ZQ-II

MEDICAL SKIN CARE

CLINICAL REPORT

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Biomedical Engineering Technology Research Center of Ministry of Health P.R.China
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CONTENT

Observation on the efficacy of skin recovery emulsion in the treatment of hormone dependence dermatitis

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[Abstract] Objective To understand the improvement of skin barrier function and clinical efficacy of ZQ-II skin recovery emulsion on facial hormone dependence dermatitis. **Methods** 58 patients with facial hormone dependence dermatitis were randomized into two groups. ZQ-II skin recovery emulsion and bufexamac ointment were applied topically. The improvement of skin barrier function (epidermal moisture content, lipid content, TEWL) and clinical symptoms and signs before treatment and on day 28 after treatment were compared. **Results** The skin barrier function of patients in the ZQ-II skin recovery emulsion treatment group was significantly improved after treatment ($P<0.05$); the improvement of clinical symptoms and signs was better than that of the bufexamac ointment group, and the difference was significant ($P<0.01$). **Conclusion** ZQ-II skin recovery emulsion can significantly improve the skin barrier function, has a good effect on the treatment of hormone dependence dermatitis, and is more acceptable to patients.

[Keywords] Dermatitis, hormone dependence, skin recovery emulsion

Ces dernières années, en raison de l'application généralisée et irrégulière de préparations glucocorticoïdes topiques, la dermatite de dépendance hormonale (DDH) a progressivement augmenté et est devenue une maladie courante en dermatologie. Caractérisée par des lésions polymorphiques, une dépendance aux glucocorticoïdes et des crises récurrentes, cette maladie affecte sérieusement l'apparence et la santé physique et mentale des patients, et est assez difficile à traiter en clinique. De mai à novembre 2013, l'auteur a utilisé l'émulsion cosmétique de récupération cutanée ZQ-II pour traiter 30 patients souffrant de dermatite de dépendance hormonale, et a obtenu de bons résultats. Le rapport est le suivant :

1 **Data** and Methods

1.1.1 Inclusion criteria All cases were from patients who were diagnosed with facial hormone dependence dermatitis in the dermatology clinic of our hospital from May to November 2013, and met the HDD diagnostic criteria [1]. Inclusion criteria: (1) A definite history of glucocorticoid use (topical application of glucocorticoid preparations > 2 months); (2) Glucocorticoid dependence or rebound phenomenon, that is, the condition improves after application of glucocorticoid, and the condition worsens after the drug is discontinued; (3) Subjective symptoms: burning sensation, itching, pain and tension. (4) Objective symptoms include erythema or flushing, desquamation, papules, pigmentation, epidermal atrophy, telangiectasia; (5) Age>18 years old; (6) Either sex; (7) Informed of the purpose and content of the study.

1.1.2 Exclusion criteria (1) Pregnant and lactating women; (2) Patients with other skin diseases on the face (acne vulgaris, rosacea, seborrheic dermatitis, tinea faciei incognito, etc.); (3) Those with a history of malignant tumor or HIV infection; (4) Those with severe diabetes, hypertension, or liver and kidney dysfunction; (5) Those who have used tripterygium wilfordii preparations, hormones, immunosuppressants, and anti-allergic drugs and other drugs prohibited for trials within 1 month and those who are allergic to any ingredient in the test drug or cream; (6) Those who are using or have used similar products 1 month before the experiment; (7) Those who need to receive facial topical hormone preparations during treatment.

1.1.3 Grouping There were 58 patients who met the above conditions, all of whom were outpatients in our department. Among them, 11 were males and 47 were females, aged from 18 to 58 years old, with an average age of 32.4 years; the duration of topical application ranged from 2 months to 4 years, with an average of 5.6 months; homemade cosmetics of cosmetology hospitals containing hormones were used in 9 cases, fluocinolone acetonide ointment in 8 cases, compound dexamethasone acetate cream in 7 cases, Pikangwang ointment in 5 cases, clobetasole propionate ointment in 5 cases, Elson cream in 4 cases, Pevisone ointment in 3 cases, and mixed use in 17 cases. They were randomly divided into a treatment group [30 cases, aged (33.6±5.35) years old] and a control group [28 cases, aged (30.78±7.60) years old] according to the order of visits. There was no statistically significant difference between the treatment group and the control group in age, gender, duration of disease, and symptom scores, and they were comparable.

1.2 Treatment method First discontinue hormone use and all chemical washes that may cause irritation. After normal skin cleansing, the patients in the treatment group were given a wet compress with mineral water for 15 minutes, and the remaining water was absorbed with a clean face towel. ZQ-II skin recovery emulsion was applied to the face in an appropriate amount, and gently massaged until absorbed, twice a day for 4 weeks. After normal skin cleansing, the patients in the control group were given a wet compress with mineral water for 15 minutes, the remaining water was absorbed with a clean face towel, and then bufexamac ointment was applied topically, twice a day for 4 weeks.

1.3 Observation and follow-up

1.3.1 Evaluation of skin barrier recovery: The epidermal moisture content, lipid content and transepidermal water loss (TEWL) at the highest point of the left cheekbone (this site is an affected site in all patients) was detected during the patient's first visit and the return visit after 28 days of treatment. All tests are carried out indoors where the room temperature is 23～25 ℃ and the humidity is 40%～60%, avoiding direct sunlight. Each parameter is repeated three times, and the average value is taken. The measuring instruments used are a Sclar moisture pen (Sclar, Japan) to measure the epidermal moisture content [%]; a Submeter instrument (Courega+Khazaka, Germany) to

measure the epidermal lipid content [ug/cm2]; a TewameterTM instrument (Courega+Khazaka, Germany) to measure Epidermal TEWL value [g/ (h. cm2)].

1.3.2 Evaluation of clinical efficacy: Subjective symptoms of the subject's skin are observed: itching, burning sensation, pain, tension; signs: erythema, papules, blisters, festering, exudate, scales, and scabs; scoring criteria: a score of 0~3 based on nonexistent, mild, moderate, and severe symptoms and signs. Observation time: observation was made once before treatment and on days 7, 14 and 28 after treatment,and the patient's clinical symptoms and signs were recorded in detail. The main evaluation indicators are the difference value and symptom score reducing index of the total symptom score (TSS) on day 28 after inclusion and treatment. TSS Symptom Score Reducing Index (SSRI) = (score before treatment - score after treatment) / score before treatment × 100%. Cured: SSRI 100%; Marked: SSRI 60% to 99%; Effective: SSRI 20% to 59%; Ineffective: SSRI<20%. Response rate = (number of cured cases + number of markedly effective cases) / total number of cases × 100%.

1.4 Statistical methods

The measurement data used the t test, and the count data used the $\chi 2$ test.

2 Results

2.1 The recovery of skin barrier function is shown in Table 1. As seen in Table 1, the difference between the two groups in epidermal moisture content, lipid content, and TEWL before and after treatment was statistically significant ($P < 0.05$).

Table 1 Comparison of skin moisture, lipids and TEWL before and after treatment between the two groups

Grouping	Skin moisture content (%)		Lipids (ug/cm²)		TEWL [g/(h·cm²)]	
	Before treatment	One month after treatment	Before treatment	One month after treatment	Before treatment	One month after treatment
Treatment group	19.33±4.67	32.05±3.05	78.07±14.03	112. 15±11.01	30.05±4.97	14.77±5.87
Control group	18.24±5.59	29.23±4.96	79.93±7.01	107.13±8.32	31.16±6.98	17.18±2.86
t value	0.820	2.372	0.645	1.967	0.693	2.008
P value	＞0.05	< 0.05	＞0.05	<0.05	＞0.05	<0. 05

2.2 Treatment outcome

2.2.1 The comparison of symptom scores between the two groups is shown in Table 2. As shown in Table 2, the difference in symptom scores between the two groups was very significant ($t=4.072$, $P<0.01$).

Table 2 Comparison of symptom scores between two groups ($\bar{X}\pm s$)

Group category	n	Before treatment	After treatment		
			7d	14d	28d
Treatment group	30	11.51±2.69	9.05±4.39	5.51±4.29	2.50±2.99
Control group	28	11.46±3.18	9.71±3.61	7.30±3.52	6.41±4.18

2.2.2 The comparison of response rates between the treatment group and the control group is shown in Table 3. As shown in Table 3, the difference between the treatment group and the control group was very significant ($\chi 2=7.656$, $P<0.01$).

Table 3 Comparison of efficacies between the treatment group and the control group [n(%)]

Group category	n	Cured	Marked	Effective	Ineffective	Response rate (%)
Treatment group	30	7 (23.33)	19 (63.33)	4 （13.33）	0	86.66
Control group	28	3 (10.71)	12 (42.86)	11 (39.29)	2 (7.14)	53.57

2.3 Adverse reactions: All patients in the ZQ-II skin recovery emulsion treatment group did not display allergic or irritant reactions during the treatment. Two cases in the bufexamac ointment group developed skin erythema, burning, pain and other irritant reactions on day 3 after treatment, which improved after discontinuation of use and 3 days of wet compressing, and did not reappear after reduction of the dosage as directed.

3.Discussion

The Guidelines for the Diagnosis and Treatment of Hormone Dependence Dermatitis by the Professional Cosmetology Group of the China Dermatology Association believe that improper use of glucocorticoids, improper selection of indications and medication sites, prolonged topical use or use of glucocorticoids as cosmetics are the main causes of HDD, which is primarily manifested as thinning

of the epidermis and dermis, impaired epidermal barrier function and telangiectasia [1]. In recent years, through the comparison of TEWL, histopathological changes, and electron microscopic observation of changes in lamellar body density between HDD patients and normal people, et al believe that compared with normal human skin, the skin barrier structure of HDD patients is damaged, and the recovery of the skin barrier is of great significance to the treatment of hormone dependence dermatitis [2].

The skin is the first barrier covering the human body. The skin barrier function, in a broad sense, refers to its physical barrier function and also includes the pigment barrier function, nerve barrier function and immune barrier function of skin and many other aspects related to skin function; externally, the skin barrier protects the body against damage due to external antigens and harmful factors, and internally prevents the loss of water, electrolytes and nutrients in the body. When various factors lead to changes in the structure and composition of skin tissue, the barrier function suffers damage, which can participate in or trigger the occurrence and development of various skin diseases to varying degrees, and moreover, cause a decline in the skin's ability to resist external physical and chemical stimuli and microbial invasion, the skin is sensitive and prone to inflammatory reactions; and at the same time, leads to TWEL increases, intercellular lipid decreases, dry skin, desquamation, and even a variety of skin diseases. In this study, the author observed the changes in the physical barrier function (epidermal moisture content, lipid content, TEWL) of the skin lesions before treatment and on day 28 after treatment of patient skin by non-invasive skin testing methods, and also confirmed that the physical skin barrier structure was damaged in patients with HDD patients and that ZQ-II skin recovery emulsion can significantly improve the physical skin barrier function.

The main ingredients of ZQ-II skin recovery emulsion are oligopeptide-1, hyaluronic acid (HA) and natural plant extracts (asiaticoside, aloe extract, plant sterols, bisabolol, hydrated jojoba oil). Oligopeptide is a kind of polypeptide widely present in humans and animals that can promote or inhibit the growth of many types of cells and is characterized by accelerating the healing of skin and mucous membrane wounds, promoting epidermal regeneration, eliminating wrinkles and anti-aging effects. The structure and biological activity of exogenous epidermal growth factor topical emulsion is highly consistent with that of endogenous ones. In vitro research results show that topical application of minimal amounts of epidermal growth factor can stimulate the proliferation of skin epithelial cells, fibroblasts and keratinocytes, and promote the formation of new blood vessels and synthesis of nucleic acid, protein and hydroxyproline, facilitate the regeneration of the epithelium, thereby accelerating the remodeling and healing of various wounds [3-4]. ZQ-II oligopeptide adopts microcapsules, liposomes and the latest bioengineering technology, and has better stability and permeability than oligopeptide lyophilized powder injections. HA is a glucosamine composed of D-glucuronic acid and N-acetylglucosamine disaccharide repeats, exists in the extracellular matrix and has significant moisturizing, anti-wrinkle and repairing effects. Moreover, it effectively reduces the secretion of inflammatory media. It plays an important role in angiogenesis, inflammation, cell migration, wound healing, immune response and tumor biology[5]. Natural plant extracts have good compatibility with human skin barrier lipids, supplement skin moisture and nutrients, and enhance skin barrier function. ZQ-II Skin recovery emulsion repairs and maintains the skin barrier function from both the epidermal layer and the sebaceous membrane. In this trial, ZQ-II skin recovery emulsion was used to treat hormone dependence dermatitis for 4 weeks. The skin barrier function was significantly improved after treatment ($P<0.05$), and the clinical response rate was 86.66%, which was better than the control group ($P<0.01$). It is an ideal choice for the treatment of hormone dependence dermatitis. Moreover, the product does not contain allergenic preservatives, hormones, heavy metals, hydroquinone, alcohol, pigments, essences and other such ingredients, has mild, comfortable, non-irritating effects, and is easily acceptable to patients.

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Analyzing the impact of hyaluronic acid on objective indicators of facial skin

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[Abstract] Objective To determine the impact of hyaluronic acid in external use on objective indicators of facial skin. **Methods** Twenty women with healthy skin were selected, and the skin detector from CK Company, Germany, was used to measure the changes in objective indicators of facial skin before and after applying hyaluronic acid. **Results** The skin's moisture content can be significantly increased at 30 minutes after applying the hyaluronic acid, and the moisture content remains high after 4 hours. After hyaluronic acid is applied, the TEWL (transepidermal water loss) index decreases significantly.

[Keywords] Hyaluronic acid; facial skin; moisture content; transepidermal water loss

Hyaluronic acid is primarily a polysaccharide composed of disaccharides, N-acetyl-D-glucosamine, and D-glucuronic acid and is an excellent skin moisturizing factorMoisturizing factor. It has the ability to absorb 500-1000 times its volume in water. Originally existing in the dermis of the human skin in a colloidal form, hyaluronic acid is responsible for storing water, increasing skin volume, and making the skin look full, plump, and elastic. Our Beauty Center uses hyaluronic acid provided by Yasha Biotechnology Co., Ltd. to observe various skin indicators before and after use. The analysis is below.

1 Materials and Methods

1.1 Material selection

30 ml Hyaluronic acid, provided by Yasha Biotechnology Co., Ltd. hygienic license number: GD·FDA (2006) WZZZ No. 29-XK-2787, production license number: XK16-108 9435, executive standard: QB/T2874 - 2004, production date 28-5-2013, shelf life of three years.

1.2 Instrument selection

Multi Skin Center MC760 skin detector from CK Company, Germany is applied.

