OZOTENS THERAPY OF DORSOPATHIES AND ARTHROPATHIES. METHODS OF USE OF OZONE IN COSMETOLOGY. OZONE THERAPY IN NEUROLOGY.

STATE UNIVERSITY OF MEDICINE AND PHARMACY "NICOLAE TESTEMITANU"

DEPARTMENT OF INTERNAL MEDICINE

THE DISCIPLINE OF GERIATRICS AND OCCUPATIONAL MEDICINE

OPTIONAL COURSE: OZONE THERAPY

Subjects:

- OZOTENS therapy of dorsopathies and arthropathies.
- Methods of use of ozone in cosmetology.
- Ozone therapy in neurology.

- About 90% of all diseases are associated with pain.
- Pain is the reason for access to primary care units, which mainly bear the burden of treating patients with different types of painful syndromes.
- Most often the cause of pain in dorsopathies that occurs at different levels of the spine, are recognized as degenerative changes of the spine, in literature are usually considered as manifestations of osteochondrosis.
- Post-traumatic accompanying arthralgia is one of the most complex and relevant problems of modern orthopedics. For the treatment of painful syndromes in recent years, electrical stimulation of the nerves is used, which has a rapid analgesic, anti-inflammatory, decongestant and antispastic effect.

- However, its effectiveness as a method of treatment of chronic back pain and joints is limited and requires improvement.
- Modern medical technologies using ozone and products such as oils and ozone creams containing derivatives – reactive oxygen species (ozone) have recently appeared on the medical services market, thus significantly expanding the range of possibilities for combined use of physiotherapy and ozone therapy methods.

OZOTENS-therapy for the treatment of diseases of muscles and joints with pain syndrome

OZOTENS therapy is the combined use of ozone-containing cream (OZO) and low-frequency electrical pulse stimulation (tens), which opens up new possibilities for the treatment of dystrophic diseases of the spine and joints with pronounced symptoms of dorsalgia and arthralgia.

The main difference of this approach is that due to the foretic effect of electrical stimulation, the ozone-containing cream is released transdermically into the tissues of the affected organ.

This allows you to treat more effectively many conditions, especially diseases of the spine, musculoskeletal system and nervous system.

INDICATIONS FOR OZOTENS THERAPY:

- neurological diseases (polyneuritis, neurological syndromes of osteochondrosis of the spine, neuralgia, plexitis);
- diseases and injuries of the locomotor apparatus (arthritis, arthrosis, spondylosis, muscle hypotrophy after prolonged immobilization, postoperative period after joint interventions, myositis, rheumatoid arthritis with a minimum and moderate degree of activity of the process);
- Diseases of the vascular system (occlusive diseases of the vessels of the lower extremities, varicose veins, Raynaud's disease, chronic lymphostasis of the legs);
- Obesity stage I - III;
- muscle training with a disproportion in muscle volume, the need to increase muscle strength.

WHAT IS THE OZOTENS TECHNIQUE AND WHAT ARE ITS UNIQUE CHARACTERISTICS?

This is a combined action of two powerful agents - a cream based on ozonized oil and electrical stimulation of muscles and nerves. Ozone oil due to reactive oxygen species can reduce pain, stop inflammation, activate microcirculation and improve skin elasticity. Being absorbed, the oil increases the energy of the tissues, restores their protective mechanisms. However, simply ozonated oil does not penetrate well into the skin, so for a deeper effect with the OZOTENS method, a special electrode cream was created on its basis.

The physiotherapeutic method of electrical stimulation of nerves and blood vessels has been known for a long time. Various forms of impulses have been used in medicine for more than a hundred years, and during this time the most effective procedural parameters were chosen, compact and safe devices were developed for pulse generation. By acting through the skin with currents of a certain force and frequency, it is possible to achieve muscle contraction and nerve stimulation in such a way as to reduce pain and restore damaged tissues.

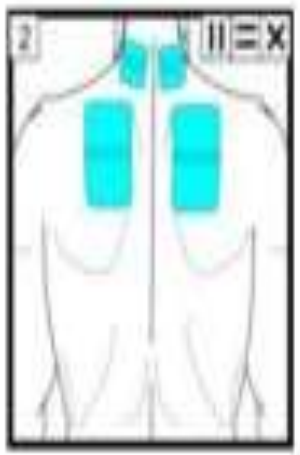
The OZOTENS technique was created to combine the beneficial properties of reactive oxygen species and electrical stimulation. The result was not just a summation of the positive impact of each component, the result of the procedure was a completely new, stronger effect. The cream with ozonized oil does not remain a film on the skin, but penetrates the tissues due to electrophoresis. Electrical stimulation causes the muscles to contract in a special way and they, like a pump, absorb the active parts of the cream. The restoration of energy metabolism leads to the acceleration of biochemical processes, the metabolism in the cells normalizes, they begin to function in a healthy way. The pain passes. At the same time, the action is not limited to the tissues around the electrodes, the absorbed substances affect the whole body, causing an improvement in brain function, stimulating defense mechanisms, healing damaged tissues, relieving fatigue and improving sleep.

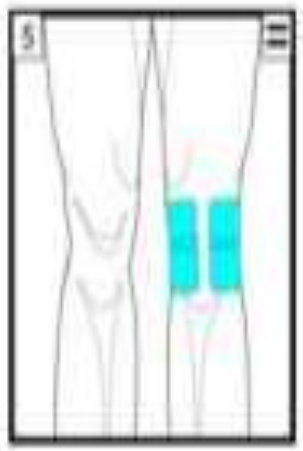
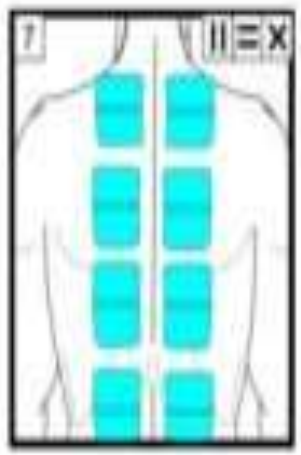
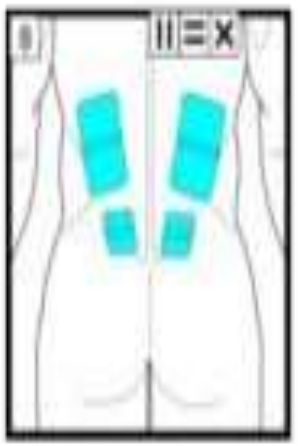
One of the main advantages of the OZOTENS technique is that it restores the energy metabolism of tissues. Therefore, it can be useful not only for the treatment of diseases, but also for sports, for recovery after physical and mental overload, for eliminating the consequences of injuries and for the prevention of diseases.

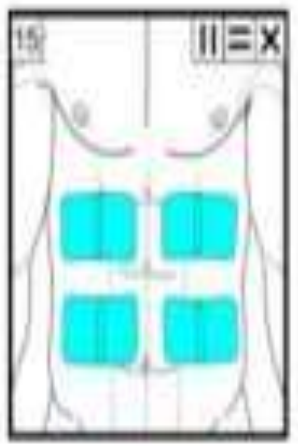
Another important feature of the OZOTENS technique is that it is simple and does not take much time. Even people with disabilities can easily perform procedures without assistance. A standard session lasts up to 30 minutes and at a time convenient for you. The electrodes are designed so that during the session you can do household chores. The patient regulates the exposure power according to his feelings so that the procedure is carried out without pain.


