during treatment indicates that the patient's quality of life is improving.

Results

The final stage of our study was devoted to the analysis of the dynamics of the assessed quality of life of patients with vitiligo using the "Dermatological Quality of Life Index" questionnaire. The results are presented in Table 1.

In a study of dermatological quality of life index before and after treatment in patients with vitiligo, the mean scores of patients in the first ($n = 60$) and second ($n = 58$) study groups were 10.9 ± 3.7 and 10.6 , respectively, when studied before the start of treatment. It was ± 2.0 points.

DHSI values in both groups were significantly higher than those in controls. The higher the value of this indicator, the more the patient's quality of life is significantly lower.

Table 1

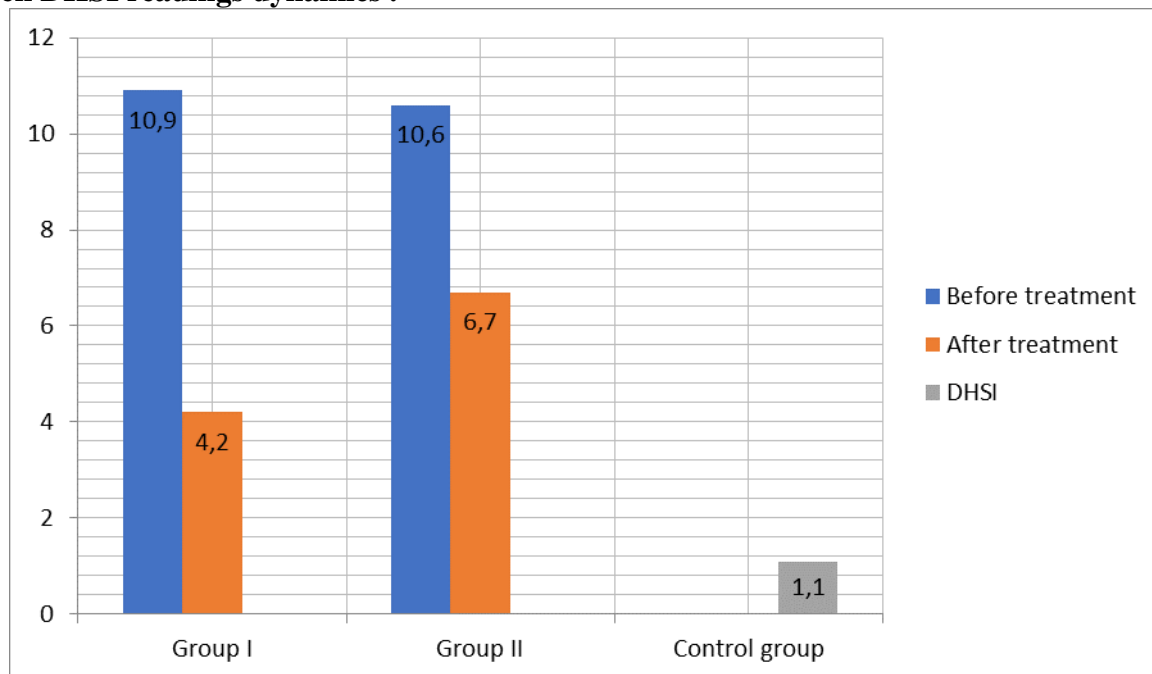
Dynamics of DHSI assessment (scores) before and after the developed modified immunocorrective complex treatment procedures

Indicator	I gu ru x (n=60)			II gu ru x (n=58)			Control gu ru x (n = 20)
	Before treatment	6 months after treatment	1 year after treatment	Before treatment	6 months after treatment	1 year after treatment	

DHSI	10,9 ± 3.7	4.2 ± 1.2	2.1 ± 0.7	10,6 ± 2,0	6.7 ± 0.6	3.3 ± 0.4	1.1 ± 0.14
				–			

Cure from treatments before I and II group in patients of DHSI average value suitable respectively both 10.9 ± 3.7 and 10.6 ± 2.0 points in the group organize did _ This is an assessment from the criterion apparently turiptiki , disease both group life to quality strong negative effect that he showed suitable will come Both in the group too cure 6 months after treatment dermatological life of quality index in the indicators positive change dynamics observed . Ours in our study I group (narrow -band 311 nm wave UVB therapy in length and wave excimer laser therapy with a length of 308 nm and topical 0.1% tacrolimus ointment and to this addition respectively taking pentoxifylline , dexamethasone did patients group) of the DHS index in patients decline dynamics obvious manifestation it happened 6 months old cure from treatments after this in the group of DHSI average value is 4.2 ± 1.2 points organize did and this II in the group patients achieved to 6.7 ± 0.6 points of DHSI relatively significant ($p < 0.05$) low indicators manifestation did _

Figure 1. Both with vitiligo in the group sick of patients cure from treatments before and then DHSI readings dynamics .