1.3 Testing condition selection

Twenty women with healthy skin between the ages of 20 and 60 were selected and divided into four groups based on age. Clean the skin for measurement data before applying when room temperature, humidity, and air circulation remain unchanged. Then saturate the facial skin moisture with a gentle tap using a certain amount of purified water, apply 3-5 drops of hyaluronic acid, and take measurements after 30 minutes. Measure 3 times at the same position each time and record the average value.

2 Detection Results

2.1 Facial skin moisture determinations are shown in Table 1

Table 1 Facial Skin Moisture Determinations

Age groups	20–29 years old	30–39 years old	40–49 years old	50 years old and above
Before application	≧45	35±25	30±25	<30
30 minutes after application	≧90	70±25	50±30	<85
4 hours after application	≧60	60±10	60±20	<60

Analyzing measurement results: The outermost layer of the facial skin is the stratum corneum, which is composed of 5-10 layers of dead stratum corneum cells. Parallel to the skin, they overlap to act as a barrier, which will easily fall off, with moisture content that is only 20% that of other cells. After proper cleaning, apply 3-5 drops of hyaluronic acid immediately, and 30 minutes later, measure the saturation factor of moisture at the position, which reached more than 90%. After free activities lasting for more than 4 hours, the moisture content of the skin surface drops slightly, but more than 60% of moisture can still be retained on the surface of the facial skin.

2.2 Facial skin elasticity determinations are shown in Table 2

Table 2 Facial Skin Elasticity Determinations

Age groups	20 –29 years old	30–39 years old	40–49 years old	50 years old and above
Before application	≧80	70±20	60±20	<70
30 minutes after application	≧85	75±15	65±15	<75
4 hours after application	≧85	75±15	65±10	<75

Analyzing measurement results: Facial skin elasticity is determined by multiple factors. Heredity, human hormone secretions, sleep, and mental state will all have an impact on skin elasticity. However, when the aforementioned factors are the same, the objective indicators for applied hyaluronic acid indicate that a possibility exists that skin elasticity may increase due to the increase in skin moisture.

2.3 TEWL (transepidermal moisture loss) of facial skin determinations are shown in Table 3

Table 3 TEWL Facial Skin Determinations

Age groups	20 –29 years old	30 –39 years old	40 –49 years old	50 years old and above
Before measurement	≧8	8±2	8±2	8±2
30 minutes after application	≦4	4±1	4±2	4±2
4 hours after application	≦5	4±1	4±2	4±2

Analyzing the measurement results: The TEWL value is measured by touching the skin with a metal probe for 15 seconds, and the instrument gives the TEWL value for the skin. TEWL determinations are an important parameter to evaluate the water protection layer. A better skin moisture protection layer leads to a higher moisture content and a lower TEWL value. The measurement data suggests that after using hyaluronic acid, the TEWL value of the skin is half that from before, indicating that the skin surface TEWL ability is significantly reduced. Even after 4 hours, the TEWL data is still far lower than that from before use due to how the hyaluronic acid affects the skin surface.

2.4 Facial skin pigment determinations are shown in Table 4

Table 4 Facial Skin Pigment Determinations

Age groups	20－29 years old	30－39 years old	40－49 years old	50 years old and above
Before application	8±0	10±0	10±5	15±5
30 minutes after application	8±0	10±0	10±5	15±5
4 hours after application	8±0	10±0	10±5	15±5

Analyzing measurement results: Various factors affect facial skin pigments. Heredity and light intensity are decisive. Whitening, as people often say, most likely rely on superb makeup techniques. Applying hyaluronic acid on the face poses little impact on skin pigment.

3 Result Analysis

When the hyaluronic acid, provided by Yasha Biotechnology Co., Ltd., is utilized in the presence of sufficient purified water on the face, the moisture content of the skin can be greatly increased after 30 minutes, close to 100%. The moisture content decreases after 4 hours, but moisture content higher than that before application can also be maintained. Hyaluronic acid is effective in preventing skin TEWL. 30 minutes after application, the skin TEWL index is half that from before, and even 4 hours later, the skin TEWL index is still about 65% lower than that from before application. During this test, no adverse reactions on the facial skin was discovered, indicating that the product is safe.

References

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Clinical evaluation of oligopeptide-1 facial mask in wound care after laser surgery

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[Abstract] Objective To observe and evaluate the effectiveness and safety of oligopeptide-1 facial mask (medical cold compress) applied to wound care after laser surgery. **Methods** 28 patients with acne scars who received Er: YAG fractional laser treatment were selected and randomized into two groups. In the treatment group, an oligopeptide-1 facial mask was applied as a wet compress immediately after laser surgery, once a day for 3 consecutive days after treatment, and thereafter, once every 3 days for 2 weeks after treatment, 20 minutes each time; the control group received routine wound care after treatment. The symptoms and signs of the two groups of patients were recorded immediately after treatment, after wet compressing of the oligopeptide-1 facial mask, and at day 3 and day 7 after treatment. Moreover, wound healing was also recorded. **Result:** The scores of symptoms and signs of 28 patients, after wet compressing of medical cold compress, and at day 3 and day 7 after treatment, decreased compared with the scores immediately after treatment. The scores of the treatment group decreased significantly faster at all time points than the control group ($P<0.001$). In addition, the wound healing time of the treatment group was shorter than that of the control group ($P<0.05$). **Conclusion:** The oligopeptide-1 facial mask can be used for care after laser surgery to improve tingling, burning sensations, tension, erythema, edema, dryness, desquamation and other adverse reactions, and to accelerate the repair of wounds.

[Keywords] Er:YAG fractional laser; oligopeptide-1 facial mask

Modern lasers have made great progress in the field of dermatological aesthetics due to their good results and minimal trauma. Skin care after laser surgery is particularly important to improve the overall treatment outcome. Oligopeptide-1, an active protein widely present in living organisms, can promote the repair of tissues and the synthesis of DNA and RNA and protein in cells [1]. We selected patients with acne scars who received Er: YAG fractional laser treatment clinically, used the oligopeptide-1 facial mask (medical cold compress) for postoperative care, and evaluated its efficacy and safety. Now it is reported as follows:

1 Materials and Methods

1. 1 Case data and methods

All cases came from patients with acne scars who received Er: YAG fractional laser treatment in our clinic, a total of 28 cases. There were 10 males and 18 females. Aged 19-28 years old, averaging (23.5±2.8) years old. Inclusion criteria: ① Patients with acne scars who received Er: YAG fractional laser treatment; ②Those who have never previously used oligopeptide-1 products. Exclusion criteria: ① Those who are allergic to oligopeptide-1; ② Those who are in the acute phase of skin inflammation and are complicated by bacterial and/or viral infections that have not been effectively controlled. Rejection criteria: ① Persons with poor compliance; ②Persons who experience serious adverse reactions.

An open-labeled, randomized grouping experiment control was used. 28 patients were randomly divided into a treatment group and a control group, with 18 cases in the treatment group and 10 cases in the control group. There was no statistical difference in general conditions between the two groups of patients, and they were comparable.

1.2 Treatment method

After receiving Er: YAG fractional laser treatment, a wet compress was applied in the treatment group via medical cold compress for 20 minutes, thereafter once a day, and 3 days later, once every 3 days for 2 weeks; in the control group, no wet facial mask was applied after laser treatment. Both groups used mupirocin ointment on the wounds every day until scabs were formed, and at the same time, sunscreen cream was applied on the entire face.

1.3 Efficacy evaluation

Using a visual analog scale, the symptoms and signs of the two groups of patients were recorded immediately after treatment, 20 minutes after wet compressing, and at day 3 and day 7 after treatment. Including subjective symptoms: Itching, tingling, burning sensations, tension. The patient filled out a visual analog scale questionnaire; signs: Erythema, dryness, and desquamation were observed and scored by a designated physician. At the same time, the wound healing of the two groups of patients was recorded.

Scoring criteria: Doctors and patients evaluate the symptoms and signs after treatment based on a 10cm visual analog scale. Calculation of clinical efficacy index: SSRI= (Scores immediately after laser treatment - scores after N days of laser treatment)/scores immediately after laser treatment×100% [2]. SSRI≥90% is considered complete remission, SSRI 60% - 89% is considered basic remission, SSRI 20%-60% is considered partial remission, and SSRI<20% is considered non-remission. (Cases of complete remission + basic remission + partial remission)/total × 100% = response rate.

1.4 Statistical analysis

SPSS16.0 statistical software was used for statistical analysis of experimental data.

2 Results

2.1 Clinical efficacy

All 28 patients completed the experiment. The scores of symptoms and signs of patients in the treatment group at 20 minutes after wet compressing of medical cold compress and at day 3 and day 7 after laser surgery decreased compared with the scores immediately after laser surgery and the scores of the control group. Signed-rank sum testing of the paired data was used to compare the scores of the control group, immediately after laser surgery, at 20 minutes after wet compressing of the facial mask after treatment, and at day 3, respectively, and at $P<0.05$, the difference was statistically significant.

After laser surgery, immediately after 20 minutes of wet compressing of the facial mask, all clinical symptoms and signs of discomfort post-laser surgery were significantly improved (see Figure 1), including partial remission in 17 cases, and non-remission in 1 case, with a response rate of 94.44%. After Kruskal Wallis H rank-sum testing, $p<0.001$, the difference was statistically significant.On day 3 and day 7 after laser

treatment, the improvement rate of symptoms and signs such as pain and erythema of patients in the treatment group was higher than 90% (see Table 1), and the total response rate was 100%. Compared with the period immediately after laser surgery, through Kruskal Wallis H rank-sum testing, at P<0.005, the difference was statistically significant.

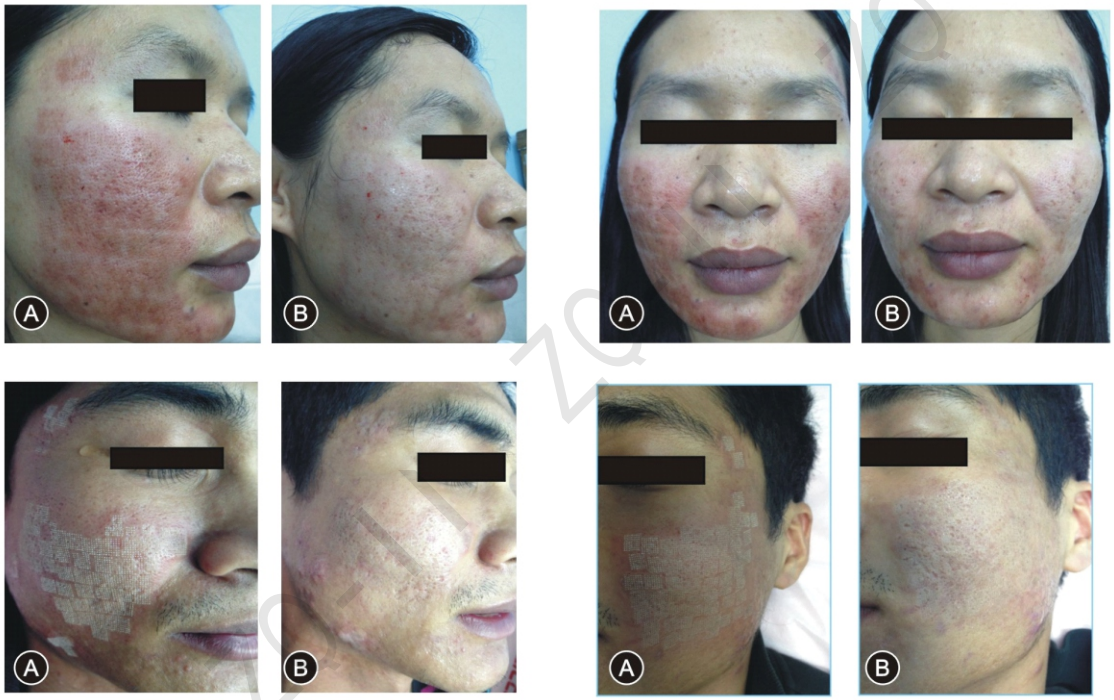

Figure 1 Pictures before and after wet compressing of EGF facial mask after Er: YAG fractional laser treatment
A: Immediately after laser surgery; B: 20 minutes after wet compressing of EGF facial mask

Table 1 Comparison of efficacies of medical cold compress on skin recovery after Er: YAG fractional laser treatment (cases)

Group category	Treatment time	Complete remission	Basic remission	Partial remission	Non-remission	Response rate(%)
Treatment group	Wet compressing of an oligopeptide facial mask for 20 minutes after laser surgery	0	0	17	1	94.44
(18 cases)	Day 3 after laser surgery	0	15	3	0	100
	Day 7 after laser surgery	10	8	0	0	100
Control group	20 minutes after laser surgery	0	0	1	9	10
(10 cases)	Day 3 after laser surgery	0	0	7	3	70
	Day 7 after laser surgery	0	7	3	0	100

2.2 Efficacy of medical cold compress on wound repair after laser surgery
The wound healing results of the two groups of patients are shown in Table 2. The average healing time of the treatment group was lower than that of the control group (P<0.05).

Table 2 Wound healing in the two groups after laser treatment

Group category	Number of cases	Healing time
Treatment group	18	5.2±1.8
Control group	10	7.3±2.2

Note: Compared with the control group, P<0.05

2.3 Adverse reactions and safety
There were no adverse reactions during the entire clinical observation period. Patient compliance is relatively good and subjective evaluation is good.

3 Discussion
Skin reactivity increases or inflammatory reactions will appear after laser surgery, and are particularly obvious immediately after and within a week after treatment. Therefore, the application of reparative skin care products after surgery can promote wound recovery

and improve treatment efficacy. Studies have suggested that epidermal growth factor (oligopeptide-1) can alleviate inflammation after laser surgery, reduce irritation, and promote skin healing after surgery, with its role in dermatological aesthetics including: skin rejuvenation, moisturizing, wrinkle elimination, repair of wounds, prevention of pigmentation, etc. [1].

The Er:YAG fractional laser is a pulsed laser with a wavelength of 2940nm. At a certain energy density, laser beams can penetrate through the epidermis and enter the dermis. The columnar thermal energy generated will cause a columnar thermal denaturation zone in this part or alternatively, at a certain energy density, the laser penetrates the skin to form a real pore. Regardless of thermal denaturation or real pore formation, this kind of damage will initiate the body's wound healing process. If these beams are arranged in a dot matrix, this fractional thermal stimulation will uniformly initiate the skin's repair process, and eventually entire skin layers including the epidermis and dermis will be reshaped and reconstructed, resulting in a treatment that improves the appearance of post-acne depressions and rough skin [3]. Treatment of acne depressed scars with Er:YAG fractional laser has become universally recognized and is a new method that strongly stimulates the skin by laser to achieve the purpose of treatment [4]. The treatment will also produce wounds, which will cause patients discomfort such as burning and tingling sensations.