OZONE TREATMENT & CARE
OZOTENS
OZC
ОЗОН-СОДЕРЖАЩИЙ
КРЕМ
30%
ELECTROTHERAPY
TENS
P
CH1
CH2
ROOVJOY


BOER
SPORT



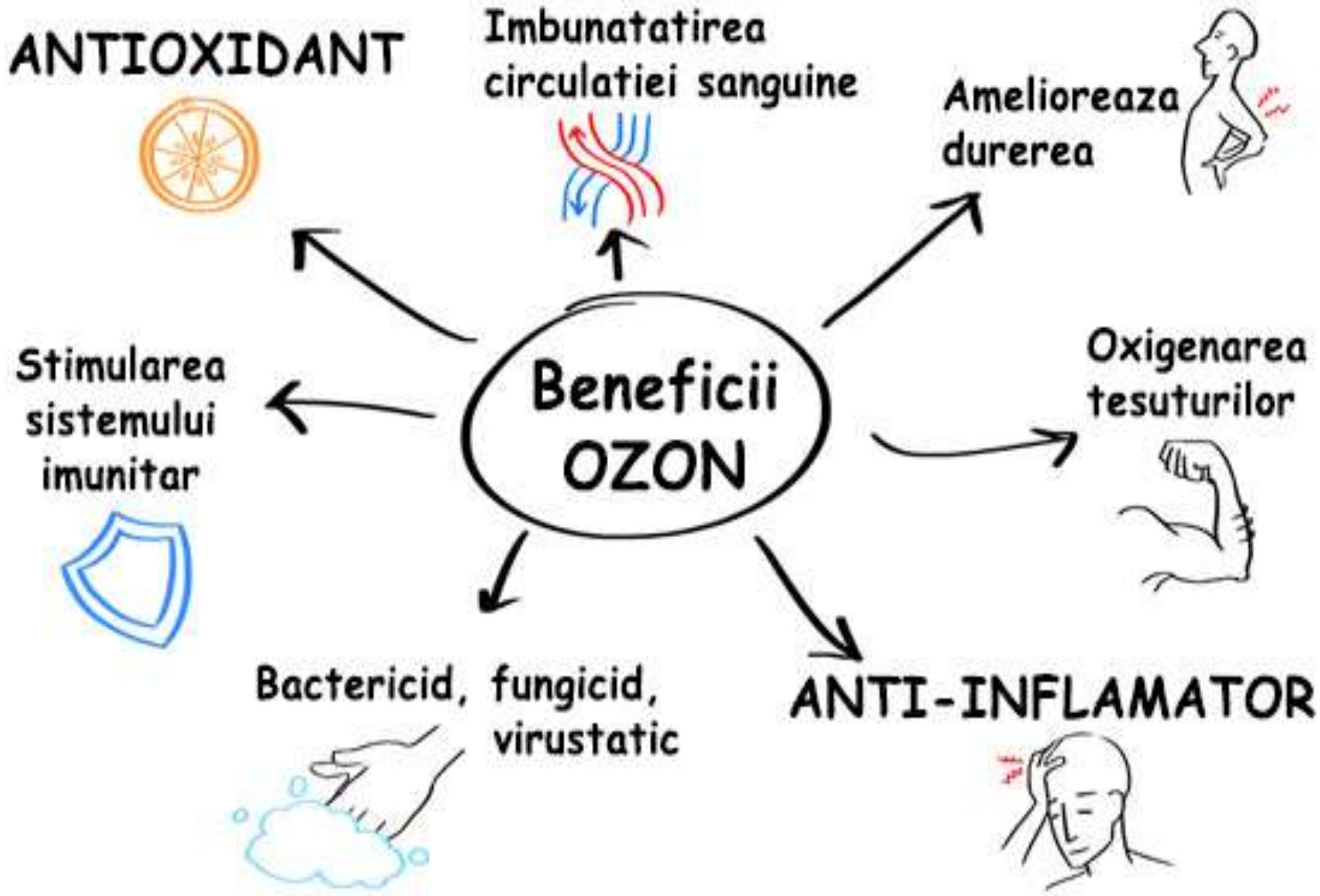


METHODS OF USE OF OZONE IN COSMETOLOGY

- Ozone is widely used in various fields of medicine and cosmetology.
- It is used as the treatment of a large number of diseases.
- In dermatology the universality of ozone therapy is explained by the physico-chemical properties of medical ozone and a wide range of its therapeutic effects:

1. Bactericide,
2. fungicide,
3. anti-inflammatory,
4. stimulant,
5. immunomodulator.

- More and more ozone therapy is used in a complex with traditional methods to speed up the healing process, but it can also be used as monotherapy.


ANTIOXIDANT
Imbunatatirea circulatiei sanguine
Amelioreaza durerea
Stimularea sistemului imunitar
Beneficii OZON
Oxigenarea tesuturilor
Bactericid, fungicid, virustatic
ANTI-INFLAMATOR

Ways of Administration

Ozonoterapia sistemică

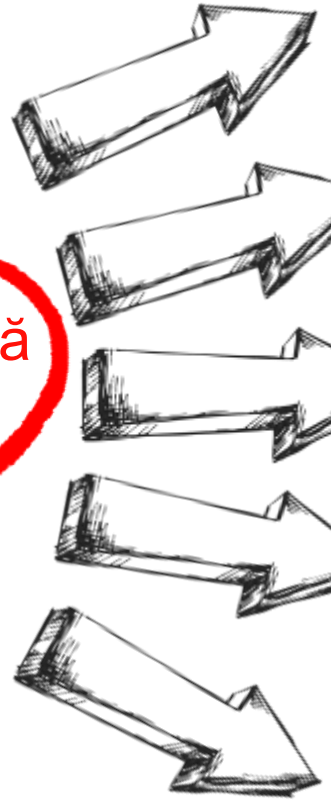
Major autohemotherapy (it is extracted in a plastic container from 50-150 ml of venous blood, to which the same amount of oxygen-ozone gas mixture is added with c% (concentration) of O3 of 10-40mg/l. The mixture is adm I/v)

Minor autohemotherapy (in a 5-10 ml venous blood syringe mixed with 10-15 ml of oxygen-ozone mixture with O3 concentration 10-20 mg/l, I/m or s/c will be introduced, used as a method of stimulating therapy in the treatment of acne, chronic pyoderms, viral dermatoses)

Rectal insuffations of medical ozone, when it is impossible to autohemotherapy (inaccessible veins, phlebitis)
It is carried out in a volume of 50-1000 ml with the concentration of ozone in the gas mixture of 6-70 mg/l

Subcutaneous/intradermal injection (oxygen-ozone mixture in a volume of 40-450 ml, with c% ozone in the mixture 2-25 mg/l). It is used in furunculosis, vulgaric acne, heavy renewable trophic ulcers, foci of chronic eczema, atopic dermatitis, immunostimulation.it activates metabolic processes in macroergic cells, normalizes active membrane transport (K-Na pump), penetrance, deformability, viscosity and electrical properties of membranes.

Ozonoterapia topică (locală)



Intra/ peri articular injection

Transcutaneous irrigation under ozone-resistant plastic bags for the regeneration of ulcers with extended layers of pus (c% high of 25-80 mg/l); for stimulating repair processes after ulcer compensation (c% 0,5-10 mg/l).

Vaginal insufflations

Local applications of ozonized water, ozonized oils (contain ozonides), ozonated cream

Sauna cu ozon

- It is a complex machine developed in recent years, which allows the association of ozone therapy with ozone administered transdermal with water vapor at a temperature above 40 degrees Celsius. The latest ozone saunas also allow treatments such as bioxid sauna, light chromotherapy sauna, aromatherapy sauna with aromatic oils and/or plant extracts, whether or not combined with oxygen therapy, electrotherapy and cavitational ultrasound treatments.

Ozone sauna alone or in combination with nasal oxygen therapy:
– detoxifying, relaxing and refreshing effect.
– increases resistance to physical exertion.
– increases intellectual performance.
– reduces cellulite on the thighs, abdomen and buttocks
– reduces skin laxity in the abdomen, arms, thighs, knees.
– compacts the fat, causing the loss of a significant number of centimeters from the perimeter of the waist and thighs.

