The prevalence of varicose veins of the lower extremities and trophic ulcers, and as a consequence, deterioration of the quality of life, high rate of disability pose this problem as one of the social and healthcare challenges. The aim of the study is to evaluate the effectiveness of the low-intensity laser radiation in the integrated treatment of trophic ulcers of the lower extremities. Clinical and histomorphological studies were performed on 75 patients, 21 men and 54 women, aged from 15 to 75 years, who took the course of treatment for small and medium stage II ulcers on the lower extremities at the Educational and Surgical Clinic of the Azerbaijan Medical University and the Central Hospital of the Gazakh district. Criteria for inclusion in the study: both sexes, the presence of ulcerative necrotic lesions of the lower extremities. Exclusion criteria: heart failure, systemic diseases, cancerous diseases, hormone therapy, pregnancy. To conduct a comparative analysis, patients were randomly divided into three groups (25 individuals in each group): the main group, the comparison group and the control group. Venocoryl ointment, low-intensity laser radiation and endovenous laser ablation were used in the treatment of trophic ulcers of the lower extremities of small and medium sizes in the main group. The control group received regional treatment including standard retro-specific methods and endovenous laser ablation. The comparison group received endovenous laser ablation and Venocoryl ointment. When using Venocoryl ointment, low-intensity laser radiation and endovenous laser ablation in the treatment of trophic ulcers with leg varicose veins, a more pronounced decrease in pain sensations, faster relief of the inflammatory process and activation of reparative processes were observed on the 7th and 14th days after the beginning of the therapy compared to the control group and the comparison group. The use of Venocoryl ointment, low-intensity laser radiation and endovenous laser ablation reduces pain in the main group after 7 and 14 days compared with the control group.

Key words: varicose veins, trophic ulcer, low-intensity laser radiation, regeneration.

Introduction

Venous leg ulceration is a common, chronic, recurring condition, which is becoming a serious medical and social problem [1]. The leading cause of the development of long-term non-healing trophic ulcers of the lower extremities is the failure of the valves in superficial or perforator veins resulting in chronic venous insufficiency [2]. 2-5% of the able-bodied population suffers from chronic trophic ulcers of the lower extremities, moreover, there is an increase in annual growth in the population, especially in aged people [3].

The pathogenetic mechanisms of the development of trophic disorders resulted from chronic venous insufficiency due to the impairment of macro- and microhemodynamics, the long-term course of the disease can lead to deterioration of the general condition and serious complications [4].

Some complications of the pathology under study that can often require emergency hospitalization of patients include [5] eczema, erysipelas, lymphadenitis, arthritis, bleeding, malignancy, and osteomyelitis. The approach to the treatment and prevention of complications and relapses of trophic ulcers aimed at the timely detection and the elimination of the main causes of the ulcers, thus by breaking the circle of pathological disorders, should be comprehensive and include both conservative and surgical methods [6]. It is worthy to note that surgical treatment in many cases is reported as ineffective without local therapy due to the presence of neurotrophic ulcers [7, 8]. The administration of various antiseptic agents and physical methods into complex therapeutic and preventive measures is determined by the structure of the main pathological changes, that is, the presence of infection and tissue necrosis in the wound. Therefore, the therapy is mainly aimed at eliminating infection, preventing secondary infection and possible complications. [9]. However, both the positive properties associated with the antimicrobial properties of standard medicines, and the disadvantages of most of them impacting the granulation in the affected area should be kept in mind [10].

Thus, the frequent occurrence and relapse of trophic ulcers, the difficulty of healing and the tendency to serious complications and deterioration of the quality of life, the frequent loss of working capacity and the high rate of disability pose them among the challenges the social and healthcare systems are facing now.
The aim of the study

This aim of the study is to evaluate the effectiveness of low-intensity laser radiation in the integrated treatment of trophic ulcers of the lower extremities.