At present, there is minimal care-related data in China on the application of oligopeptide-1 in the alleviation of various discomforts after laser surgery. The results of this study showed that after wet compressing of the oligopeptide-1 facial mask post-laser treatment and within 1 week after laser treatment, the scores of symptoms and signs of the treatment group and the control group gradually decreased over time, suggesting that the discomfort and adverse reactions caused by laser have been alleviated to varying degrees within 1 week, and the epidermis has been repaired and reconstructed. The clinical symptoms and signs of the treatment group improved more significantly, and the efficacy index was significantly higher than that of the control group ($P<0.05$). With a soothing and anti-irritation effect, the oligopeptide-1 facial mask can increase the moisture content of skin by promoting the biosynthesis of DNA, RNA and functional proteins (e.g. Hyaluronic acid, elastin, etc.), thereby increasing skin elasticity, moisturizing the skin, and reducing the discomfort induced by dryness. Therefore, the use of the oligopeptide-1 facial mask after laser treatment can promote the differentiation of keratinocytes and slow down the evaporation of moisture on the skin surface, to the benefit of skin soothing after treatment and enhance moisturizing.

The wound repair process is divided into 3 stages [5]: ①Fibrin filling; ②Cell proliferation; ③Tissue shaping. Oligopeptide-1 stimulates Epidermal cell (including epithelial cells and various mesenchymal cells from multiple tissue sources) to enter Cell division cycle through its receptor binding, initiates the activation and expression of some important functional genes in cells and secretion of biologically active proteins, etc., and promotes the linear arrangement of collagen fibers, rapid and regular growth of epidermal cells and timely coverage of the wound[6]. Therefore, oligopeptides significantly accelerate the healing of wounds after cosmetic surgery and plastic surgery and other skin wounds, and keep the wound surface flat and smooth, enabling the reduction or disappearance of scars and reduction of pigmentation. Furthermore, since the binding reaction of oligopeptide-1 and its cell receptor has a saturation mechanism, it will not cause excessive proliferation of target cells. The results of this study show that wet compressing of the oligopeptide-1 facial mask after laser surgery has an obvious wound healing effect, and the healing time is sped up by about 2 days ($P<0.05$). No scar hyperplasia was observed in the subsequent treatment courses, indicating that the oligopeptide-1 facial mask can effectively help repair the wound after laser surgery, and has good safety.

In summary, the medical cold compress can be used for postoperative care after laser treatment, improve itching, tingling, burning sensations, tension, erythema, dryness, desquamation and other adverse reactions, and promote wound repair. It is safe and effective, and has a positive effect in improving the tolerance and compliance of patients to laser treatment.

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Observation on the efficacy of skin recovery emulsion in the treatment of hormone dependence dermatitis

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[Abstract] Objective To Observe the of Curing Facial Hormone Dependence By Tacrolimus combined with Hydra cream. **Method:** By Brigade Laboratory Method, Parallelizing the oral capsule 8.8mg of Desloratadine citrate once everyday for both treating group & matched group objective. For the treating group, combined the external 0.03% & Hydra cream once a day. For the matched group, combined external twice a day. Treatment for 8 weeks, comparing the . **Results** The Clinical treatment rate was 87.3% for the treating group & 55.56% for the matched group. After treatment respectively, treating group has a significant effect Liver-suppressing and Mass-dissipating therapy.($\chi 2=19.8585$, $p<0.05$). **Conclusion** The Treatment of By Tacrolimus Combined With Hydra cream has significant effectiveness.It worths of extending .

[Keywords] Facial Hormone Dependence dermatitis; Tacrolimus; Reparative Factor Hydra cream

From May 2014 to May 2015, Tacrolimus combined with reparative factor hydra-cream was used in our hospital to treat hormone dependence dermatitis, and was compared with Butyl Flufenamate Ointment, which is hereby reported as follows:

1. Materials and Methods

1.1 Clinical data All of the 126 patients were patients with hormone dependence dermatitis in our hospital, which was comprised of 24 males and 102 females, aged 18-55 years old, with an average age of 32.5 years old. The hormone was applied topically for between 32 days - 17 months, with an average of 2.6 months. Patients were randomized into a treatment group (n=63) and a control group (n=63). Through analysis of variance (ANOVA) testing, there was no significant difference between the two groups of patients in terms of gender, age, time of onset, and disease scores, and they were comparable.

1.2 Diagnostic criteria [1]: Long-term repeated topical application of glucocorticoids on the face for > 1 month; the primary skin disease has been cured, the face has obvious bright red patches (erythema), the surface is smooth, and obvious changes such as capillary dilation and desquamation are visible; skin lesions of the patient mostly feel tingling, burn and tension, with few red pimples and occasional itching.

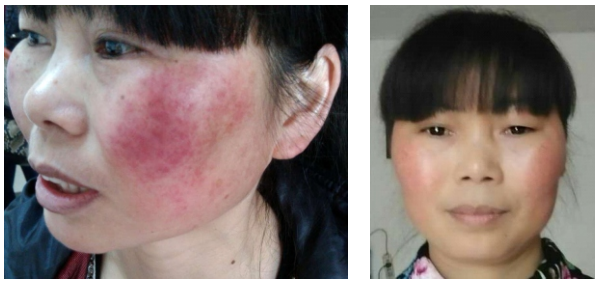
1.3 Treatment methods

1.3治疗方法

①Both groups of patients discontinued the use of all topical glucocorticoid preparations and all suspicious cosmetics, and avoided sun exposure.②Both groups of patients were given oral antihistamine Desloratadine Citrate Disodium capsules, 8.8mg, once a day. ③The treatment group was treated with 0.03% Tacrolimus Ointment topically, once a day; combined with reparative factor hydra-cream and skin restoring cream topically, once a day. ④The control group was given topical Butyl Flufenamate Ointment, twice a day.

1.4 Criteria for evaluation of efficacy

4 weeks constitutes a course of treatment. After 2 courses of treatment, on the basis of skin capillary dilation, erythema, desquamation, pigmentation, itching, burning, tension, and pain, the condition was scored according to a four-point scoring method: 0 points = none, 1 point = mild, 2 points = moderate, 3 points = severe. The calculation formula adopts the nimodipine method. Efficacy index = (disease score before treatment—disease score after treatment)/disease score before treatment×100%. Recovery: Efficacy index ≥90%; Marked: 90%> efficacy index ≥ 60%; Effective: 60%> efficacy index ≥ 20%; Ineffective: efficacy index <20%; Overall response rate = (recovery + marked) number of cases/total number of cases × 100%.



A: Treatment group before use of the product: B: Treatment group at one month after use of the ZQ-II product

1.5 Statistical methods The data was processed with SPSS 17.0 software, and X2 testing was used, $p<0.05$ indicates that the difference is statistically significant.

Table 1 Comparison of efficacy between the two groups of patients after treatment

Group category	Number of cases	Recovery	Marked	Effective	Ineffective	Overall response rate
Treatment group	63 cases	20	35	8	0	87.30%
Control group	63 cases	6	29	25	3	55.56%

*The comparison of efficacy between the two groups after treatment $p<0.05$, indicates that the difference is statistically significant.

2. Results

2.1 Clinical efficacy See Table 1. The overall response rate of the treatment group was higher than that of the control group, and the difference was statistically significant ($\chi 2=19.8585$, $p<0.05$). This indicates that Tacrolimus combined with reparative factor hydra-cream in the treatment of hormone dependence dermatitis has significantly improved the response rate of treatment for patients, and that it is safe and reliable.

2.2 Adverse reactions No obvious adverse reactions were found in the two groups.

3 Discussion

Facial hormone dependence dermatitis is a modern skin disease caused by the abuse of hormones. With regard to its mechanism, long-term repeated topical application of glucocorticoids inhibits the proliferation and differentiation of epidermal cells, results in the reduction and dysfunction of stratum corneum cells, destroys the epidermal permeability barrier and reduces the moisture content of the stratum corneum, inducing a series of inflammatory reactions [2]. Local topical application of glucocorticoids is one of the important treatments in dermatology, where their anti-inflammatory, immunosuppressive and anti-proliferative effects are mainly utilized. We found in our clinical observations that most patients have certain misunderstandings about the efficacy of glucocorticoid preparations. Moreover, the unstandardized use of the medication by clinicians, and long-term repeated topical application of hormones by patients lead to the increasing dependence of the skin on hormones, and once the use is stopped, the original disease will reappear.

In terms of the treatment of facial hormone dependence dermatitis, glucocorticoids should be first discontinued, and replaced with non-hormonal topical ointments that can be used on the face with less irritating effects. As the first non-glucocorticoid immunomodulator on the market to date, Tacrolimus features local immunomodulatory, anti-inflammatory and antipruritic effects. Tacrolimus, as a non-steroidal macrolide drug [3], has been proven to function by inhibiting T lymphocyte activation, inhibiting calcineurin phosphatase activity, preventing dephosphorylation and translocation of nuclear factor of activated T cells (NF- AT), and ultimately inhibiting the transcription of inflammatory cells. Moreover, Tacrolimus can inhibit the release of synthetic mediators in skin mast cells and basophils, and down-regulate the expression of FCεRI on the surface of Langerhans cells; it can also reduce the number of IL-8s and their receptors in keratinocytes to inhibit inflammatory reactions. It can assist topical reparative factor hydra-cream (epidermal growth factor EGF, collagen and hyaluronic acid) to repair epidermal tissue, accelerate the healing of skin and mucous membrane wounds, restore skin barrier function, and reduce the occurrence of skin sensitivity. EGF is a kind of polypeptide widely present in humans and animals that can promote or inhibit the growth of many types of cells, and can facilitate cell proliferation and epithelial regeneration [4]. On the one hand, it can reduce local inflammatory reactions and prevent infection; on the other hand, promote the repair and regeneration of damaged epidermis and shorten the healing time. The moisturizing repair cream is hydrating, water locking, nourishing to the skin, improves the feeling of tension and quickly forms a protective barrier on the skin. Desloratadine capsules are taken orally for anti-allergic treatment, and relieve facial itching and other uncomfortable symptoms. Desloratadine Citrate Disodium works by conversion into desloratadine in vivo. As a non-sedating long-acting tricyclic histamine antagonist and the active metabolite of loratadine, it has powerful and selective antagonistic effects on peripheral H1 receptors and anti-inflammatory effects. Due to strong anti-allergic effect, rapid onset of action, and long-lasting efficacy, it has, in recent years, found extensive application in relieving allergic symptoms in allergic diseases.

Facial hormone dependence dermatitis has now become the fifth most common outpatient skin disease after eczema, psoriasis, urticaria, and acne. In future clinical practice, we will continue exploration and summarization to find more effective and safer treatment regimens.

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Analysis of the Efficacy of Repair Factor Essence in the Treatment of Wounds after Hemangioma Laser Surgery

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[Abstract] Objective To study the effectiveness and safety of repair factor essence in the treatment of wounds after hemangioma laser surgery. **Methods** 96 child patients were randomly divided into two groups. In the treatment group, wounds were cleaned with water for injection and sprayed with repair factor essence every day after surgery. In the control group, wounds were only cleaned with water for injection every day. **Results** Compared with the control group, wound healing times were shortened significantly, and scars were rarely seen in the treatment group. **Conclusion** Repair factor essence use in the treatment of wounds after laser surgery can help promote wound healing and reduce scar formation.

[Keywords] Laser Repair factor essence Hemangioma

Hemangioma is a common congenital skin vascular disease, with an incidence rate of 1% to 2% in infants and young children, and a male/female ratio of approximately 1/3. It can occur in the maxillofacial region, head and neck, limbs, trunk and any part of the body, with 60% of hemangiomas occurring on the face [1]. There are many traditional treatment methods for hemangioma, including surgical resection, dye laser treatment, local injection of sclerotherapy agents, oral hormone therapy and cryotherapy, but each has its limitations. Since 2008, our department has been using the new long pulse width 1064nm laser to treat hemangiomas, and satisfactory efficacy has been achieved. However, skin injury due to laser treatment is also relatively common in clinical practice. Therefore, how to realize wound recovery after laser surgery as soon as possible and how to reduce the formation of postoperative scars are also important subjects of on-going clinical research. Our department performs topical application of the repair factor essence after laser treatment. Comparative studies have shown that repair factor essence in the treatment of wounds can help promote wound healing and reduce scar formation.

1 Materials and Methods

1.1 General clinical data There were 96 child patients, including 38 males and 58 females, the youngest was 10 days old, and the oldest was 8 months old, with an average age of 5 months old. Wounds occurred on the scalp in 8 cases, forehead in 3 cases, eyebrows in 3 cases, eyelids in 13 cases, cheeks in 6 cases, tempus in 3 cases, nose in 6 cases, ears in 2 cases, lips in 6 cases, mandible in 2 cases, shoulders in 3 cases, arms in 5 cases, chest in 3 cases, abdomen in 3 cases, back in 2 cases, hips in 3 cases, fingers in 5 cases, toes in 3 cases, knees in 1 case, thighs in 3 cases, vulva in 7 cases, and breasts in 6 cases, the tumor area was 2cm×3cm ~3cm×5cm; all child patients had not received other treatments, and there were no ulcerations of tumor surfaces. An open-label, randomized grouping experiment control was used. The 96 child patients were randomly divided into a treatment group and a control group. There was no statistical difference in general conditions between the two groups and they were comparable.

1.2 Surgical methods

1.2.1 Equipment The long pulse width Nd:YAG laser made by Cynosure, America was used, with a wavelength of 1064nm, a spot size of 5mm, a pulse width of 30ms, energy of 130—160J/cm2, and a treatment interval of 1 month.

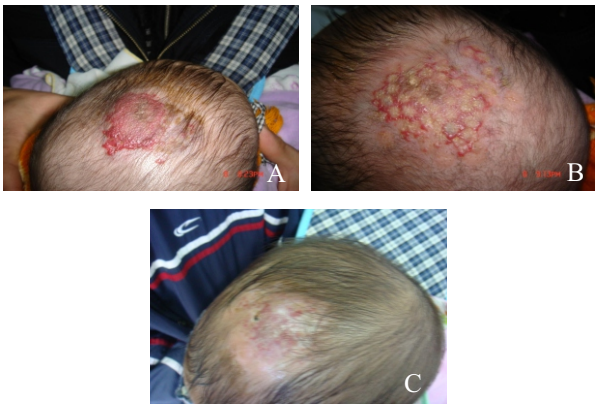
1.2.2 Treatment method The face is cleaned before surgery, and then the skin within the lesion area is routinely disinfected with 1 ‰ bromogeramine. The laser is started, an appropriate energy is used for treatment according to the color and depth of the skin lesions of the child patient, and irradiation is performed in a circle along the periphery of the lesion using the immediate reaction of pallor or darkening that occurs at the treatment site as a guide.

1.2.3 Wound care After the surgery, water for injection is used to clean the wound in both groups, 2-3 times a day, and in the treatment group, the wound is also sprayed topically with repair factor essence after cleaning.

1.3 Observation indicators ①Wound appearance: time for dissipation of redness and swelling and debridement. ② State and speed of wound healing is observed and recorded. ③ Scarring after wound healing.