Indications of ozone therapy

The main skin diseases treated by ozone are:

- cornice calf ulcers;
- diabetic foot;
- escape;
- burns;
- arteries with cutaneous necrosis
- infected wounds with a reduced tendency to healing
- skin fistulas
- dilated veins
- dilated capillaries to the legs, calves and/or thighs
- dermatitis
- psoriasis
- mycoses
- chronic candidiasis vaginitis
- herpes, shingles,
- acne
- unsightly scars
- keloids
- surgical wounds with a reduced tendency to scarring
- profuse warts

Photo 1. Patient suffered from severe form of rosacea before ozone therapy

Photo 2. Patient after ozone therapy

Herpetic lesion treated with 2 minutes application of ozone gas
The "After' picture taken 40 minutes post-ozone application

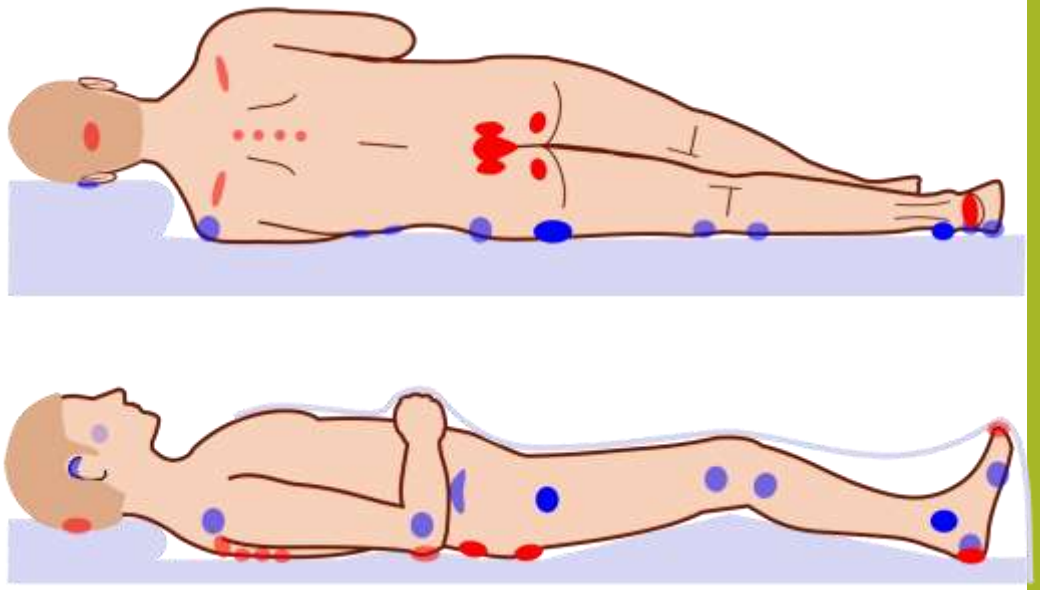
Fadi Sabbah, DDS; 2005

Ozone therapy in the treatment of bedsores

Using ozone for the treatment of bedsores seems to be the most appropriate option in the entire arsenal of conventional treatment methods for both the patient and the doctor. The patient in this case does not feel anxiety. Necrosis and unpleasant smell quickly disappear.

In highly contaminated or necrotic tissues with severe suppuration, ozone irrigation is carried out for bactericidal purposes at a concentration of 20-40 mg/l for 10-30 minutes, depending on tolerability. In case of a recovery tendency, the ozone concentration should be reduced: 10-5-3-1.5 mg/l, otherwise there is a danger of reopening the wound. The duration of the treatment and the frequency of the sessions are individual.

The dose of ozone per 100 ml of blood is 1000 mcg, the treatment cycle is 6-8 procedures with a frequency 2 times a week.



Ozone therapy for trophic ulcers

Ozone for the treatment of this pathology was chosen taking into account its main properties: Bactericide, analgesic, improvement of the reological properties of blood in the microcirculatory area, activation of extracellular and intracellular processes dependent on oxygen, increased activity of immunocompetent cells and regeneration.

Treatment includes several types of ozone therapy:

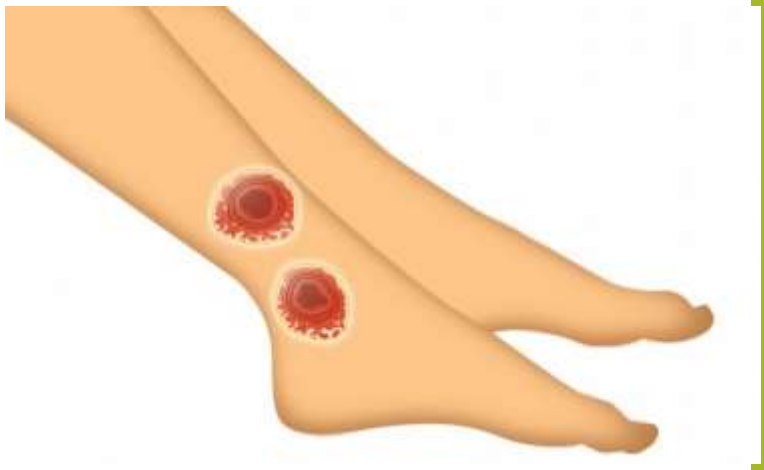
Topical - ozone treatment of focal processes in a plastic room, subcutaneous ozone injections around the site of ulceration, applications with ozonated olive oil.

The therapeutic tactics for each patient is determined individually, taking into account the nature and size of ulcers, their genesis.

Ozone therapy for trophic ulcers

Local therapy is ozone irrigation in a plastic room. In the first days, procedures are carried out daily at high concentrations - 5-10 mg/l for 30 minutes in the presence of purulent secretion, fibrin and necrotic tissues, with a high degree of contamination of ulcers. After cleaning the ulcer and the appearance of granulation tissue, a gas mixture with a low concentration of 3-1 mg/l is used for irrigation to accelerate the healing of tissue defects, exposure being 15-10 minutes. The frequency of the procedures is 2-3 times a week until the pathological process stabilizes.

After aeration along the perimeter (outside the inflammatory tree) of the ulcerative surface, subcutaneous stings with an ozone-oxygen mixture are performed. For one injection, 0,5-1 ml of ozone is used at a concentration of 1.5 mg / l. The procedure is painful, therefore it is carried out with a break of 1-2 days, and the introduction of gas is very slow.



Stinging the wound surface with a mixture of gas can be replaced by the introduction of its "cuff" lymphotropic method.

A cuff is applied to the upper third of the thigh or lower leg under pressure of 30-40 mmHg. art.de-a along the posterior surface of the lower leg at the edge of the lower third or on the back of the foot, 16 lipase units are injected subcutaneously.

After 3-5 minutes, an ozone-oxygen mixture in the amount of 5 ml is injected into the same needle at a concentration of 2 mg/L. the patient cuff is left in place for 40 minutes.

In the intervals between ozone therapy sessions, trophic ulcers are treated with antiseptics and closed with bandages with ozonated oil.

Ozone therapy for trophic ulcers

In addition, patients receive intravenous infusions of ozone-saturated saline solution every day to improve the blood's reological properties and optimize plastic tissue processes in the area of ulcerative defect, in a volume of 200 ml at a concentration of 1200 mcg/l, in an amount of 6-8 (as indicated, they can be replaced by rectal ozone insufflation).
After 2-3 sessions of ozone therapy, pain disappears in patients, the feeling of heaviness in the affected limb, burning and itching, the regression of local manifestations of inflammation is observed. After 6-8 sessions, an active scarring of the ulcer appears, granulations appear, and the process of focal and marginal epithelization is carried out gradually. The general condition of the patients improves, the image of the lipid profile normalizes, the antioxidant enzyme system is activated.