Materials and methods

Clinical and histomorphological studies were performed on 75 patients, 21 men and 54 women, aged from 15 to 75 (Table 1), who received the treatment for small and medium stage II ulcers on the lower extremities at the Educational and Surgical Clinic of the Azerbaijan Medical University and the Central Hospital of the Gazakh district. Criteria for inclusion in the study: both sexes, the presence of ulcerative necrotic lesions of the lower extremities. Exclusion criteria: heart failure, systemic diseases, cancerous diseases, hormone therapy, pregnancy. The patients included in the study groups were comparable by the age and sex characteristics, the extent of ulcerative lesions in the lower extremities, the duration of the disease and the somatic state. To conduct a comparative analysis, patients were randomly divided into three groups (25 individuals in each): the main group, the comparison group and the control group. Venocoryl ointment, low-intensity laser radiation and endovenous laser ablation (EVLA) were used in the treatment of trophic ulcers of the lower extremities of small and medium sizes in the main group. The control group received regional treatment including only standard retro-specific methods and EVLA. The comparison group received EVLA and Venocoryl ointment.

The period of diagnosed leg trophic ulcers ranged from 6 weeks to 2 or more years. In most patients, the area of trophic ulcers varied from 1 to 11 cm². The results of the application of the standard treatment in the control group were assessed on the 1st, 7th and 14th days after the beginning of treatment based on the clinical severity of the regeneration processes in the ulcer, the feelings and sensations reported by the patients themselves, and the results of cytological analyses. The findings obtained were processed by personal computer using Microsoft Excel, Statgraf-2008, Statistica 7.0.

Results and discussion

According to feelings and sensations, 10 patients of the control group at the initial stage of observations reported a decrease in the burning sensation in the wound area, but none of them said about complete absence of pain (Table 2). In this group, 40% of the patients complained of severe pain in the area of wounds in the early postoperative period. By the end of the study, pronounced pains that continued to bother was recorded in 56% of the cases. A similar picture emerged in the fact of wound separables, the moderate form of which was more often diagnosed on the first day after the beginning of the therapeutic and preventive course. So, if at this stage the number of patients with such symptoms was 14, two weeks later the indicator then halved and went down to 7 (28%). The number of patients with severe hyperaemia also became significantly fewer by the end of the study and was found in 11 (20%) patients; 30 (55.6%) patients presented mild hyperaemia, 13 (24%) patients demonstrated negligible signs of hyperaemia. On the 14th day, the condition of the tissues around the wounds was as follows: less pronounced marginal epithelialisation was observed in 84%, while almost complete absence of oedema and a distinct border of the epithelium was found only in 8% of cases.

A day after the application of integrated methods for the treatment and stimulation of reparative processes, many patients of this group reported a growing pain intensity and burning in wounds to varying degrees (Table 3). In the comparison group, where Venocoryl ointment was used as a component of the local treatment of venous ulcers along with EVLA, on the 1st day after starting the course of basic therapy, 3 (12%) patients noted the absence of unpleasant pain sensations in wounds and painless bandages, 7 (28%) patients experienced moderate pain, 15 (60%) patients complained of severe pain. At similar time period in this group, 18 (72%) patients had moderate amount of wound discharge, 6 (24%) patients had scanty discharge, in one patient (4%) had no discharge. It should be noted that complete marginal epithelialization or the presence of signs of regeneration did not occur in the comparison group at all stages of preliminary study.

At the same time, only 1 (4%) patient on the 14th day demonstrated a pronounced epithelization of the surrounding tissues. With repeated dressing, 4 (16%) patients had oedema and pronounced hyperemia of tissues around the wound, maceration. Moderate hyperemia was noted in 18 (72%) patients, and its complete absence was found in 3 (12%) patients; the clinical assessment showed that wound was completely clear, now scabs, fibrin overlays and granulation, pronounced marginal epithelialization were observed.

<table>
<thead>
<tr>
<th>Age (15-75)</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-35</td>
<td>7 (33%)</td>
<td>11 (55%)</td>
</tr>
<tr>
<td>36-55</td>
<td>9 (43%)</td>
<td>19 (35%)</td>
</tr>
<tr>
<td>56-75</td>
<td>5 (24%)</td>
<td>24 (45%)</td>
</tr>
<tr>
<td>Total</td>
<td>21 (28%)</td>
<td>54 (72%)</td>
</tr>
</tbody>
</table>
In the main group, a combination of Venocoryl ointment, low-intensity laser radiation and endovenous laser ablation (EVLA) was applied in the local treatment of venous ulcers of venous aetiology to stimulate reparative processes. Wound coverings were completely removed to assess the condition of the wound surface on the 1st, 7th and 14th days after the start of therapy (Table 4). When describing feelings and sensations at the initial stage of observations, 1 (4%) patients noted no pain in wounds, 10 (40%) patients described pains of low intensity; 11 patients complained of the appearance of a pronounced burning sensation in the wound, 8 patients complained of similar symptoms by the end of the study, and after 14 days they reported pronounced pulling pains.