2 Results

In contrasting the two groups, the time for dissipation of redness and swelling and debridement in the treatment group sprayed topically with repair factor essence was earlier than that in the control group, the average wound healing time was shorter than the control group by 4-5 days, and the difference was significant ($P<0.05$). The scar incidence rate was only 4.16% in the group using repair factor essence, significantly lower than 72.91% in the control group, and the difference was significant ($P<0.01$).



A: Before surgery; B: Immediate intraoperative response; C: One week after use of repair factor essence.

Figure 1 Healing of laser wounds treated with repair factor essence

Table 1 Wound healing time and number of scars in the two groups after laser treatment

Group category	Number of cases	Time for dissipation of redness and swelling (days)	Time for start of debridement (days)	Wound healing time (days)	Number of scars
Treatment group	48	2±0.7	5±1.3	7±1.6	2 (4.16%)
Control group	48	4±1.2	8±2.7	11±2.3	35 (72.91%)

3 Discussion

Hemangioma is a common disease in children. According to some scholars within China, hemangioma should be observed cautiously. Once the disease is found to grow, spread or deepen, effective measures should be taken proactively, without any age-related restrictions, to prevent serious consequences [2]. It is currently believed that, if a better curative effect for hemangioma is to be achieved, the key to its treatment is early treatment [3]. Control over the proliferation of lesions at the early stage of hyperplasia can reduce damage to the appearance of affected children, and allows for earlier paracmasis of lesions, shortening the regression process.

The traditional clinical treatment of hemangioma primarily includes surgical resection, local injection of sclerotherapy agents, oral hormones, etc., but each method has its limitations and more complications. Surgery often leads to local tissue defects and deformities, the formation of scars, and dysfunction; the injection of sclerotherapy agents has greater toxic side effects and a longer course of treatment, easily causing necrosis of normal tissues; oral hormone therapy poses greater side effects and widely varying therapeutic effects. The potential side effects of long-term heavy use of hormones include irritability, gastrointestinal discomfort, adrenal suppression, immunosuppression, hypertension, infection, cardiomyopathy and growth retardation [4].

Laser is a new method for the treatment of hemangioma, and its treatment principle is the principle of selective photothermal action. Laser energy is selectively absorbed by the hemoglobin in the blood vessels and causes the hemoglobin to undergo thermal coagulation, which brings about embolization in the local capillaries, and then the embolized capillaries are absorbed to achieve the purpose of treatment. Recently, it has been widely used in the clinical treatment of hemangioma, with good results. However, the wound healing time after laser surgery is longer and scars are more likely to occur.

Repair factor essence, a polypeptide that can promote cell proliferation and epithelial regeneration, has been widely used in clinical adjuvant therapy for a variety of wound healing and has achieved good results. Therefore, we envision that the topical spraying of repair factor essence on the wound after laser treatment can also alleviate local inflammation, promote wound repair, shorten healing time, and reduce scar formation. The practice of this group in our department has also demonstrated that timely topical use of repair factor essence after hemangioma laser surgery does have a good effect on wound healing.

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Clinical study on an L-ascorbic acid (vitamin C) and arbutin compound preparation combined with oligopeptides in the treatment of facial chloasma

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[Abstract] Objective To observe and evaluate the effectiveness and safety of an L-ascorbic acid (vitamin C) and arbutin compound preparation (ZQ-II Whitening Essence) combined with ZQ-II Repair Factor Essence for external use in the treatment of chloasma. **Methods** A randomized, open-labeled, self-control method was used to select 38 patients with epidermal and mixed chloasma , who were topically treated with Yashaer Repair Factor Essence and Whitening Essence twice a day, and their efficacy and safety were evaluated after 2 months. **Results** After 2 months, the overall response rate of treatment was 84.21%, wherein, the responses were basically cured in 1 case (2.63%), markedly effective in 11 cases (28.94%), improved in 20 cases (52.63%), and ineffective in 6 cases (15.79%); during the treatment, 3 patients (7.89%) experienced transient mild skin irritation to which no treatment was required. **Conclusion** ZQ-II Whitening Essence combined with ZQ-II Repair Factor Essence (spray) has satisfactory efficacy and good tolerance in the treatment of epidermal and mixed chloasma.

Chloasma is a common acquired hyperpigmented skin disease, called liver spots, blackish facial patches, malar rash, etc. in traditional Chinese medicine. It has a higher prevalence in Asian populations, and is more common in young and middle-aged women [1]. It is symmetrically distributed on the face, and clinically characterized by unevenly sized, indeterminately shaped light brown to light black patches without subjective symptoms, and its worsening after sun exposure. Without a known pathogenesis, it is generally considered to be caused by the combined action of multiple factors, such as genetics, mental state, drugs (e.g. contraceptives and anti-epileptics, etc.), diseases, sun exposure, pregnancy, poor lifestyle habits and improper use of cosmetics, etc. Endocrine disorders, skin microecological disorders and free radical damage are the primary causes. Chloasma develops slowly and affects facial aesthetics, and is characterized by refractoriness and being prone to recurrence. Treatment methods include oral and topical drug therapy, diet therapy and physical therapy. In this paper, the L-ascorbic acid (vitamin C) and arbutin compound preparation (ZQ-II Whitening Essence) combined with ZQ-II Repair Factor Essence (spray) was used to treat chloasma,with satisfactory treatment results. It is now reported as follows.

1. Materials and Methods

1. 1 Case data and methods

All cases came from patients with epidermal and mixed chloasma diagnosed in our clinic (with reference to the Criterion for Clinical Diagnosis and Efficacy of Chloasma (December 2003 revision) by the Pigment Disease Group of the Combination of Traditional and Western Medicine Dermatology [1]), a total of 38 cases, including 5 males and 33 females. The age ranged from 26 to 58 years (33.2±5.9) years, and the course of the disease was 6 months to 20 years, with an average of 7.1 years. Rejection criteria: Those with poor compliance; those who are allergic to the ingredients used; those who have used drugs for systematic treatment of chloasma in the past 3 months; those who have used retinoic acids in the past 3 months; those who have used physiotherapy for chloasma in the past 3 months.

An open-labeled, randomized, self-control study is used.

1.2 Treatment methods

The main components of ZQ-II L-ascorbic acid (VC) essence (hereinafter referred to as L-VC) are L-ascorbic acid (vitamin C), arbutin, vitamin B3, etc., and the main components of ZQ-II Repair Factor Essence (hereinafter referred to as Repair Factor) are oligopeptides, all of which are developed by Yasha Biotechnology Co., Ltd. The 38 patients applied Repair Factor and Whitening Essence to the skin lesions topically twice a day, and used sunscreen with SPF 30 or higher everyday during the treatment period.

1.3 Efficacy evaluation

All cases were followed up on at 2 months after treatment, the pigmentation reduction before and after treatment was evaluated, and adverse reactions were monitored and recorded. Basically cured: the pigmentation area fades >90%, and the color basically fades; Marked: the pigmentation area fades 60% to 89%, and the color becomes noticeably lighter; Improved: the pigmentation area fades 30% to 59%, and the color becomes lighter; Ineffective: the pigmentation area fades <30%, and the color change is not obvious [1]. Response rate = basically cured + marked + improved.

2 Results

2. 1 Clinical efficacy

The 2-month clinical study was completed in all 38 patients. Wherein, the responses were basically cured in 1 case (2.63%), markedly effective in 11 cases (28.94%), improved in 20 cases (52.63%), and ineffective in 6 cases (15.79%), with a response rate of 84.21%. See Figure 1 for typical cases.

2.3 Adverse reactions and safety

No serious adverse reactions were found during the entire clinical observation period, the patient compliance was relatively good, and the subjective evaluation was good. Out of 36 patients, 3 patients (7.89%) developed slight irritation and flushing at the skin lesions during the first week of use, which could be alleviated on their own without treatment, and the patients did not withdraw from the study.

3 Discussion

Chloasma, an acquired pigmentation skin disease, is divided into epidermal type, mixed type and dermal type. It is prevalent in young and middle-aged women, and manifested as symmetrical facial pigmentation. In less severe cases, it is light yellow or light brown, scattered on both sides of the cheeks in the form of spots and more common in the lower and outer parts of the eyes. In severe cases, it is dark brown or light black, without subjective symptoms, posing a significant impact on the appearance, life, mental state, and social intercourse of patients. The pathogenesis of the disease is complicated, and

the cause of the disease is still unknown. It is clinically characterized by refractoriness and being prone to recurrence. From May to November 2012, we conducted a clinical study on the effectiveness and safety of ZQ-II Whitening Essence combined with ZQ-II Repair Factor Essence (spray) in the topical treatment of chloasma. The results showed that the overall response rate was 84.21%, wherein, the responses were basically cured in 1 case (2.63%), markedly effective in 11 cases (28.94%), improved in 20 cases (52.63%), and ineffective in 6 cases (15.79%). During the treatment period, except for individual patients who experienced mild skin irritation at the initial stage of use, there were no other adverse reactions, and the patients had good compliance and high acceptance.

Vitamin C is currently a relatively classic and effective drug for the treatment of chloasma. With a powerful antioxidant effect, it can reduce the increase in melanin particle synthesis caused by the increase of free radicals, reduce darker oxidized pigments to light-colored reducing pigments, and inhibit the oxidation of dopa, reduce dopaquinone to dopa, thereby inhibiting the formation of melanin. It is suitable for the treatment of chloasma [2]. Easily absorbed by the skin, L-VC can exert spot-fading, anti-wrinkle and anti-aging effects when used topically [3]. Arbutin, a naturally occurring form of hydroquinone, can significantly inhibit the activity of human melanocytes and tyrosinase. It acts as a whitening active ingredient commonly used in whitening cosmetics in China and abroad, with a certain whitening effect. The whitening skin care market has almost been monopolized by arbutin [4]. Studies have shown that the response rate of topical arbutin alone in the treatment of chloasma can reach 71.4% to 75% [5]. Vitamin B3 can block the transfer of melanin particles from melanocytes to keratinocytes, thus removing the melanin particles in the epidermis. Therefore, ZQ-II Whitening Essence inhibits the production of melanin particles and their migration to the epidermis in multiple steps, and has been clinically proven to be reliable when used topically for chloasma.

Oligopeptides, a substance inherent in the human body, can activate proteases, accelerate protein synthesis, promote the proliferation and metabolism of epidermal cells, thereby effectively promoting the shedding of epidermis (especially stratum corneum cells) containing more melanin particles, and achieving the effect of reducing pigmentation [6]. Moreover, oligopeptides can effectively improve skin microcirculation, provide a healthy nutritional environment for epidermal cells, and prevent the deposition of pigment particles. Therefore, ZQ-II Repair Factor Essence (spray) containing oligopeptides combined with ZQ-II Whitening Essence containing L-VC, arbutin, and vitamin B3 has a synergistic effect on the treatment of chloasma.

In summary, ZQ-II Whitening Essence combined with ZQ-II Repair Factor Essence (spray) can achieve satisfactory efficacy in the treatment of epidermal or mixed chloasma, with good tolerance. Since chloasma is a type of cosmetic skin disease with a complex pathogenesis and is prone to recurrence, external treatment alone cannot achieve the purpose of avoiding recurrence. Therefore, on the basis of oral administration or other physical therapy, topical adjuvant treatment through a combination of ZQ-II Whitening Essence and ZQ-II Repair Factor Essence (spray) is worthy of promotion for clinical use.

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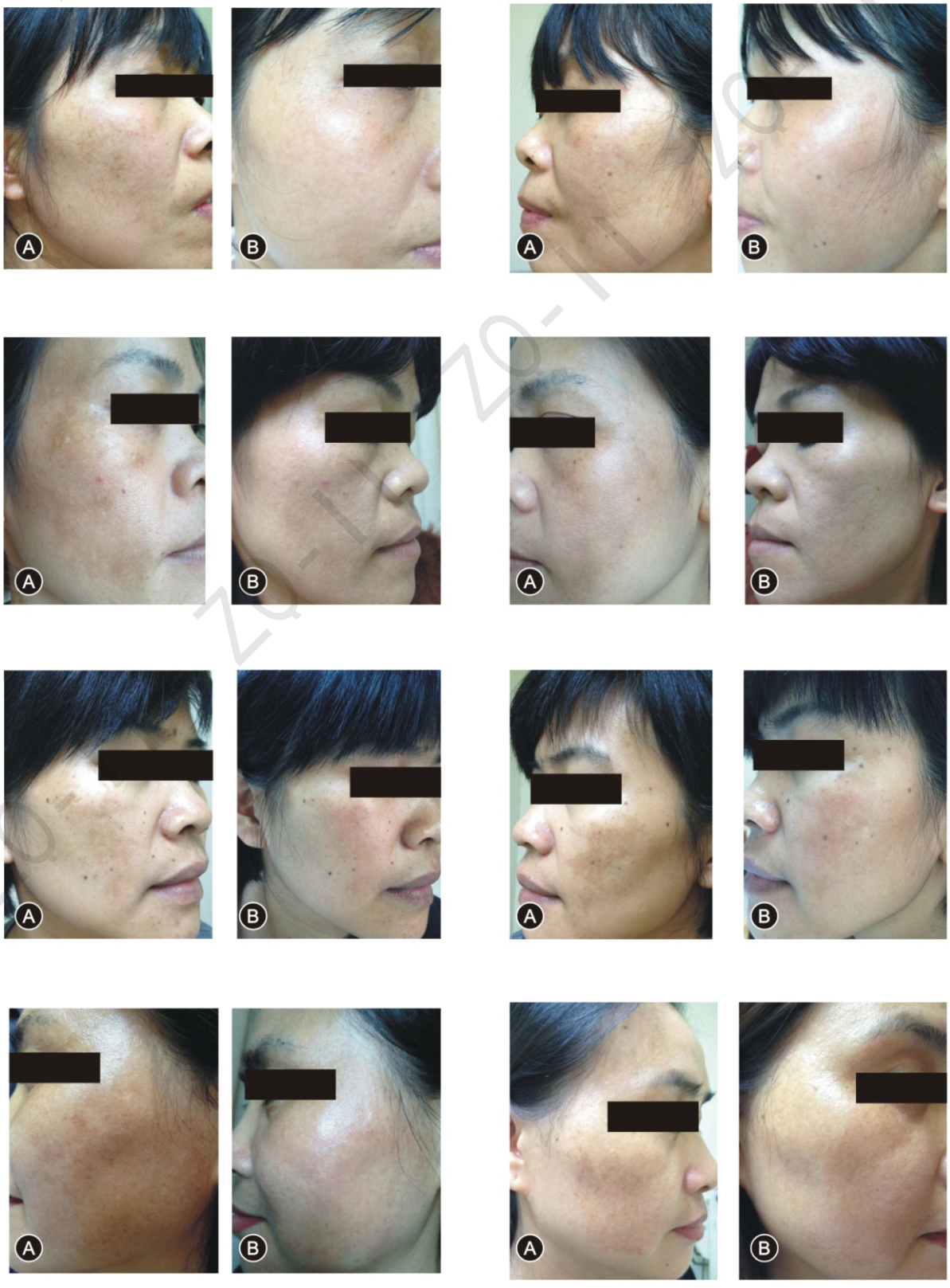

Figure 1: Treatment of chloasma with Whitening Essence
A. Before treatment; B. After treatment

Observation on the efficacy of ZQ-II anti-acne cream in the treatment of acne vulgaris

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[Keywords] ZQ-II anti-acne cream; viaminate and vitamin E cream; acne vulgaris.