Ozone therapy for vascular stars

Ozone rejuvenates blood vessels, increases blood circulation. After a course of procedures, not only the vascular stars are removed, but the skin as a whole is transformed – it becomes smoother, more elastic, acquires a healthy color and structure. Ozone therapy for vascular stars on the legs is recommended for mild injuries, as the vessels in this area are located deeper than on the face.

The course of procedures is usually 5-15 sessions 2-3 times a week. The drug is injected into the lumen of the vessel. Due to this, the vascular stars disappear. After the session, no scarring, inflammation and swelling are formed. The procedure is painless and well tolerated, the result is kept for a long time.

Ozone therapy for vascular stars

Contraindications:

hemophilia;
diseases of the thyroid gland;
heart disease;
internal bleeding;
diabetes mellitus;
blood clotting disorders;
pancreatitis;
convulsions;
intolerance to medical ozone;
acute intoxication with alcohol

Ozone therapy for eczema and psoriasis

Intravenous drip administration of ozonated saline has been used as the main method of systemic exposure in people suffering from eczema and psoriasis.

An ozone-oxygen mixture with an ozone concentration in a gas of 25-40 mg/l was passed through a sterile physiological solution in an amount of 200-400 ml until an ozone concentration in a liquid of 1-4 mg/l was reached; the ozonated solution was administered intravenously to patients at a rate of 3-7 ml/min.

Systemic ozone therapy is a method of treatment performed exclusively ex tempore.

Ozone therapy for eczema and psoriasis

The ozone in the solution breaks down quite quickly, so the ozone of the saline solution is carried out immediately before its administration to patients. As a method of direct local exposure to skin lesion, flowing gassing with an ozone-oxygen gas mixture was used. It is made using special rooms made of ozone-resistant materials ("caps", "bags" or "boots").

When applying a local ozone-oxygen mixture, it should be noted that the bactericidal effect of ozone manifests only in a moist environment, therefore, before performing the procedure, the surface of the lesion should be moistened with water or saline solution.

During the procedure, the chamber is filled with a mixture of ozone-oxygen gas, after which the mixture enters the destroyer of the facility. The concentration of ozone gas ranged from very high (50-70 mg/l), ensuring a bactericidal effect, to a minimum (2 mg/l), at which the remedial effect of this physical factor is achieved.

The duration of the procedures is from 15 to 30 minutes. after the specified time has elapsed, before removing the special plastic bag from the limbs, it must be cleaned with oxygen for 5-10 minutes to prevent excess ozone from entering the air of the working room.

It has been established that the most effective is combined ozone therapy, i.e. the sequential alternative application of systemic and external exposure techniques.

Ulcerative forms of cutaneous angiitis

In some cases (with a small number of ulcerative defects, insignificant severity of skin inflammation along their periphery, the patient's overall satisfactory condition), the use of an oxygen-ozone mixture in the form of monotherapy is effective, but more often ozone therapy is used as part of a standard therapeutic complex (antibiotics, antihistamines, epithelizing ointments, etc.).

The following techniques are used:
*Gassing a member with an ulcer on the skin with a mixture of oxygen-ozone gas;
*intravenous administration of ozone dissolved in physiological solution.

Ulcerative forms of cutaneous angiitis

When gassing with an oxygen-ozone mixture, varying the ozone concentration, it is possible to perform active disinfection of the ulcerative defect first (the ozone concentration in the gas mixture is 10-50 mg/l and higher) and then stimulate tissue repair when using a gas mixture with low ozone concentrations (2-5 mg/l).

The duration of the procedure is 30 minutes, the frequency is 2 times a week, only 5-10 procedures per course of treatment - until the ulcerative defect heals.

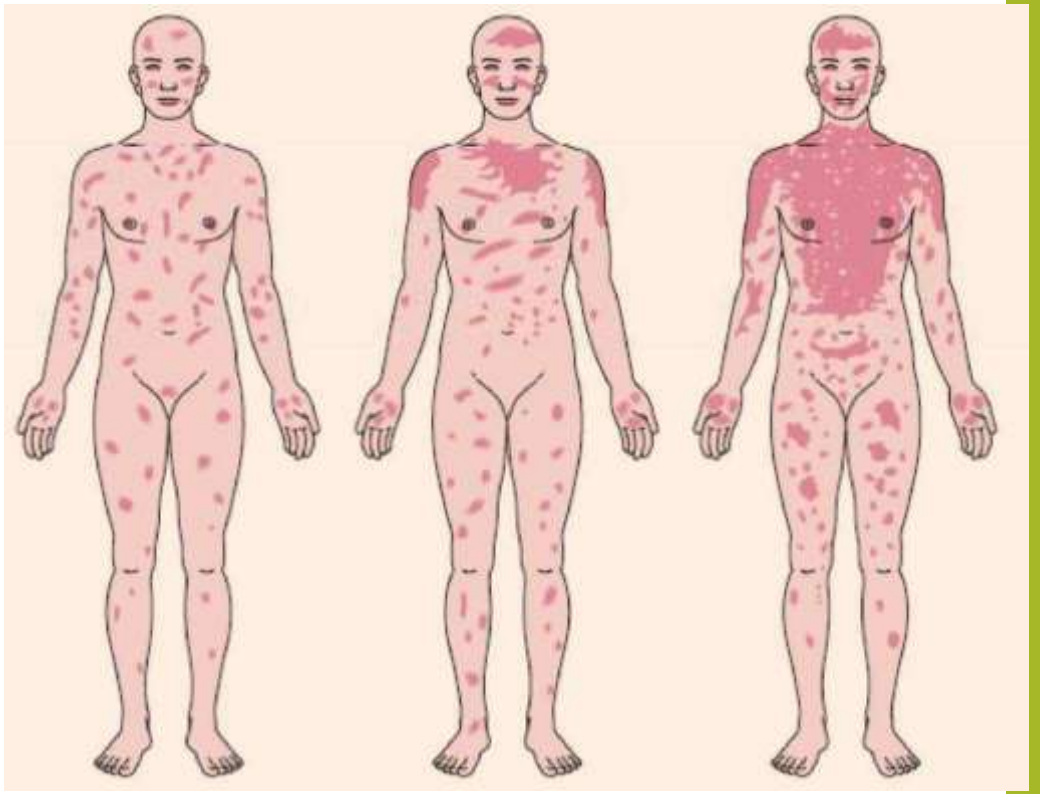
For external therapy, the surface of the affected member should be cleaned of fatty drugs; ointment therapy is carried out strictly after the completion of the flowing gassing.

Systemic ozone therapy procedures increase the therapeutic effect; 8-10 infusions per course of treatment are performed. Repeated courses of ozone therapy can be performed as needed (recurrence of ulcerative lesions), but no more than once every 3 to 4 months.

Chronic pigmented purpura

With types of petechial and telangiectatic purpurpura, if the duration of the disease does not exceed 2 years to achieve a stable positive effect, a course of intravenous drip infusions of 6 - 8 procedures - 200 ml 3 times a week, the concentration of ozone in the solution - 2 mg/l - in combination with traditional therapy with external ointment.

With the type of eczematoid of purpura, systemic ozone therapy should be supplemented with procedures for the flow of injury gases on the tibia 2-3 times a week, a total of 5-6 procedures per course, the concentration of ozone in the gas mixture is 4-7 mg/l. To strengthen the positive effect of treatment, it is recommended to repeat the course of intravenous infusion of ozone dissolved in the soil. NaCl after 6 months.



Diabetic foot

Diabetic foot – extremely serious and common complication in patients with diabetes. In such situations ozone therapy can have several routes of administration: Autosemotherapy, rectal insuffations with oxygen-ozone mixture, local treatment in hypobaric bags with oxygen-ozone mixture, wound washing with ozonized water.