Cure treatments 1 year from the start after the patients both in the group too DHSI of values more obvious decline observed . This indicators while own in turn vitiligo with sick of patients life quality more improved shows . That's it with together , modified immunocorrective complex treatment : narrow with a range of 311 nm wave in length UVB therapy and wave length 308 nm has been excimer laser therapy , pentoxifylline , dexamethasone and topical 0.1% tacrolimus ointment with topical cure received group I in patients this of indicators average value up to 2.1 ± 0.7 points decreased and in group II narrow with a range of 311 nm wave in length UVB therapy and wave length 308 nm has been excimer laser therapy with combined phototherapy and 0.1% tacrolimus ointment with topical cure when transferred average indicators 3.3 ± 0.4 points organize did _ Both in the group too average DHSI indicators control group values with in comparison relative to higher indicators save left , har both in the group of indicators dynamics while vitiligo with sick of patients dermatological life quality index evaluated initial to the values relatively statistics in terms of positive values ($p < 0.05$) . it happened

Such of indicators change dynamics in patients disease clinical of appearances regression to the dynamics complete suitable will come Patients objective information and conducted questionnaire questionnaires UVB -311 nm and excimer laser from 308 nm used without combined phototherapy and 0.1% tacrolimus ointment with topical therapy and to this addition respectively pentoxifylline and dexamethasone with together conducted modulation immunocorrective complex cure

advantage showed .

In general received , transferred studies that's it showed that UVB -311 nm and excimer laser from 308 nm used without combined phototherapy and 0.1% tacrolimus ointment with topical therapy and to this addition respectively pentoxifylline and dexamethasone with together conducted immunocorrective complex cure this in the group of patients dermatological life of quality significant level improvement with together will come

Cure from treatments before and after indicators compared to , they between statistics in terms of significant differences was determined (10.9 ± 3.7 ha 2.1 ± 0.7 and 10.6 ± 2.0 respectively relative to values of 3.3 ± 0.4 changed $p < 0.05$).

UVB 311 nm and 308 nm excimer laser using combined phototherapy and 0.1% tacrolimus ointment with topical cure and to this addition respectively pentoxifylline and dexamethasone with treatment as a result index 5 times or by 80 % decreased . UVB 311 nm and 308 nm excimer laser using combined phototherapy and 0.1% tacrolimus ointment with topical cure conducted in patients while DHSI 3 times the value or by 66.3 % decreased . So so , both in the group conducted cure as a result of the index significant decline observed , however main in the group patients themselves second group to his patients relative to more more convenient and more reliable feeling they did

So complete _ _ clinical improvement ($>96\%$ repigmentation) and significant in the form of improvement (repigmentation up to 75%) . of treatment received results all of patients combined phototherapy treatments from completion before and after dermatological life quality indexes level positive dynamics with confirmed . But UVB 311 nm and 308 nm excimer laser using combined phototherapy and 0.1% tacrolimus ointment with topical cure and to this addition respectively pentoxifylline and dexamethasone with immunocorrective complex cure received group I patients relative to high to advantage have it happened of indicators such dynamics in patients clinical of appearances improvement to the dynamics complete suitable was _

So in vitiligo _ depigment white of stains appear to be very difficult in order putable process is immunity _ system cells by means of happened has been in reactions sure in order not put changes with together will come Such reactions later on purposeful systematic and topical immunocorrective cure with together immunological inspections demand it does _ while own in turn depigmented white stain in the fields to tissues special autoimmune of reaction intensity reduces _

Work developed and offer done modified immunocorrective complex treatment : narrow with a range of 311 nm wave in length UVB therapy and wave length 308 nm has been excimer laser combined phototherapy , local 0.1% tacrolimus ointment and to him addition respectively pentoxifylline and dexamethasone together complex treatment of melanogenesis immune regulation to improve , cytokines balance to restore and immunity of processes negative consequences eliminate to develop , vitiligo in their furnaces repigmentation processes surface to come to strengthen and of the disease next to be repeated prevention to get directed .

Summary

The average value of DHSI in group I patients was 4.2 ± 1.2 points, which is significantly lower than that of patients in group II who did not receive immunocorrective treatment, the average value of DHSI was 6.7 ± 0.6 points ($p < 0, 05$) was.

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