Acne vulgaris is a chronic inflammatory skin disease involving hair-follicle sebaceous glands, usually occurs in seborrheic sites and is clinically manifested by follicular papules, acne, pustules, nodules, cysts, scars and other skin lesions. Acne is prevalent in adolescent men and women, and has a higher incidence in young people aged 15-30 years old. From May 2012 to April 2013, anti-acne cream was used in our clinic to treat acne vulgaris, and satisfactory results were obtained. The report is as follows:

1. Materials and Methods

1.1 Clinical data

All 126 patients came from our clinic and met Piusbury modified staging [1] Grade I-II diagnostic criteria for mild to moderate acne vulgaris. The skin lesions are scattered black- and white-head acne, papules, pustules and nodules on the face, with 10-25 Grade I rashes and 25-50 Grade II rashes. The patients are randomized into two groups: 76 cases in the experimental group,including 34 males and 43 females, aged 15-30 years old, with a course of disease of 3 months-10 years; 50 cases in the control group, including 21 males and 29 females, aged 14-33 years old, with a course of disease of 2 months-10 years. Exclusion criteria: patients with concurrent severe primary diseases of the cardiovascular, hepatic, renal, or hematopoietic systems, and mental illnesses; acne-like drug rashes caused by long-term use of glucocorticoid drugs; allergic constitutions; those who received other drugs for acne treatment within one month before hospital visit. There were no statistically significant differences between the two groups in age, gender, course of disease, acne-related factors and staging degree.

1.2 Methods

1.2.1 Treatment methods A randomized, open-labeled, parallel, controlled study was used. After all patients cleaned their facial skin, the experimental group applied acne cream once in the morning and once in the evening each day; the control group applied viaminate and vitamin E cream once in the morning and once in the evening for 8 weeks, with a follow-up visit once a week. The patients were advised to eat less sweet and oily foods and avoid acne-related cosmetics and drugs.

1.2.2 Criteria for assessment of efficacy Efficacy was determined based on the reduction rate of inflammatory skin lesions before and after treatment: The reduction rate of skin lesions (%) = (number of skin lesions before treatment - number of skin lesions after treatment)/number of skin lesions before treatment×100%, Basically cured: reduction rate of skin lesions ≥90%; Marked: reduction rate of skin lesions 70%-89%; Improved: reduction rate of skin lesions 30%-69%; Ineffective: reduction rate of skin lesions <30%. Response rate =(number of basically cured cases+number of markedly effective cases)/total number of cases×100%.

1.2.3 X2 testing was used for all data, and $P<0.05$ indicated that the difference was statistically significant.

2. Results

2.1 Clinical efficacy

After two weeks of treatment, inflammatory papules and pustules in the experimental group were significantly reduced. After 4, 6, and 8 weeks of treatment, the decrease in counts of inflammatory and non-inflammatory skin lesions in the experimental group was significantly lower than that in the control group. The response rate of the experimental group was 85.53%, and that of the control group was 60.00%. After X2 testing, the difference in efficacy between the two groups was statistically significant, and the experimental group was superior to the control group ($X2=12.04$, $P<0.01$) (Table 1)

Group category	Number of cases	Cured	Marked	Effective	Ineffective	Responserate (%)
Experimental group	76	25	40	9	2	85.53
Controlgroup	50	14	16	13	7	60.00

2.2 Adverse reactions

No systemic reaction was found in both groups. A total of 7 patients experienced local irritation reactions, including 4 cases (5.3%) in the experimental group and 3 cases (6%) in the control group. There was no statistically significant difference between the two groups ($X2=0.01$ $P>0.05$). All the reactions occurred in the first week of initial treatment, and were primarily manifested as mild erythema, itching, and dryness, which faded gradually with the treatment, without influence on the treatment.

3. Discussion

Acne is a common disease in dermatology with complex etiology. As a multifactorial disease, it is related to increased sebum secretion, abnormal keratinization of hair-follicle sebaceous glands, proliferation and inheritance of propionibacterium acnes, and also related to immunity[2], use of cosmetics, dietary stimulation and other factors. Therefore, the treatment often focuses on the suppression of abnormal keratinization of sebaceous glands, sebum secretion, anti-bacteria, anti-infection, and anti-androgen.

Acne cream quickly penetrates into the skin. Tea tree essential oil, honeysuckle, wild chrysanthemum extract, vitamin E, borneol, peppermint and other ingredients are characterized by antiseptic anti-inflammatory properties, inhibiting acne lactobacillus, and are pore refining, clearing heat and removing toxicity, repairing skin barrier functions, cooling and relieving, improving the comfort of acne-prone skin, effectively removing all kinds of acne, inhibiting the formation of acne, and suppressing the excessive secretion of sebum. Acne cream can treat acne vulgaris in an effective and safe manner,and is worthy of clinical application.

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Efficacy of Non-Ablative 1 540 nm Erbium-Glass Fractional Laser on Facial Post-Acne Lesions

SHI Yu, ZHANG Wei

[Abstract] Objective To evaluate the clinical efficacy and safety of non-ablative 1 540 nm erbium-glass fractional laser on treating facial post -acne lesions, including atrophic scars, enlarged pores, post -acne erythema and post -inflammatory hyperpigmentation (PIH). **Methods** A non-ablative 1 540 nm erbium-glass fractional laser was used to treat 28 patients. All patients were treated for 3-9 times with an interval of 4-week. The efficacy was assessed by A quartile grading scale, VISIA complexion analysis system and CK skin property 1 month after treatment. **Results** The efficacy rate of non-ablative 1 540 nm erbium-glass fractional laser was 14.29% for post-acne scars, 25% for enlarged pores, 34.76% for post -acne erythema and 18.18% for PIH. Compared to pre -therapy, there was significant difference in pores, erythema and purple mass, and there was positive correlation between efficacy and treatment frequencies ($P<0.05$). Compared to pre-therapy, there was no significant difference in trans-epidermis water loss (TEWL) and skin oil content ($P>0.05$). No severe adverse effect was observed. **Conclusion** Non-ablative 1 540 nm erbium-glass fractional laser was safe and effective in treating post-acne skin lesions, especially for post-acne erythema and enlarged pores.

[Keywords] Erbium glass; Fractional laser; Post-acne lesions

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Post-acne lesions refer to a series of skin changes left over in the skin of acne patients after inflammatory lesions have subsided, and mainly include atrophic acne scarring, post-acne erythema, hyperpigmentation and enlarged pores. The current common treatment methods include microdermabrasion, chemical peeling, surgical resection, etc., which are prone to risks of intraoperative bleeding, postoperative infection, and hyperpigmentation [1]. Fractional laser applied to the treatment of post-acne scarring has unique advantages [2], However, so far there have been no reports on use for post-acne lesions. We used a non-ablative 1540 nm erbium-glass fractional laser to treat the post-acne lesions, and achieved good results. The report is as follows.

1 Materials and Methods

1.1 Clinical data

A total of 28 patients from December 2014 to June 2016. Wherein, 8 were males and 20 were females, aged 20~42 years old, an average of (30.25±6.16) years old. The duration of disease is 1~5 years, with an average of (2.32±1.22) years. The skin type is Fitzpatrick III~IV. Inclusion criteria: clinical manifestations meet the diagnostic criteria for acne. After the primary skin lesions have basically subsided, the skin presents atrophic acne scarring (scarring is graded as mild to moderate), post-acne erythema, enlarged pores, post-inflammatory hyperpigmentation and other post-acne lesions. Exclusion criteria: patients with skin allergies or sensitivity, skin tumors, pregnant women, patients with mental disorders, a history of sun exposure, and a history of administration of photosensitive drugs. All patients signed an informed consent form before treatment.

1.2 Instruments and equipment

Non-ablative 1540 nm erbium-glass fractional laser (Paloma, USA), VISIA Skin Analysis System (Canfield, USA), C+K Multi Probe Adapter skin testing system (CK, Germany).

1.3 Methods

1.3.1 Preoperative preparation

The patient cleans the local skin of the treatment area and packs it with compound lidocaine cream for 1 hour.

1.3.2 Laser parameters and treatment methods

Non-ablative 1540 nm fractional laser, pulse width 15 ms, pulse repetition frequency 1500 Hz, spot density 100 PPA, initial energy 60~65 mJ/cm2, maximum energy 70 mJ/cm2. For comprehensive facial treatment, the light spot overlap should not exceed 10%, and the treatment should be repeated 3 to 4 times in each treatment area, at an interval of 4 weeks. A total of 3~9 treatments, with an average of (4.18±1.56) treatments. Wherein: 1 patient was treated 9 times, 2 patients were treated 7 times, 1 patient was treated 6 times, 6 patients were treated 5 times, 4 patients were treated 4 times, and 14 patients were treated 3 times.

1.3.3 Care after treatment

Cold compress applied for 10 minutes immediately after each treatment. After treatment, collagen repair mask (Zhuhai Yasha Biotechnology Co., Ltd.) is applied externally for 10 consecutive days, once a day, for 20 minutes each time. After treatment, patients need to protect against sun exposure and perform daily moisturizing.

1.4 Efficacy assessment

1.4.1 Clinician assessment

Pictures are taken before and after treatment, and a dermatologist carries out clinical assessment. Evaluation criteria [3]: Marked: improvement >75% over initial treatment; Effective: improvement 50%~75% over initial treatment; Improved: improvement 25%~50% over initial treatment; Ineffective: improvement <25% before initial treatment. Response rate % = (number of markedly effective cases + number of effective cases) / total number of cases × 100%

1.4.2 Patient self-assessment

The results of satisfaction evaluation of the overall efficacy are divided into 4 levels: satisfactory, relatively satisfactory, fair, and unsatisfactory.

Satisfaction rate = (number of satisfactory cases + number of relatively satisfactory cases) / total number of cases × 100%

1.4.3 VISIA Skin Analysis System Evaluation

Before each treatment and 1 month after the last treatment, the VISIA Skin Analysis System was used to take pictures from three angles,the front,the left and the right sides, which were archived [4]. A total of 8 indicators were analyzed: skin spots, wrinkles, texture, pores, UV spots, brown spots, erythemas, and purple mass. VISIA automatically generates an absolute score, which represents the area and intensity of the skin feature detection value in the selected area and is used as an analysis standard and statistical data. The larger the absolute

value, the stronger the skin feature count. Pores, texture and wrinkles are usually used as items to judge the smoothness of the skin, reflecting the degree of roughness of the skin. purple mass is related to the accumulation of oils and fats. Brown spots are dermal pigments. The erythema can reflect changes in post-acne erythema.

1.4.4 The C+K skin testing system detects TEWL and sebum

Each patient is tested for TEWL and skin oil content before each treatment and 1 month after the last treatment. After the subjects clean their face with the same facial cleanser, they wait quietly for 30 minutes in a room at a temperature of (24±2) ℃ and a relative humidity of 45% to 55%, and then are tested.

1.5 Statistical analysis

SPSS13.0 statistical software was used for analysis. The efficacy evaluation of the 4 adverse reactions was performed by chi-square test; VISIA values before and after treatment were compared by paired t-test, and the relationship between treatment times and efficacy was analyzed by a general linear model; independent sample t test was used for the grouping analysis of C+K skin detection. $P<0.05$ indicates that the difference was statistically significant.

2 Results

2.1 Clinician assessment

In this group of patients, atrophic scars, enlarged pores, post-acne erythema, and hyperpigmentation were improved to varying degrees after treatment, wherein, the efficacy for post-acne erythema is the best, and the efficacy for enlarged pores is better than that for atrophic scars (Figure 1). Chi-square testing showed that there was no significant difference in the efficacy between adverse reactions ($P>0.05$) (Table 1).

2.2 Patient self-assessment

Satisfactory in 6 cases, relatively satisfactory in 10 cases, fair in 10 cases, unsatisfactory in 2 cases, with a satisfaction rate of 57.14%.

2.3 VISIA Skin Analysis System evaluation

The differences in the absolute scores of wrinkles, pores, erythemas, and purple mass before and after treatment was statistically significant ($P<0.05$) (Table 2).

The post-treatment parameters were used as dependent variables, the number of treatments as independent variables, and the pre-treatment data as covariates. The results show that after controlling initial pore conditions, the number of treatments can significantly predict the final pore count ($P<0.05$); after controlling initial erythema conditions, the number of treatments can significantly predict the number of erythemas in the last time ($P= 0.01$); after controlling initial purple mass status, the number of purple mass treatments can significantly predict the number of purple masss in the last time ($P=0.01$). The remaining indicators are not significant That is, the efficacy of treatment of enlarged pores, erythema and purple mass is positively related to the number of treatments (Table 2).

2.4 C+K skin testing system detection

The results showed that the TEWL and sebum content before treatment were (14.9±5.16) and (13.28±4.75) respectively; after 1~3 treatments, the TEWL and sebum content were (15.12±5.42) and (11.78±4.71) respectively; after 4 treatments, the TEWL and sebum content were (15.4±5.06)), (10.36±3.34) respectively. There were no statistical differences between the 3 groups of data, indicating that there were no significant differences in transepidermal water loss (TEWL) and skin oil content before and after treatment ($P>0.05$).

2.5 Adverse reactions

Primarily included are temporary pain, erythema, and edema, which basically do not require special treatment, and usually recover on their own within 1 week. There were no serious adverse reactions such as hyperpigmentation and scars.