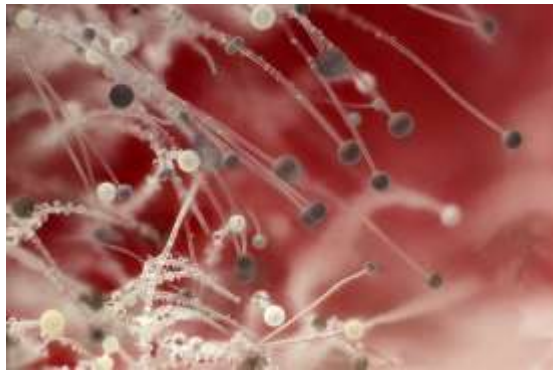
The results of the studies say the following: Bacteriostatic and bactericidal effect, stimulation of local microcirculation, intensification of local metabolic processes reduce by half the period of cleaning diabetic wounds from necrotic tissues, intensifying the period of regeneration of tissues. Due to this, the hospitalization period can be reduced by 9-11 days compared to patients treated by classical methods; by 1.7 times the number of amputations of the lower limb can be reduced, thus reducing the cases of disability and death.

- It is necessary to note that the ozone therapy in diabetic patients should be monitored and if insulin dose is needed corrected.
- We also monitor the activity of lipid peroxidation and antioxidant systems. Patients with an initial decrease in the activity of the antioxidant system are recommended to take ascorbic acid, Vit A and E, etc.
- If after 3-5 procedures there is a tendency to increase the level of lipid peroxidation, with a continuous low activity of antioxidant protection, it is necessary to reduce the assigned dose, decrease the number of procedures or even cancel the treatment .

Ozone therapy in the treatment of mycosis

The method includes:
* Gassing of the legs, perifollicular area in a plastic bag
*Ozone oil applications

Due to its pronounced antifungal, antiviral and antibacterial effect, microcirculation and tissue trophic improve, because when cells are saturated with oxygen, nail regeneration occurs, leading to nail growth, but mycosis combats.
Ozone-oxygen injections allow the elimination of fungal virus from the body, toxins from the hair growth area, restoration of the nail surface. As a result, nails, hair and skin have a healthy appearance and are restored

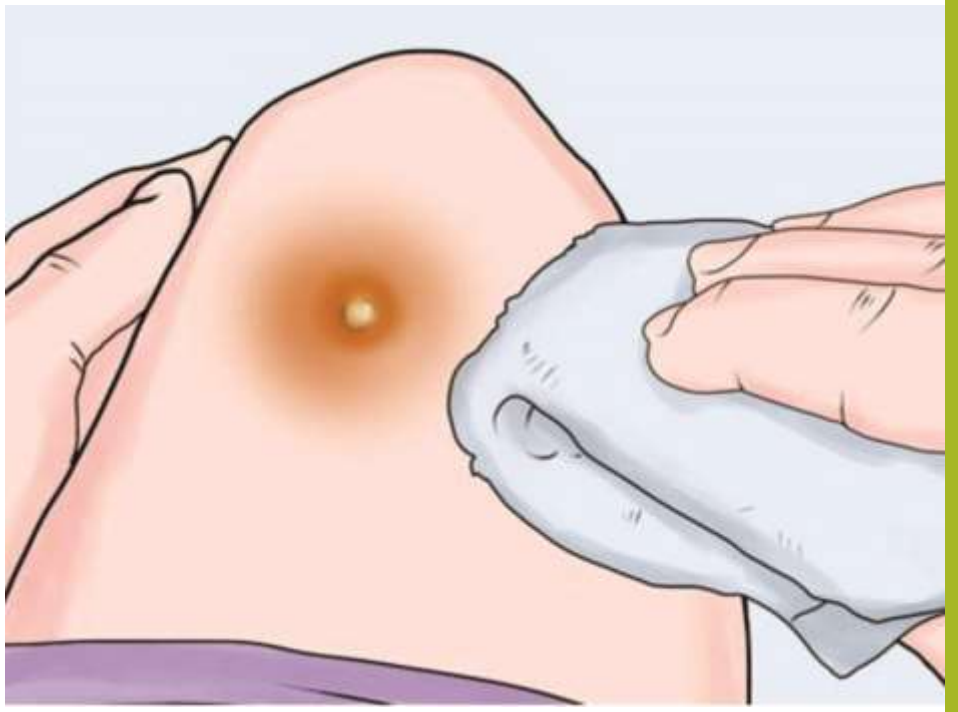


Ozone therapy in purulent skin conditions

Ozone was first used as a therapeutic agent during World War I by German doctors to treat wounds, burns and poorly curable fistulas. This method of treatment was not widely used until the early 70-ies of the 20th century due to the lack of ozone-resistant polymer materials.

The appearance of antibiotics and their introduction into clinical practice, their high effect in the fight against infections, reduced the interest of practitioners for the antibacterial properties of ozone. However, more and more data have appeared in the literature about the biological effect of ozone on the body, its successful use in medicine.

Ozone therapy has started to be used again in the treatment of a number of surgical and therapeutic pathologies.



Ozone therapy in purulent skin conditions

In surgical practice ozone therapy was widely used in 70-90 of the 20th century For example, a method of treating purulent wounds with a high pressure flow (up to 80 atm.) - ozonated antiseptic solution. This made it possible to reduce the length of stay of patients with purulent-inflammatory processes in the hospital by an average of 27.6%.

Furunculosis

The main advantages of ozone therapy compared to the medical method of treatment:

1. Ozone therapy has no side effects on the patient's body.

2. Improves the effect of drugs, their better transition to the outbreak of inflammation.

3. Provides a high percentage of cure, penetrating well into the skin, improving the metabolism in it, which is affected in pyoderma

Treatment of furunculosis with an oxygen-ozone mixture is the introduction of an ozonized solution by intramuscular and subcutaneous injections. The ultraviolet irradiation method of blood is effective with the addition of an oxygen-ozone mixture.

In this combination, the anti-inflammatory effect of ultraviolet in combination with ozone increases significantly. Ozone therapy combined with UVR reduces skin inflammation, reduces infiltrates, pain, reduces acne and raises the immunity of the entire body.

The treatment course for furunculosis is from 3 to 5 sessions of ultraviolet irradiation in combination with ozone therapy or 8-10 ozone therapy procedures, depending on the severity of the disease.

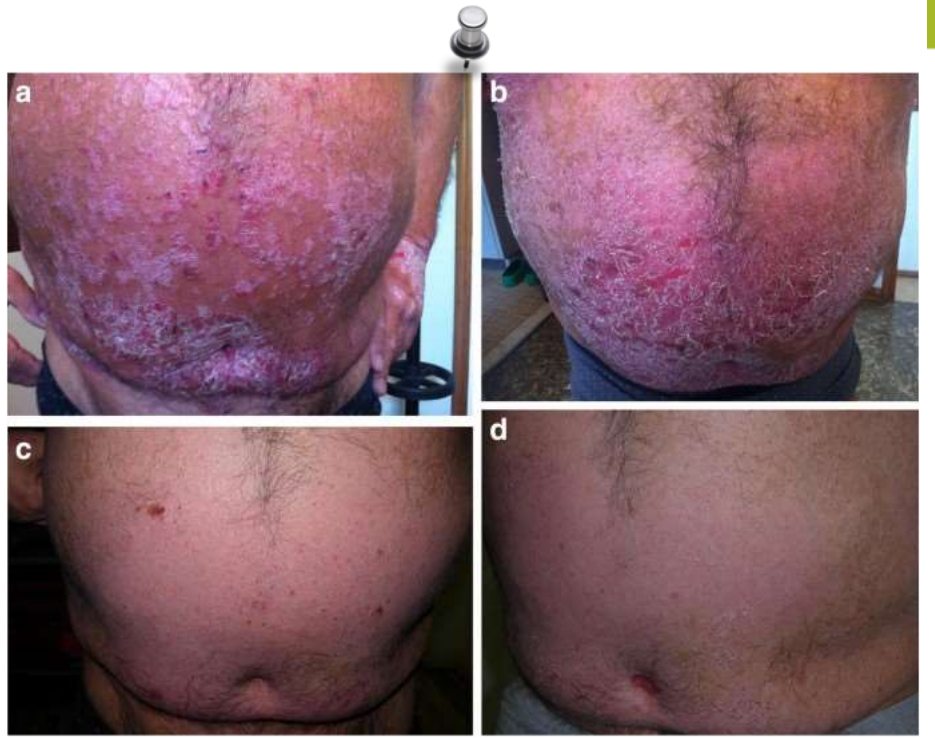
Postoperative diseases (edema, tissue infiltration, scars)