In the main group, 6 (24%) patients indicated complete relief of pain in the wound area during the same period of time. In 10 (40%) patients, on the 1st day after the use of integrated treatment, the wound discharge was moderate, while, with an increase in the duration of treatment, the indicators decreased significantly and at the second stage they made up 9 (36%) of cases; by the end of observation period they dropped to 6 (24%) cases. A complete absence of discharge from the wound was recorded at this stage in 6 (24%) patients. Mild hyperaemia of perifocal tissues a day after the beginning of the treatment was detected in 11 (44%) patients, cases without signs of inflammation of the skin around the wound were absent at this stage. In many patients of the main group, bright granulations and marginal epithelialization of varying degree were observed.
Positive dynamics in feelings were more often reported by the patients of the main group, despite the pronounced pain sensations in rare cases and pain of low intensity. In the control group, in most cases, patients complained of severe pain in the postoperative period. Copious wound discharge occurred in patients of the main and control groups. In the control group oedema and hyperaemia were more pronounced during the treatment course than in the comparison group. It should be noted that there are relatively frequent cases of noticeable marginal epithelialization around the wound in patients of the main group.

Conclusions

The use of Venoceryl ointment, low-intensity laser radiation and endovenous laser ablation (EVLA) can significantly reduce pain, and more pronounced decrease in pain was found in the main group after 7 and 14 days compared with the control group. The use of the above therapeutic combination provides a more accelerated relief of the inflammatory process and activation of regeneration processes in the comparison group.

Prospects for further research

The effective management of trophic ulcers requires in-depth investigation in order to develop the most effective clinically and time-reducing approaches, which would enhance patient quality of life and improve healthcare clinical and cost efficiency.

References

Специфічні ускладнення при операціях з приводу зобу та шляхи їх попередження

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Проаналізовано оперативні втручання на щитоподібній залозі, які проведені в клініці з 1973 по 2020 роки, їх характер і відмінності у різні періоди роботи. Надається ретроспективний порівняльний аналіз результатів оперативного лікування зобу періоду резекційних, субфасціальних операцій (до 2007 року) і сучасного — із застосуванням новітніх технологій, презиційної техніки виконання, екстрафасціальної методики з мобілізації щитоподібної залози та відмови від резекційних методів операцій.

Визначені причини щитоподібної залози та залоз, які сприяють виникненню ускладнень та запобігання ними. Спостерігається висока частота відмовлення від резекційних методів лікування шляхом використання ендовенозного лазерного випромінювання. Запропоновані заходи, які запроваджені в клініці, асортимент лазерних впроваджень та ефективність операцій на щитоподібній залозі.

Вступ

Хірургія щитоподібної залози (ЩЗ) була і залишається однією з провідних тем сучасної хірургії ший, що визначається на діагностичній розробки методики операційного втручання при необхідності виконання як агенії, так і лікування неправильних варіантів розташування залози.

Ключові слова: витримка, управління, відхід, ускладнення, неповна агенія.

Матеріалі та методи.

У відрядних клініках у відділеннях хірургії, а також в амбулаторіях залозисто-високих випадків, встановлено, що в основній групі при лікуванні трофічних виразок нижніх кінцівок мали низькоінтенсивні лазерні випромінювання та ендовенозна лазерна абляція.

Результати. При застосуванні мазі «Venocoryl», низькоінтенсивного лазерного випромінювання та ендовенозної лазерної абляції при лікуванні трофічних виразок з багатометричними змінами та зменшенням багатьох чинників. Підводні чинники змінили забезпечення залозисто-високих випадків, які виконувалися ендовенозная лазерноабляція.

Висновки

Висновки. Виділення пальпаторних ускладнень щитоподібної залози та запобігання кровотеч. Запропоновані заходи, які запроваджені в клініці та дозволили помітно змінити кровотеч. Запропоновані заходи, висновки та рекомендації для клінічних робіт.

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