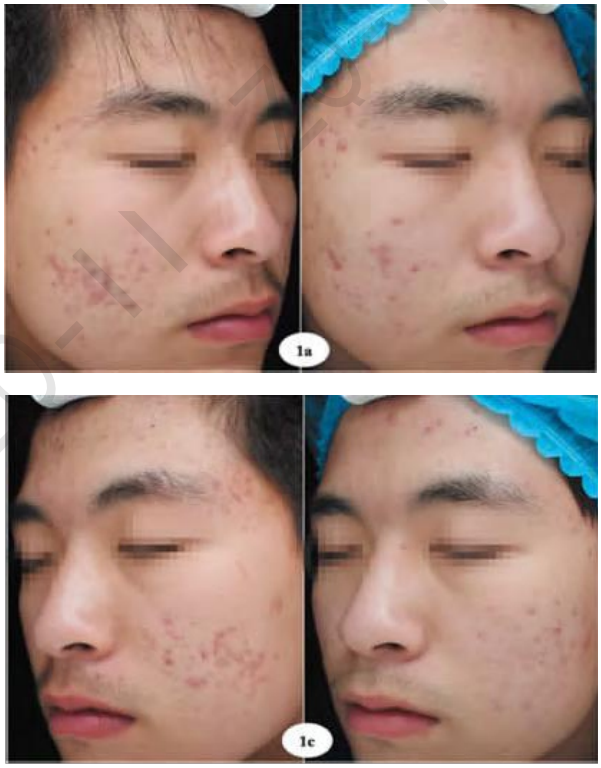

Fig. 1 Typical case 1: post-acne lesions (atrophic scars, enlarged pores, post-acne erythema) before and after treatment (4 times)

Table 1 Efficacies of different lesions

	excellent	effective	general	invalid	total	Totaleffective rate(%)
atrophicscars	0	4	9	15	28	14.29
enlargedpores	2	5	10	11	28	25
post-acneerythema	2	6	7	8	23	34.78
PIH	0	2	3	6	11	18.18

Table 2 The VISIA numerical comparison before and after treatment (x±s)

	beforetreatment	aftertreatment
spots	37.42±8.6	37.40±9.17
wrinkle	8.45±4.72	7.63±4.39
texture	10.21±8.92	10.35±8.94
pores	27.03±9.04	23.44±8.82
UV spots	16.70±6.19	15.37±6.3
brown spots	33.49±4.77	33.25±4.31
erythema	33.20±6.37	30.59±6.53
purplemass	12.72±8.74	10.51±7.88

3 Discussion

In recent years, the incidence of acne has continued to increase, and the appearance-impaired changes in skin that remain after acne are even more troubling. Post-acne lesions can even far surpass the acne itself in terms of the difficulty in treatment, the treatment cycle and the psychological impact on the patient. The 4 types of common post-acne lesions primarily include atrophic acne scarring, post-acne erythema, hyperpigmentation and enlarged pores. Fractional laser technology is mainly used in the treatment of scars. Using a unique fractional photothermal effect, it evenly divides a laser of a certain wavelength into several microbeams, which penetrate the epidermis and reach the dermis, forming multiple columnar

microscopic treatment zones (MTZs). MTZs evenly initiate the skin damage repair process, and then promote the regeneration and remodeling of collagen and elastic fibers in large amounts [5]. Fractional lasers can be divided into ablative fractional lasers and non-ablative fractional lasers. Despite being highly effective, ablative fractional lasers are also highly damaging to the skin, with a long healing cycle, and a high risk of hyperpigmentation. MTZs of non-ablative fractional lasers only produce coagulative necrosis instead of real vaporous holes, and retain the integrity of the stratum corneum, which is conducive to the rapid repair of damaged tissues. They are characterized by a short recovery time, small side effects, and high safety [6].

Atrophic acne scarring and enlarged pores are the most common post-acne lesions, mainly because acne inflammation involves deep tissues, leading to the breakdown of collagen fibers and the formation of depressions or atrophy on the surface of the stretched tissue [7]. The 1540 nm fractional photothermal effect can penetrate the epidermis to conduct thermal stimulation to the deep dermis without damaging the skin surface, and can repair scars safely and effectively. Studies have suggested that the 1550 nm fractional laser has the same effect on post-acne scarring in Asians as the CO2 laser, with a lower incidence of hyperpigmentation [8]. We found that the non-ablative 1540 nm erbium-glass fractional laser can effectively improve atrophic scarring and enlarged pores. After treatment, the pits become shallower or smaller, the pores shrink, and skin smoothness is improved. VISIA showed statistically significant differences in wrinkles and pores before and after treatment.

Post-acne erythema has always been a difficult problem in the treatment [9]. Currently, IPL and PDL are mostly used for treatment, but the clinical efficacy is limited and it is difficult to achieve complete regression. This is because the action depth or intensity of the photon and dye laser is limited; in addition, post-acne erythema is not only a simple local hemangiectasis and hyperplasia, but also a kind of scar-like vascular change and change in surrounding tissue [10]. The non-ablative 1540 nm fractional laser can penetrate the skin as deep as 1000 μm, not only acting directly on the dermal blood vessels, but also through photothermal effect and thermal coagulation of MTZs, to directly stimulate the hyperplastic blood vessels and surrounding tissues to achieve the purpose of structural remodeling. Studies have compared non-ablative fraction with PDL treatment on half of the face for post-acne erythema, and found that the satisfaction rate of patients after non-ablative fractional treatment is higher [11]. We found that the non-ablative 1540 nm fractional laser has the best efficacy in treating post-acne erythema. After treatment, the color of post-acne erythema becomes lighter and the area is reduced. Cold compress for 10 mins immediately after each non-ablative 1540 nm fractional laser treatment. After treatment, the ZQ-II medical cold compress is applied for 10 consecutive days, once a day, for 20 minutes each time. It can relieve pain and burning sensations after laser surgery, effectively abate erythema, and promote skin tissue repair. It is a safe and ideal repair product after fractional laser. In summary, non-ablative 1540 nm fractional laser combined with ZQ-II medical cold compress treatment has a certain effect on 4 common post-acne lesions, especially post-acne erythema and enlarged pores.

VISIA image analysis uses polarized light to display the blood vessels of the skin by imaging hemoglobin. In this group of patients, VISIA showed a reduction in the erythema, and the efficacy was positively correlated with the number of treatments. Therefore, we believe that within a safe range, an appropriate increase in the number of treatments can improve the efficacy of post-acne erythema.

Hyperpigmentation is also a common post-acne lesion and has been treated using chemical peeling in the past, but which can easily lead to aggravation of photosensitivity and transient acne. We found that after treatment, some of the hyperpigmentation patches diminished or reduced in size, or even completely disappeared. The possible mechanism is the use of microscopic epidermal necrosis fragments (generally containing keratinocytes, melanin and dermal components) formed by MTZs, which are excreted through the epidermis after 3~7 days of extrusion and accompanied by the removal of melanin and melanocytes [12]. In the past, there were quite a few reports on the effectiveness of treatment of chloasma by fractional laser [13-14]. However, there was no significant difference in the stain scores under the VISIA microscope before and after treatment. We suppose that this may result from the imaging principles of VISIA. VISIA skin image analysis is performed by three-angle imaging three times through white light, ultraviolet light and cross-sectional polarized light. White light imaging of visible spots on the skin surface, and ultraviolet light imaging of dermal spots. Therefore, the naked eye can only identify skin surface pigments, but cannot see dermal spots. In the future,in-depth studies can be conducted in combination with other detection methods.

Moreover, as the number of treatments increases, the amount of oil on the skin of patients decreases, possibly because the thermal effect of the infrared system laser selectively destroys the sebaceous glands, resulting in atrophy and decreased secretion of the sebaceous glands [15]. However, the C+K detection showed that the number of treatments did not cause significant differences in sebum volume. The reason may lie in that the small sample size results in statistical deviation, which needs to be further explored.

In summary, the non-ablative 1540 nm fractional laser has a certain curative effect on 4 common post-acne lesions, especially on post-acne erythemas and enlarged pores, and is a safe and effective treatment method worthy of clinical recommendation.

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Preventive and therapeutic effects of ZQ-II SOD spray against ultraviolet radiation

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[Abstract] Objective Ultraviolet radiation is primarily composed of long-wave ultraviolet (Ultraviolet A, UVA) and medium-wave ultraviolet (Ultraviolet B, UVB) rays. Ultraviolet radiation can produce reactive oxygen species and free radicals after irradiating the skin and thereby oxidize nucleic acids, proteins and lipids, leading to acute or chronic skin damage. Moreover, prolonged UV exposure can cause skin problems such as photoaging. This study is intended to evaluate the topical application of ZQ-II SOD spray in preventing and reducing the skin damage caused by long-wave ultraviolet (UVA) and medium-wave ultraviolet (UVB) irradiation. **Methods** In this study, 15 healthy volunteers with Fitzpatrick III type skin were recruited to participate in the experiment of ZQ-II SOD spray on preventing and reducing skin damage caused by ultraviolet radiation. In the experiment, ZQ-II SOD spray was applied to the treatment side of the subject's skin, which was irradiated with UVA and UVB 30 minutes later. After 24 hours, a professional physician scored the erythema of the irradiated skin. **Results** The results show that ZQ-II SOD spray has a protective effect against UVA ($P<0.01$) and UVB ($P=0.005$) radiation and also shows that ZQ-II SOD spray can reduce the skin damage caused by UVA ($P=0.02$) and UVB ($P=0.001$) radiation. **Conclusion** Topical application of ZQ-II SOD spray can significantly prevent skin damage caused by UVA and UVB, and reduce skin damage caused by UVB and UVA radiation.

[Keywords] superoxide dismutase; ultraviolet; sunburn; erythema.

1. Introduction

1.1 Ultraviolet

Ultraviolet (UV) is divided into three types: Ultraviolet A (UVA), Ultraviolet B (UVB) and Ultraviolet C (UVC) [1]. The wavelength of UVA: 320~400nm, the wavelength of UVB: 280~320nm, and the wavelength of UVC: 200~280nm. However, since ultraviolet with a wavelength less than 295nm is blocked by the ozone layer in the stratosphere during propagation, solar ultraviolet radiation received on land is mainly UVA and UVB.

The energy of UVA photons is about 1000 times less than that of UVB, but they can both penetrate the skin and cause skin aging through affecting the extracellular matrix (ECM) in the dermis [2]. Moreover, it is reported that UVA can generate reactive oxygen species (ROS), which can cause cell death through the occurrence of oxidation reactions. Therefore, UVA is considered to be one of the main factors in skin photoaging [3-5].

The skin is the largest organ in the human body and protects our body against damage from the external environment. The skin is composed of epidermis, dermis and subcutaneous tissue. The epidermis and the dermis are connected by a basement membrane zone; the epidermis is mainly composed of keratinocytes, melanocytes, Langerhans cells, Merkel cells, connections between keratinocytes and connections between them and dermis; the dermis is composed of collagen fibers, reticular fibers, elastic fibers, and fibroblasts. Studies have shown that fibroblasts are more prone to skin remodeling than keratinocytes under UVA irradiation.

To reduce ROS damage, the skin has also formed a large antioxidant enzyme network during the process of evolution, such as superoxide dismutase (SOD), catalase, and non-enzymatic antioxidants that can synergistically counteract the oxidative stress response [6]. A number of studies have shown that the skin SOD activity drops sharply after ultraviolet irradiation, which leads to oxidative stress and chronic damage [7-10].

In addition, studies have shown that SOD can be supplemented exogenously to reduce UV damage and protect keratinocytes. ZQ-II SOD spray is a combination formula of lyophilized powder and turmeric powder, and in a one-week clinical trial, emonstrated significant regulation of skin oil secretion and reduction of skin inflammation. Furthermore, ZQ-II SOD spray is now widely used in clinical practice. However, there are currently no relevant clinical studies that clarify its therapeutic effect. This experiment is designed to evaluate the preventive and reparative effects of the topical application of ZQ-II SOD spray on ultraviolet (UVA and UVB) damage.

1.2 Superoxide dismutase

Superoxide dismutase (SOD) is an enzyme that converts superoxide into oxygen and hydrogen peroxide through disproportionation reactions. It is widely present in various plants, animals and microorganisms. As an important antioxidant, it can protect cells from exposure to oxygen. Studies have proven [11] that the addition of SOD to cosmetics can cause four effects: First, the sunscreen effect is significantly enhanced after the addition of SOD to cosmetics. Illumination can darken the skin mainly because of the damage from oxygen free radicals to skin cells. SOD can effectively prevent the skin from being damaged by ionizing radiation (especially ultraviolet), thereby having a sunscreen effect;

Second, as an antioxidant enzyme, SOD can effectively prevent skin aging and the formation of pigmentation spots. This is also one of the reasons for its application in cosmetics. Third, with a significant anti-inflammatory effect, SOD has a good therapeutic effect on skin inflammation. Fourth, SOD can prevent the formation of scars and has certain therapeutic effects on most minor scars [12].

2 Materials and Methods

2.1 Reagents

Figure 2.1 ZQ-II SOD spray

ZQ-II medical radiation protection spray (SOD anti-radical radiation protection spray) (Figure 2-1) mainly consists of superoxide dismutase (activity must not be less than 1000U/ml) and its stabilizer, which exists in the form of lyophilized powder in the light-proof bottle A that can be covered with an atomizing pump, and other auxiliary materials (curcumin, sorbitol, potassium sorbate) exist in the form of an aqueous solution in the capped bottle B. When using, unscrew the cap of bottle B, pour the liquid of bottle B into bottle A, tighten the atomizing pump of bottle A, shake it up and down several times, dissolve and shake well, and then spray it for use. Spray 0.2ml per 10 square centimeters (approximately 0.2ml per spray). This product is provided by Zhuhai Yasha Biotechnology Co., Ltd., and is developed to prevent and reduce the damage to human skin and mucous tissue caused by free radicals generated by physical and chemical factors such as medical radiation.

2.2 Research object

In this clinical study, 15 healthy volunteers with Fitzpatrick III type skin were recruited. All subjects had no history of solar skin disease, no history of systemic or topical use of photosensitive drugs, and no history of phototherapy. They were not allowed to sunbathe and have their upper back and abdominal area exposed to sunlight within 2 months before the start of the experiment.

2.3 Instrument (light source)

Figure 2.2 SUV1000 solar ultraviolet simulator

The light source of the instrument is a SUV1000 solar ultraviolet simulator (Shanghai SIGMA High-tech Co.,Ltd.). The lamp is a xenon short-arc lamp with a power of 1000 W. The UVA/UVB radiometer is produced by Shanghai SIGMA High-tech Co.,Ltd. (calibrated by the American Solar PMA series radiometer). The MED measuring equipment is divided into 8 irradiation holes with successively decreasing doses, with a hole area of 1 cm2, radiation distance of 10 cm, voltage of 220 V, and current of 40 A. UVA power is 15.0~65.0 mw/cm2, UVB power is 0.5~3.4 mw/cm2, each hole is successively decreased by multiples of √2 [13].

2.4 Application of ZQ-II SOD spray and UV irradiation

The time of this study is from March 26, 2017 to May 18, 2017. The study sites are both sides of the abdomen and both sides of the upper back. The left side of the abdomen and the left side of the upper back are treated as the treatment sides, and the right side is used as the control side. ZQ-II SOD spray is applied to the treatment side skin of the abdomen and upper back. After half an hour of pretreatment, the treatment side and control side of the abdomen are irradiated with UVA generated by SUV1000 for 15 minutes and 23 seconds, and the treatment side and control side of the upper back are irradiated with UVB generated by SUV1000 for 17.6 seconds. The subjects apply ZQ-II SOD spray locally twice a day, and smear it to the skin of the erythema area on the treatment side of the abdomen and upper back for one week.