Oxygen-ozone therapy was used in 44 patients at the Institute of Plastic surgery and Cosmetology to rehabilitate more quickly after surgery to remove excess skin of the face and neck. Subcutaneous injections of an oxygen-ozone mixture with an ozone concentration of 1.5 to 2 mg/l. the number of procedures per course was from 5 to 10, with a daily frequency of procedures. Approximately 1-2 ml of the gas mixture is injected into a single point.

Psoriazis

Ozone therapy increases oxygen intake in diseased or damaged areas. While human cells develop well in environments with high oxygen levels, disease-causing pathogens do not support this. Ozone therapy exposes pathogenic microorganisms to a high level of oxygen, effectively destroying them.

In the case of psoriasis, ozone therapy has been shown to improve the condition of the skin. It can help neutralize toxins in the blood, reduce inflammation and lower edema.



Higher oxygen levels can boost the immune system's ability to fight stress and improve overall health.
Ozone therapy can be administered by autosemotransfusion (in which blood is taken, mixed with ozone and reintroduced into the bloodstream), topical application or direct injection.

Ozone therapy for thermal burns

For the treatment of burns, irrigation with an ozone-oxygen mixture is used locally in plastic chambers, which contributes to the elimination of pathogenic microflora and inflammation in the wound and beyond, the formation of bright granules with fine granulation, shortening the healing time of burns, improving the results of self-graft grafting in deep burns.

Aeration of burned surfaces is performed using ozone concentrations of 10 mg/l when contaminated with an exposure of 30 minutes and rapidly reduces to 1-2 mg/l when cleaning wounds and at the beginning of focal or marginal epithelization, exposure from 20 to 10 minutes.

TELANGIECTASIA

The vessels of the visible subcutaneous capillary network, of bluish color stagnant. It can be present on the skin of the face, neck, thighs, abdomen.

Causes of telangiectasis:

- Congenital weakening of connective tissue;
- Metabolic disorders in the liver;
- Increased venous pressure in the lower limbs;
- Weakness of the vascular wall, due to the lack of ascorbic acid in the body

Advantages of ozone therapy:

- Complete elimination, preventing its recurrence;
- Lack of skin burns and scarring of pigmented skin;
- It is a painless procedure;

SKIN STRETCH MARKS

Phenomena often associated with edematous fibrosclerotic panniculopathy. They are located on the skin on the abdomen, thighs, breasts.

They occur as a result of hyperextension of the skin during pregnancy, a sudden change in body weight or endocrine disorders in adolescence.

Their treatment is carried out by subcutaneous injections with oxygen/ozone mixture with 1-5 mg/l. The number of sessions is equal to 8-20 with the frequency of 1 times a week.

Focal alopecia

Oxygen-Ozon therapy was performed to patients in the form of intravenous ozone drip infusions dissolved in 200 ml of NaCl 3 times a week, in total – a cure of 10 procedures (ozone concentration in solution - 1 - 1.5 mg / l);

Some patients simultaneously received subcutaneous injections of oxygen-ozone gas mixture directly into alopecia foci on the scalp with a frequency of 1-2 times a week, 5-7 procedures per course (ozone concentration in the gas mixture - 2-3 mg/l). On average, 2-3 oxygen-ozone therapy treatments were performed with a break between cures of 2-3 months.

Under the influence of therapy, the activity of oxygen radicals decreases, there is a tendency to normalize hydrolytic enzymes and myeloperoxidase.

After treatment, patients in all groups experienced a decrease in the number of regenerating neutrophil leukocytes, which indicates the normalization of the metabolism of these cells. There was a positive trend toward normal values of the number and ratio of the main subpopulations of lymphocytes (decrease of T-suppressors, increase of T-helpers).

Precautions after ozone therapy of the scalp

- Taking precautions that will help patients reduce the risk of side effects during the rehabilitation period after ozone therapy,
- Stop smoking and drinking alcohol (at least for a few days).
- For 3-5 days, limit any physical activity.
- Refuse cosmetic products (for 5 days). Do not use masks, creams and styling products.
- It is forbidden to wash the scalp for a week.
- It is forbidden to scratch the scalp.
- Sauna and steam baths are not recommended (at least 2-3 days)
- . Important! Immediately after ozone administration, the patient may experience dizziness or a slight headache. These effects are natural unless they grow and cause severe discomfort.
- If areas of inflammation and itching appear on the head, it is necessary to consult a doctor-trihologist.

Edematosclerotic Paniculopathy (cellulite)

- Effect of ozone therapy on cellulite: After the introduction of ozone into the subcutaneous adipose layer, microcirculation is activated, and fat cells become smaller. The layer of fat is reduced and the skin is leveled. Ozone therapy as a method of combating cellulite is becoming more and more popular due to a number of benefits.

- Irrigation of the ozone-oxygen mixture in a plastic container
- Intravenous administration of ozonated saline
- Subcutaneous injection of the ozone-oxygen gas mixture
- Subcutaneous injection of an ozone-oxygen gas mixture using a multi-injector system

- Course 10-15 procedures 1-2 (up to 3) times a week. The duration of the procedure is up to 40 minutes. After the procedure, bruising may occur at the injection sites.

Senile atrophy of the skin of the face and neck, facial wrinkles

To prevent skin aging, rejuvenation and correction of facial wrinkles, oxygen-Ozon therapy was applied at the Institute of Plastic surgery and Cosmetology in 310 patients, mainly women aged 25 to 65 years

Subcutaneous injections of the oxygen-ozone mixture were performed at points in the wrinkle sites and other areas with signs of fading (chin, neck, etc.), as well as in the presence of excessive subcutaneous fat in the submandibular and chin-mouth areas.

Senile atrophy of the skin of the face and neck, facial wrinkles

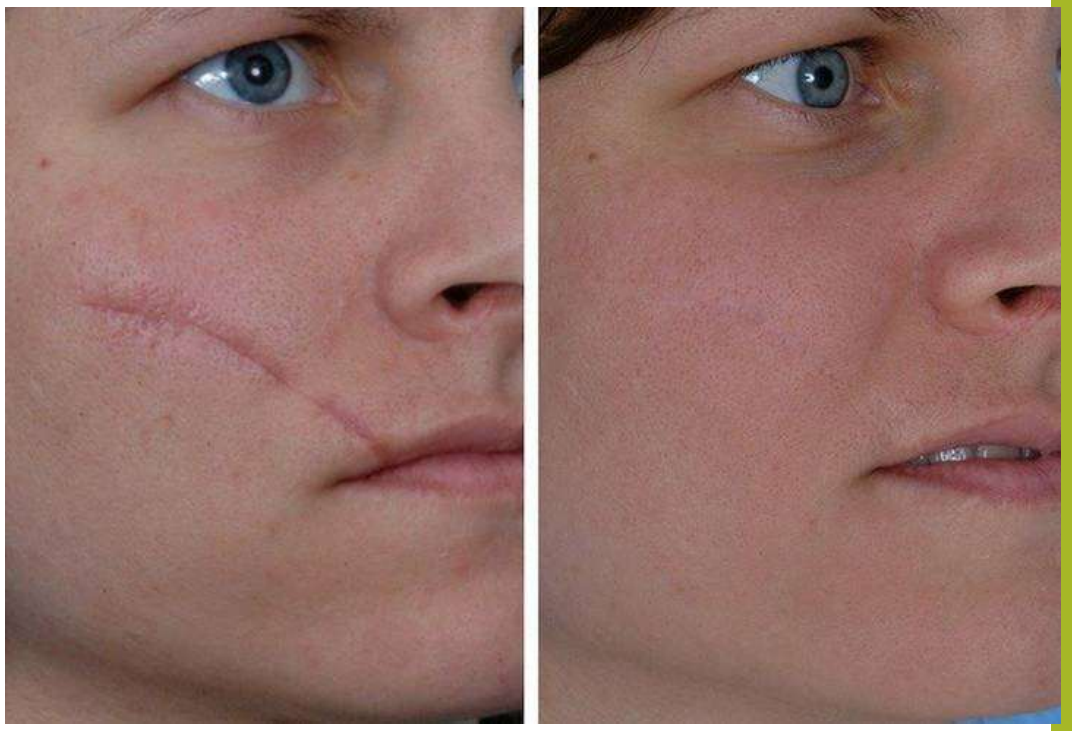
To correct wrinkles around the eyes, the volume of the injected oxygen-ozone mixture was 0.2 - 0.5 ml for the forehead and the nasolabial fold - 0.4 - 1 ml at each point. Approximately 1 ml is injected into the neck area at each point. In total, depending on the depth of wrinkles and the severity of excess subcutaneous fat, up to 160 ml of oxygen-ozone mixture is injected in a single session. The number of procedures per course of treatment is 10-12, the frequency of procedures is 1-2 times a week; the concentration of oxygen-ozone mixture is 1 - 1.5 mg / l. in total, it is recommended to perform 1 course of treatment in 6 months and 1 maintenance procedure - 1 time a month.

Senile atrophy of the skin of the face and neck, facial wrinkles

Complications were not detected, side effects manifested in the form of superficial, quickly regressing from standard local anti-inflammatory drugs, hemorrhages at injection sites. After the procedure, patients are subjected to a plastic or cosmetic manual massage for a more uniform distribution of the oxygen-ozone mixture.

Postoperative diseases (edema, tissue infiltration, scars)

There is an observation of complications after surgery to remove excess skin of the face and neck. In the early postoperative period, the patient developed tissue necrosis in the parotid region, an extensive erosive and ulcerative surface was formed. Oxygen-ozone therapy was administered as local subcutaneous injection of the lesion with an oxygen-ozone gaseous mixture with an ozone concentration of 1.5 - 2 mg/l.
The procedures were carried out every day (full cure -10 sessions). The positive effect was manifested after the 4th procedure and was expressed by a significant reduction in inflammation, activation of the epithelization process.
Complete epithelization occurred after 10 cures.



Effectiveness of oxygen-ozone therapy

The application of oxygen-ozone therapy to patients with various inflammatory skin diseases has made it possible to achieve rapid improvement of inflammatory phenomena, improvement of healing processes.
In the largest observation group – in patients with different forms of eczema – positive treatment results were observed in 83-88% of patients. The assessment of the long-term results of the treatment for 1 year after its completion allowed us to establish that among patients receiving external ozone therapy, after 3 months, the results of the treatment were not evaluated. the exacerbation occurred in no more than 12% of patients and by the end of 1 follow-up - in no more than 19%.

Effectiveness of oxygen-ozone therapy

Systemic therapy proved to be much better - 1 year after treatment, exacerbation was observed in only 10% of patients. The best results were achieved with a combination of systemic and external treatment methods: Clinical remission was stable in all patients; 1 year after the end of the course of treatment, exacerbation of the eczema process was observed in only 5% of patients.
Only in isolated cases did the treatment have no positive effect. This indicates the pronounced therapeutic effectiveness of this method in dermatological practice, its availability and prospects for the treatment of eczema and patients with other dermatoses, itching.

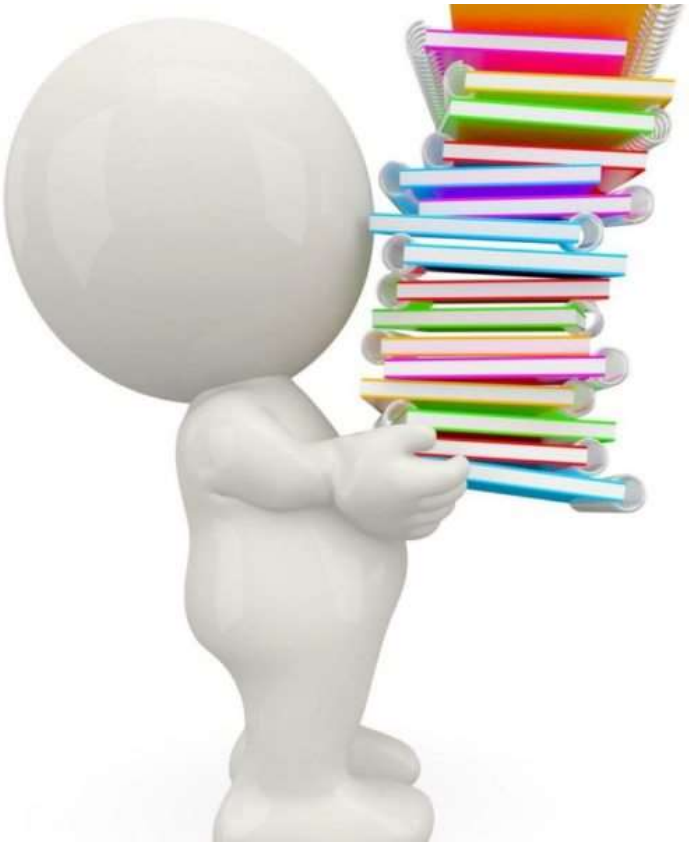
Effectiveness of oxygen-ozone therapy

The effectiveness of oxygen-ozone therapy in patients with ulcerative forms of cutaneous angiitis was generally about 73% - patients who had a complete clinical cure (healing of the ulcerative defect) or a significant improvement.
It should be noted that the positive effect of the treatment was observed in patients who underwent at least 2 courses of treatment using an oxygen-ozone mixture with an interval of 4-6 months. At 2-3 courses of treatment for 1-1 1/2 years, long-term observation results are a persistent remission of the skin process in about 60% of patients.

Effectiveness of oxygen-ozone therapy

Among patients with chronic pigmented purple, the effectiveness of oxygen-ozone therapy is about 83%. When at least 2 courses of systemic ozone therapy are performed for one year, a stable positive result persists in the absolute majority of patients.

When performing oxygen-ozone therapy in patients with pyoderma and acne, the effectiveness of treatment is about 85%. At the same time, in the case of pioderma, an oxygen-ozone mixture can be successfully prescribed as monotherapy, and in the case of acne, its inclusion in a therapeutic complex consisting also of drugs containing retinormon, external agents that regulate the secretion of the sebaceous glands of the skin, etc., it is advisable to perform repeated courses of subcutaneous acne punctures 1-2 times a year, preferably in the autumn-winter period.