2.5 Assessment of erythema

When human skin is exposed to ultraviolet radiation, its blood vessels dilate causing erythema. In addition to erythema, several other events occur in the skin due to ultraviolet radiation, such as inflammatory response, increased vascular permeability, changes in blood flow, and damage to epidermal cells [14,15]. At approximately 24 hours (22-26 hours) after testing at the minimal erythema dose (MED), the degree of erythema is clinically evaluated and usually divided into 5 levels: 0: no erythema; (+): only perceptible erythema; 1+: erythema with clear boundaries; 2+: erythema with redness and induration (skin edema) on palpation; 3+: erythema with boundaries above the skin (skin edema) on palpation [16].

2.5 Statistical processing

According to the judgment of the classification of skin erythema, the result of erythema classification is converted into a linear level: 0 = 0, (+) = 0.5, 1+ = 1.0, 2+ = 2.0, 3+ = 3.0 [14,17]. The skin erythema on the left abdomen (UVA treatment group) and right abdomen (UVA control group) and on the upper left back (UVA treatment group) and upper right back (UVB control group) of the subject was collected respectively, the sum and mean scores of the partial erythema scores of each subject were obtained, skin monitoring conditions on day 1 and day 7 were acquired, and quantitative quality was described using mean and standard deviation. With regard to the difference, paired t-testing was used to compare the impact of UVA and UVB on skin erythema changes from day one to day seven. The subjective redness classification is converted into a linear level: 0 = 0, (+) = 0.5, 1+ = 1.0, 2+ = 2.0, 3+ = 3.0. Independent t-testing in SPSS 22 (SPSS Corporation, Chicago, USA) software was used for statistical analysis, and $P<0.05$ indicated that the difference was statistically significant.

3 Results

After 24 hours of UVA and UVB irradiation, 15 healthy volunteers received UVA and UVB assessments on the treatment side and control side of the abdomen. According to the clinical evaluation of the degree of erythema, assessment is usually divided into 5 levels: 0: no erythema; (+): only perceptible erythema; 1+: erythema with clear boundaries; 2+: erythema with redness and induration (skin edema) on palpation ; 3+: erythema with boundaries above the skin (skin edema) on palpation. We observed the degree of erythema as an index for seven consecutive days. The results on day 1 showed that ZQ-II SOD spray can prevent skin damage caused by UVA and UVB irradiation. The results from day 2 to day 7 show that ZQ-II SOD spray can accelerate the repair of skin damage after UVA and UVB irradiation.

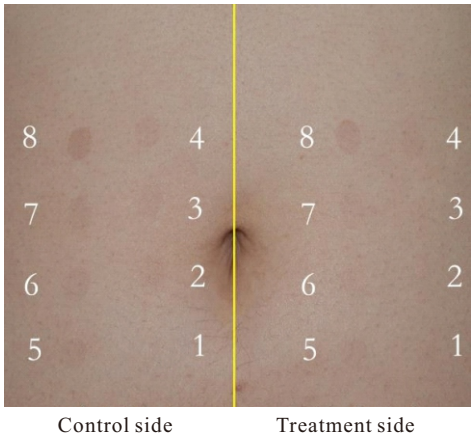
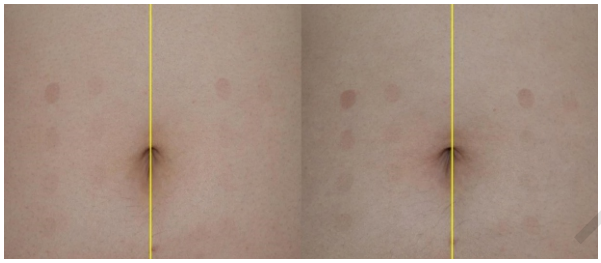


Figure 3-1 The erythema of a subject's skin 24 hours after UVA irradiation

Figure 3-1 shows the erythematous response of the skin of a skin type III volunteer 24 hours after UVA irradiation. Evaluation of subjective erythema in the treatment group (Nos. 1-8): 0; 0; 0; (+); (+); (+); (+); 1+. Evaluation of subjective erythema in the control group (Nos. 1-8): 0; (+); (+); (+); (+); (+); (+); 1+. We can see that there is more skin damage in the control group than the treatment group. This result proves that ZQ-II SOD spray has a protective effect against UVA radiation.



Control side Treatment side Control side Treatment side

Figure 3-2 Comparison of one day (left picture) and one week (right picture) after

Table 3-1 UVA irradiation of a subject

UVA Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean	t	p
Mean	Treatment side	0.32	105	0.17	0.02	-22.30	<0.01
	Control side	0.59	105	0.19	0.02		
Sum	Treatment side	2.52	105	1.34	.13	-22.30	<0.01
	Control side	4.70	105	1.52	.15		

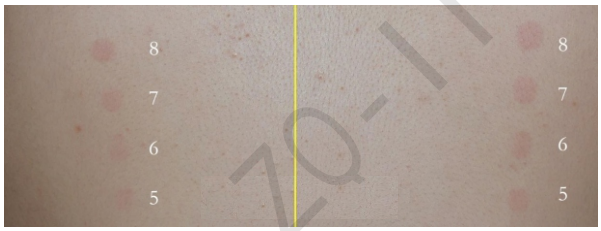
The score of erythema on day 7 on the treatment side skin is lower than that of erythema on day 7 on the control side skin, indicating that ZQ-II SOD spray has a protective effect on skin against UVA irradiation.

Table 3-2 Differential analysis of the mean score and summary between the UVA treatment group and the control group

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean	t	p
Day1	Sum of treatment group	3.93	15.00	1.40	0.36	14.00	<0.01
	Sum of control group	5.47	15.00	1.56	0.40		
	Mean of treatment group	0.49	15.00	0.17	0.05	14.00	<0.01
	Mean of control group	0.68	15.00	0.20	0.05		
Day7	Sum of treatment group	1.63	15.00	1.01	0.26	14.00	<0.01
	Sum of control group	4.03	15.00	1.42	0.37		
	Mean of treatment group	0.20	15.00	0.13	0.03	14.00	<0.01
	Mean of control group	0.50	15.00	0.18	0.05		
Day1 – Day7	Dsum of treatment group	2.30	15.00	1.53	0.40	14.00	0.02
	Dsum of control group	1.43	15.00	1.87	0.48		
	Dmean of treatment group	0.29	15.00	0.19	0.05	14.00	0.02
	Dmean of control group	0.18	15.00	0.23	0.06		

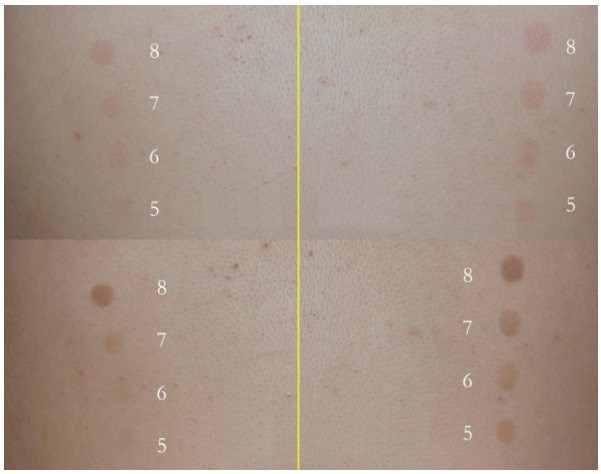
The conditions of the abdominal skin monitored on day 1 and day 7 were compared respectively, and it was found that the erythema scores of the treatment side were lower than those of the control side; after further comparison of the changes in the abdominal erythema scores on day 1 and day 7, the decline in erythema scores of the treatment side skin was found to be greater than that of the control side skin, indicating that ZQ-II SOD spray has a relatively good protective effect against UVA irradiation, and can also enhance skin recovery ability.



Control side Treatment side

Figure 3-3 The erythema of a subject's skin 24 hours after UVB irradiation

Figure 3-3 shows the erythematous response of the skin of a skin type III volunteer 24 hours after UVB irradiation. Evaluation of subjective erythema in the treatment group (Nos. 1-8): 0; 0; 0; 0; (+); 1+; 1+; 1+. Evaluation of subjective erythema in the control group (Nos. 1-8): 0; 0; 0; 0; 1+; 1+; 1+; 1+. We can see that there is more skin damage in the control group than the treatment group. This result proves that ZQ-II SOD spray has a protective effect against UVB radiation.



Control side Treatment side

Figure 3-4 Comparison of one day (picture above) and one week (picture below) after UVB irradiation of a subject

Table 3-3 Differential analysis of erythema between the UVB treatment group and the control group

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean	t	p
Mean	Treatment side	0.37	105	0.19	0.02	-14.08	<0.01
	Control side	0.56	105	0.22	0.02		
Sum	Treatment side	2.93	105	1.51	0.15	-14.08	<0.01
	Control side	4.49	105	1.76	0.17		

The score of erythema on day 7 on the skin of the left side of the back is lower than that of erythema on day 7 on the skin of the right side of the back, indicating that ZQ-II SOD spray has a protective effect on skin against UVB irradiation.

Table 3-4 Difference analysis of the mean score and summary between the UVB treatment group and the control group

Paired Samples Statistics

Day1	Mean of treatment group	0.61	15	0.20	0.05	-3.37	0.005
	Mean of control group	0.70	15	0.25	0.07		
	Sum of treatment group	4.87	15	1.58	0.41	-3.37	0.005
	Sum of control group	5.60	15	2.02	0.52		
Day7	Mean of treatment group	0.23	15	0.12	0.03	-6.68	<0.001
	Mean of control group	0.45	15	0.17	0.04		
	Sum of treatment group	1.80	15	0.98	0.25	-6.68	<0.001
	Sum of control group	3.63	15	1.34	0.35		
Day1 – Day7	Dmean of treatment group	0.38	15	0.19	0.05	4.04	0.001
	Dmean of control group	0.25	15	0.23	0.06		
	Dsum of treatment group	3.07	15	1.51	0.39	4.04	0.001
	Dsum of control group	1.97	15	1.84	0.47		

The conditions of the skin exposed to UVB monitored on day 1 and day 7 were compared respectively, and it was found that the erythema scores of the treatment side were lower than those of the control side; after further comparison of the changes in the UVB irradiation erythema scores on day 1 and day 7, the decline in erythema scores of the treatment side skin was found to be greater than that of the control side skin, indicating that the protective spray has a relatively good protective effect against UVB irradiation, and can also enhance skin recovery ability.

4. Discussion

This clinical trial intends to clarify the reparative effect of ZQ-II SOD spray on skin damage caused by UVA and UVB radiation and seborrheic dermatitis. First, UVA and UVB radiation can cause photodamage to human skin [18]. Photoaged skin becomes rough, pebbly and coarse and shows irregular hyperpigmentation and telangiectasia, as well as thick and fine wrinkles [19]. Therefore, cosmetic skin problems due to photoaging and skin problems caused by photodamage are the reasons that impel patients, especially female patients, to visit the clinic. Previous studies have shown that UVA is one of the causes of photoaging of human skin. Furthermore, studies believe that long-term light exposure is related to basal cell carcinoma, squamous cell carcinoma, and melanoma. The results of this experiment show that ZQ-II SOD spray has a protective effect against UVA ($P<0.01$) and UVB ($P=0.005$) irradiation, and also show that ZQ-II SOD spray can reduce skin damage caused by UVA and UVB irradiation. ZQ-II SOD spray can form a cellular antioxidant defense by supplementing superoxide dismutase exogenously and reduce the acute skin damage and erythema caused by UVA and UVB. According to the results of this experiment, ZQ-II SOD spray can repair human skin photodamage caused by UVA ($P=0.02$) and UVB ($P=0.001$), indicating the important role of ZQ-II SOD spray in the treatment of photodamage. By supplementing the antioxidant defenses of keratinocytes, superoxide dismutase reduces UV-induced and UV-caused skin damage and erythematous responses. In summary, the above results once again emphasize the importance of superoxide dismutase in protecting human skin from UV damage, and also show that superoxide dismutase is a promising strategy in the healing process after sunburns.

5. Conclusion

Topical ZQ-II SOD spray can prevent skin damage caused by ultraviolet (UVA and UVB) radiation, and also promote skin damage recovery.

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Clinical observation of Yumin liquid dressing combined with LED red and blue light in the treatment of facial corticosteroid addictive dermatitis

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[Abstract] Objective To observe the clinical effects of Yumin liquid dressing combined with LED red-blue in patients with facial corticosteroid addictive dermatitis. **Methods** 60 patients were randomly divided into two groups, 30 patients in a treatment group were treat with LED red-blue light combined with Yumin liquid dressing; 30 patients in a control group were treated with LED red - blue light combined with Vitamin E cream. The treatments lasted four weeks. **Results** At four weeks after treatment, the response rates of the treatment group and the control group were respectively 66.7% and 26.7%. There were significant differences between the two groups (P<0.01). There was rapid effect for erythema and pimples, a slightly slower effect for desquamation and exudation in the treatment group. Nevertheless there was rapid effect for erythema and desquamation, a slightly slower effect for pimples and exudationin the control group. In the two weeks after treatment, the recurrence rates of the treatment group and the control group were respectively 6.7% and 10.0%. There were no significant differences (P=1.000). **Conclusion** Yumin liquid dressing combined with LED red-blue light may be a safe and effective treatment for facial corticosteroid addictive dermatitis patients.

[Keywords] Facial corticosteroid addictive dermatitis; Avenanthramides; Yumin liquid dressing; LED Red-Blue; Observation of effect

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Facial corticosteroid (referred to as hormone) addictive dermatitis (FCAD) is chronic skin inflammation caused by abuse or misuse of hormone preparations or cosmetics containing hormone ingredients on the face. At present, there is a lack of safe and effective non-hormonal topical preparations for the treatment of this disease. Although topical use of tacrolimus ointment has relatively good efficacy, the safety and efficacy of the drug in the treatment of this disease are still controversial, in addition to its certain stimulating effect on skin. Therefore, a new type of topical preparation - Yumin liquid dressing (main ingredient is avenanthramides) has been developed clinically, which has anti-inflammatory and anti-allergic effects and is expected to be used in the adjuvant treatment of facial corticosteroid addictive dermatitis. From August 2018 to April 2019, the author used the topical ZQ-II Yumin liquid dressing combined with LED red-blue light irradiation to treat patients with facial corticosteroid addictive dermatitis, with good efficacy achieved. The report is as follows:

1. Cases and Methods

1.1 General information and case selection

All of the 60 patients with facial corticosteroid addictive dermatitis came from the Dermatology Clinic of Beijing Youan Hospital. A total of 60 patients were enrolled. In the end, all 60 patients completed the trial. There were 10 males and 20 females in the treatment group, aged 1562 years old, averaging (32.7±12.2) years old, and a course of disease of 160 months, averaging (17.9±19.5) months; there were 12 males and 18 females in the control group, aged 1659 years old, averaging (33.2±11.0) years old, and a course of disease of 160 months, averaging (11.7±14.1) months. Patients reported that topical hormone-containing ointments or cosmetics and facial masks of unknown ingredients were used. After discontinuation, there were erythema, swelling, papules, dryness, desquamation or exudation on the face, which were accompanied by itching, burning pain or tension. When exposed to cold, heat or other stimulation, the skin lesions were aggravated, the symptoms were relieved after resuming use of hormone ointments or cosmetics, and recurred or even worsened after discontinuation. The random number table method was used to divide the selected patients into 2 groups, with 30 cases in each group. There was no statistically significant difference in age, course of disease, and skin lesion score before treatment between the two groups (all P > 0.05).

1.2 Inclusion and exclusion criteria

Inclusion criteria: ① Clinically in line with the diagnosis of facial corticosteroid addictive dermatitis [1]; ② Age of 1565 years old, regardless of gender; ③ Willing to receive ZQ-II Yumin liquid dressing combined with LED red-blue light therapy and able to comply with the treatment regimen; ④ Oral informed consent . Exclusion criteria: ① Pregnant or lactating women; ② Those who are known to be allergic to test drugs and excipients and have photaesthesia; ③ Systemic treatment with glucocorticoids or immunosuppressive agents, with a discontinuation time < 4 weeks; ④ Patients with seborrheic dermatitis, acne, etc. that affect the observation of curative effects; Those who have used tripterygium preparations, hormones or tetracyclines and other drugs; Those who have discontinued antibiotics for < 4 weeks; Those who suffer from serious systemic diseases that may affect the evaluation of results, such as liver and kidney diseases, hematological diseases, autoimmune diseases, malignant tumors, diabetes, mental disorders, etc.

1.3 Methods

1.3.1 Treatment methods

Treatment group: From day 1day 28, ZQ-II Yumin liquid dressing is applied externally every morning and evening after the face is cleansed; Control group: From day 1day 28, vitamin E cream is applied externally every morning and evening after the face is cleansed; All patients receive LED red-blue light (Produced by Wuhan Yage Optic and Electronic Technique Co., Ltd., red light wavelength 633±10nm, blue light wavelength

417±10nm) irradiation on the face, 20min/time, once/week, 4 times in total, for 4 consecutive weeks, and the patients are asked not to change their previous facial washing habits until the end of the trial. The patients are followed up once respectively at 2 weeks (±2d) of treatment, after treatment (±2d) and 2 weeks (±2d) after discontinuation, the efficacy and recurrence are observed, and local adverse reactions are recorded. During treatment, patients are advised to protect themselves from wind and sun, avoid irritating foods, and avoid bathing and washing their face with hot water.

1.3.2 Disease assessment

Efficacy criteria: According to the clinical manifestations of facial corticosteroid addictive dermatitis, scoring is made with reference to relevant literature in recent years [2-3]. Objective evaluation indicators include: erythema, swelling, desquamation, papules, and exudation, and are scored as 0~3 points as per none, mild, medium and severe respectively.

Efficacy criteria: Patient score values are calculated before treatment, after 2 weeks of treatment, at the end of treatment (4 weeks) and 2 weeks after treatment, respectively. Efficacy index = (pre-treatment score - post-treatment score)/pre-treatment score × 100%. Cured: efficacy index ≥ 90%; Marked: efficacy index of 60%89%; Improved: efficacy index of 20%~59%; Ineffective: efficacy index of < 20%. The response rate is calculated as the cured + markedly effective cases, and recurrence is an increase in the total score of the skin lesions of the cured and markedly effective patients after 2 weeks of follow-up after treatment compared to that post-treatment [3].

1.3.3 Statistical methods

SPSS25.0 software was used for statistical processing, t testing was used for measurement data, and x2 testing was used for response rate comparison. $P < 0.05$ indicates that the difference was statistically significant.

2. Results

2.1 Clinical efficacy

2.1.1 Skin lesion symptom scores before and after treatment

There were no cases of dropout or loss to follow-up in both groups. At the end of 4 weeks of treatment, the scores of erythema and swelling before and after treatment in the two groups decreased from the treatment group (2.4±0.7) and the control group (2.3±0.5) to the treatment group (1.0±0.5) and the control group (1.6±0.6); papules scores decreased from the treatment group (0.9±0.9) and the control group (1.1±0.9) to the treatment group (0.2±0.4) and the control group (0.9±0.7); dryness and desquamation scores decreased from the treatment group (1.5±1.3) and the control group (1.4±1.0) to the treatment group (0.5±1.7) and control group (0.2±0.4); exudation scores decreased from the treatment group (0.4±0.9) and the control group (0.5±1.0) to the treatment group (0.1±0.3) and the control group (0.2±0.5); the differences in the above-mentioned symptom scores between the two groups before and after treatment was statistically significant (t treatment group = 11.195 erythema, 4.551 papules, 2.571 desquamation, 2.567 exudation; t control group = 5.769 erythema, 2.283 papules, 6.595 desquamation, 2.796 exudation; all $P < 0.05$), see Table 1.

2.1.2 Response rate

After 2 weeks of treatment, responses were cured and markedly effective in 6 cases (20.0%) in the treatment group; cured and markedly effective in 3 cases (3.3%) in the control group; the response rate of the treatment group was higher than that of the control group, but the difference between the two groups was not statistically significant ($P = 1.108$). After 4 weeks of treatment, responses were cured and markedly effective in 20 cases (66.7%) in the treatment group; cured and markedly effective in 8 cases (26.7%) in the control group; The response rate of the treatment group was significantly higher than that of the control group. The difference in response rate between the two groups was statistically significant ($P = 0.002$), see Table 2.

2.1.3 Recurrence rate

After 2 weeks of follow-up after treatment, the scores for erythema, papules, desquamation and exudation tended to show recurrences as compared with those at the end of treatment. There were 3 cases of recurrence in the control group, with a recurrence rate of 10.0%, and 2 cases of recurrence in the treatment group with a recurrence rate of 6.7%. There was no statistically significant difference between the two groups ($P = 1.000$).

2.2 Adverse reactions

During the treatment, neither the treatment group nor the control group manifested irritation symptoms or other adverse reactions after topical application of Yumin liquid dressing, with good safety.

Tab.1 Comparison of lesion scores before and after treatment in the two groups

	Age (years old)	Course of disease (month)	Erythema (point)		Papules (point)		Desquamation (point)		Exudation (point)	
			Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment
Case group	32.7±12.2	17.9±19.5	2.4±0.7	1.0±0.5	0.9±0.9	0.2±0.4	1.5±1.3	0.5±1.7	0.4±0.9	0.1±0.3
Control group	33.2±11.0	11.7±14.1	2.3±0.5	1.6±0.6	1.1±0.9	0.9±0.7	1.4±1.0	0.2±0.4	0.5±1.0	0.2±0.5
P	0.877	0.159	0.661	0.001	0.325	0.000	0.734	0.289	0.583	0.302

Tab.2 Comparison of efficacy between the two groups of patients during treatment

		Cured	Marked	Improved	Ineffective	Response rate	*P*
Case	2 weeks	0	6	23	1	20.0%*	0.000
group	4 weeks	3	17	10	0	66.7%#	
Control	2 weeks	0	1	18	11	3.3%*	0.030
group	4 weeks	1	7	22	0	26.7%#	

*, $P = 1.108$; #, $P = 0.002$

3. Discussion

The pathogenesis of facial corticosteroid addictive dermatitis is not entirely clear and may be related to the following factors: ① Functional imbalance of dermal small blood vessels and telangiectasia; ② Inhibition of proliferation and differentiation of fibroblasts and keratinocytes, causing epidermal atrophy and barrier function impairment; ③ Inhibition of Langerhans cell function and neutrophil chemotaxis, resulting in reduced local skin immune function and increased sensitivity [4]. Therefore, the key to its treatment is to relieve the body's dependence on hormones, restore the skin barrier function and inhibit inflammatory response.

At present, the treatment methods of this disease primarily include glucocorticoid replacement therapy, anti-inflammatory drugs, etc., but the curative effect of these methods is inexact, and recurrence easily occurs [5]. Recent studies have shown that calcineurin inhibitor tacrolimus has a good effect on facial corticosteroid addictive dermatitis. However, the safety and efficacy of the drug in the treatment of this disease are still controversial, in addition to its certain stimulating effect on the skin.

Avenanthramides, a basic organic compound with a cyclic structure, is a unique class of nitrogen-containing phenolic acid derivatives, and the only nitrogen-containing organic compound found in oats. In 2003, the Canadian scientist Collins isolated and identified alkaloids from oats and named them Avenanthramides [6]. The mother nucleus structure of avenanthramides is very similar to the structure of a potent antihistamine and anti-inflammatory drug, Tranilast, that is used clinically [7,8]. It has been found that avenanthramides have various physiological activities such as strong antioxidant properties, inhibition of cell proliferation, anti-inflammation and antipruritic effects [9]. Sur et al. [10] showed that avenanthramides extracts can inhibit the expression of inflammatory cytokines in endothelial cells, and its mechanism of action is achieved through phosphorylation of inhibitor of nuclear factor kappa-B kinase (IKK) and inhibitor of κB (IκB) and reduction of endothelial cell IκB activity. It has also been confirmed that low concentrations of avenanthramides (1-3 mg/L) can inhibit the activation of nuclear factor kappa B (NF-κB) in keratinocytes, and reduce the release of the inflammatory cytokine interleukin-8 (IL-8) [11].

Studies have found that avenanthramides achieve anti-inflammatory and antipruritic effects by inhibiting histamine signal transduction. Colloidal Avena sativa has a long history of use in the treatment of skin diseases such as atopic dermatitis, psoriasis, eczema, and drug-induced dermatitis [12,13,14], and a drug of avenanthramides derivative, i.e. dihydroxy-avenanthramides (DHAvn), has been developed, and is used to treat histamine-related skin diseases such as pruritus, erythema, blisters, sunburn, eczema, etc. [15-17]. People not only use Avena sativa as a food source, but use it as an antipruritic for the skin. Clinical trials have proved that Avena sativa are effective at treating dry skin itching, anti-inflammation and reducing skin erythema. With potent skin anti-inflammation and antipruritic activities, it is expected to be a substitute for glucocorticoids and used in various topical skin cream products. The development and utilization of avenanthramides has increasingly become a research hotspot for domestic and foreign scholars. There are few reports on the research on the efficacy of avenanthramides dressings on hormone dependence dermatitis and other eczema and dermatitis diseases.

The results of this clinical study confirmed, on the other hand, that Yumin liquid dressing containing avenanthramides has a good effect on the treatment of hormone dependence dermatitis. After 2 weeks of use, the clinical symptoms of erythema and swelling can be quickly relieved. The reduction index of the skin lesion score in the treatment group is significantly higher than that of the control group, and the overall response rate is 20.0%, significantly higher than that of the control group (3.3%). After 4 weeks of use, the overall response rate is 66.7% and 26.7% respectively, and the difference is statistically significant. The author believes that the Yumin liquid dressing can be used for the treatment of inflammatory skin diseases. Because avenanthramides have powerful anti-inflammatory and anti-allergic properties, in combination with red-blue light physical therapy for allergic skin diseases, they can quickly alleviate clinical symptoms, shorten the course of the disease, and reduce the recurrence rate. In mechanism, it can clinically inhibit the degradation of keratinocyte nuclear factor NF kappa B-α, which is directly related to inflammation, preventing the phosphorylation of the p65 protein subunit on nuclear factor NF kappa B, thereby blocking the occurrence of cell inflammation. In addition, avenanthramides can inhibit the activity of NF kappa B enzyme degradation induced by tumor necrosis factor TNF-α and reduce the release of inflammatory factor IL-8 [10,11]. Furthermore, avenanthramides, with a strong anti-allergic effect, can inhibit histamine signal transduction, have a highly effective antipruritic and anti-inflammatory effect, and quickly alleviate erythema symptoms. They are fast-acting, and achieve good results within 4 weeks after use. After the acute inflammation is controlled, the colloidal avenanthramides contained in the liquid Yumin liquid dressing have a healing effect, can promote the repair of the damaged skin barrier, and can also facilitate the synthesis of the epidermal lipid barrier, to the benefit of restoration and reconstruction of the barrier function of skin.

The LED red-blue light therapy instrument mainly irradiates the skin with high purity and high power density red-blue light, can improve the structure and function of epidermal cells, promote the production of elastin and collagen, and repair inflamm-aging skin. Furthermore, it also has anti-inflammatory, sterilizing and biological regulation effects [7]. Moreover, the narrow-spectrum light source used by the LED therapy instrument is a cold light without high heat, which can achieve the transformation of light energy to intracellular energy. Its unique biological effect is just enough to alleviate the local inflammatory response of facial corticosteroid addictive dermatitis, and restore the skin barrier function of the affected face [8]. Wherein, red light (wavelength 633nm±10nm) can effectively regulate the photobiological effect of mitochondria, resulting in changes in mitochondrial membrane stimulation structure, gaining energy, up-regulating or down-regulating cell gene expression activity, stimulating macrophages to generate more cytokines, increasing the synthesis of collagen in the dermal papillary layer, thereby effectively inhibiting inflammation and promoting wound healing; blue light (wavelength 417nm±10nm) can form singlet

oxygen in the body, destroy a variety of bacteria in the patient's wound, and also has biological regulation effects, balancing the secretion of oil in the body, reducing the number of skin lesions, inhibiting the decomposition of sebaceous glands and repetition of lesions, and playing an important role in preventing recurrence after treatment.

The author's preliminary clinical observations have found that obvious and definite effects can be obtained in most patients 4 weeks after the treatment of facial corticosteroid addictive dermatitis with topical colloidal avenanthramides combined with LED red-blue light irradiation. The skin lesions of some cases continue to improve, the effect is stable, and satisfactory clinical results have been obtained. The author also observed changes in the condition 2 weeks after drug discontinuation, and only found that the total symptom score of 2 patients in the treatment group increased, and the total symptom score of 3 patients in the control group was higher than that before the drug discontinuation. Although the total symptom score of most patients was not found to be significantly higher than that before treatment, a 4-week course of treatment could not bring about the stable and lasting restoration of the skin inflammatory process and skin barrier in all patients. It is necessary to further expand the sample size and observe the curative effect after prolonging the course of treatment.

In the treatment group, after topical application of the Yumin liquid dressing, patients did not exhibit local irritation symptoms such as increased erythema and burning pain, indicating that Yumin liquid dressing has no adverse effects in the treatment of facial corticosteroid addictive dermatitis.

In summary, the topical Yumin liquid dressing combined with LED red-blue light has a significant curative effect in the treatment of FCAD patients, and can significantly improve the symptoms of skin lesions in patients, with good safety.

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