Effectiveness of oxygen-ozone therapy

In patients with focal alopecia, in some cases, oxygen-ozone therapy has been combined with local skin friction with minoxidil solution in baldness outbreaks. The effectiveness of therapy was evaluated visually with regular examination of patients during treatment. In the final evaluation of the results, it was shown that active growth of fluffy hair began earlier in the group of patients receiving combined therapy (Kochergin N. G. and col., 2002). In general, the effectiveness of ozone therapy in the alopecia group is estimated at 41%.

The effectiveness of oxygen-ozone therapy in correcting senile skin atrophy and facial wrinkles is 85-90%. The positive effect was observed after 3-4 procedures and was expressed in smoothing fine wrinkles, increasing skin turgour, reducing the paste, improving the skin, reducing dryness and the feeling of tightening the skin, manifestation of the lifting effect in the submandibular and chin-curly areas, improving overall well-being. It is recommended to carry out maintenance courses 2-3 times a year.

Contraindications for ozone therapy

1. insuficiența congenital glucose-6-phosphate dehydrogenase (favism), because in this case, red blood cells do not have a protective system against oxidants;
2. early period after internal bleeding - because the introduction of ozone, taking into account its hypoclotting effect, in these cases can worsen increased bleeding;
3. all disorders of blood clotting;
4. thrombocytopenia;
5. hyperthyroidism;
6. infarct acute myocardial;
7. hemorrhagic stroke;
8. intoxicație acute with alcohol;
9. history of seizures;
10. chronic pancreatitis often recurrent;
11. allergic reaction to ozone.

side effects

There are no adverse effects in ozone therapy, as long as major contraindications are observed: High blood pressure in the spate, hyperthyroidism, pregnancy and favism

Studies have shown that ozone does not affect healthy cells in the body, due to specific electrical charge and a strong membrane enzymatic barrier. In this regard, ozone therapy is also called "targeted therapy" – ozone only identifies and destroys diseased cells.

Oxygen-ozone therapy has no adverse effects, does not generate allergies or intolerances, as this is a pure gas (O2-O-3 – is obtained from medical oxygen).

Thanks to the technical progress in the construction of the apparatus, medical ozone therapy is completely risk-free. It is recommended to use certified ozone devices.

OZONE THERAPY IN NEUROLOGY

CHRONIC FORMS OF CEREBRAL INSUFFICIENCY

Administration:

- Intravenous infusions of ozonated saline
- Rectal insufflations with ozone/oxygen mixture
- Major autohemotherapy

The course consists of either intravenous infusions with ozonated saline solution (procedures can be substituted with rectal infusions) or major autohemotherapy procedures.

Infusions are done daily up to 8-10 procedures.

Major autohemotherapy procedures are performed every two days up to 6-8 procedures.

Rectal insufflations with ozone/oxygen mixture are done according to the scheme:

-Initially 200 ml is administered, the dose should be increased by adding another 100 ml each day until the required dose.

NEUROLOGICAL MANIFESTATIONS OF SPINAL OSTEOCHONDROSIS

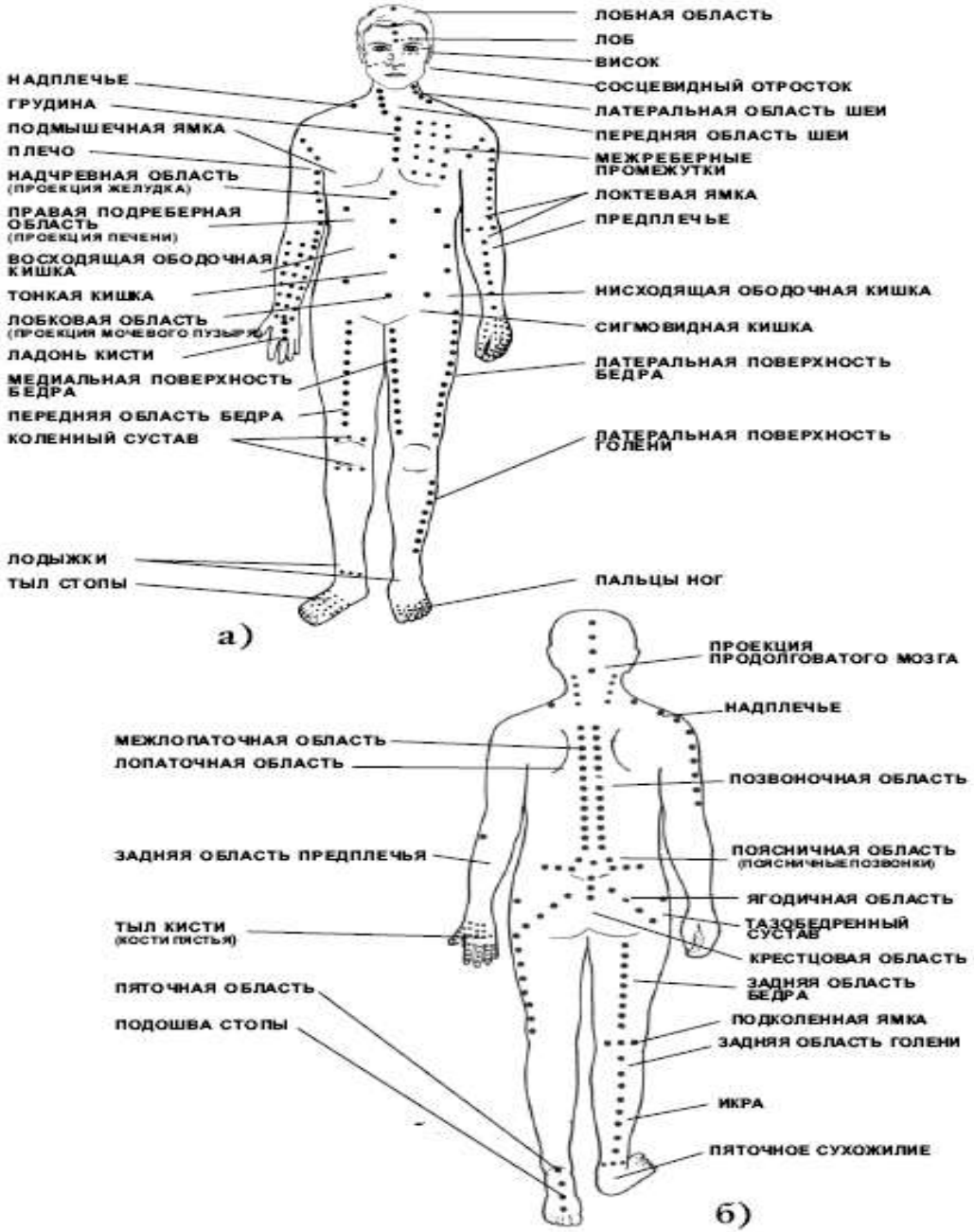
The analgesic effect of ozone has been successfully used in the treatment of patients with vertebrogenic pain, syndrome caused by direct oxidation of alopeptides, suppression of ischemia radices and blocking prostaglandin synthesis. Subcutaneous injections of ozone/oxygen mixtures at active points in combination with minor autosemotherapy and intravenous infusions of saline ozone provide positive results in most patients with osteochondrosis.

Administration:

- Intravenous infusions with ozonated saline
- Rectal insuffations with ozone/oxygen mixture
- Minor autosemotherapy
- Paravertebral injections of ozone/oxygen mixtures
- Subcutaneous injections of ozone/oxygen mixtures at trigger points and biologicalactive points.

The course consists of two alternating treatment schemes

1. Intravenous infusions with ozonated saline or rectal infusions completed on the same day with subcutaneous injections along the bone line and paravertebral injections. Paravertebral injections are at the palpative sensitivity points in depth of 5 – 6 cm with volume of 5 – 10 ml.
2. Minor autohemotherapy procedures are performed on the same day as subcutaneous injections of ozone/oxygen mixtures at biologically active points. Subcutaneous injections at biologically active points are performed at a depth of 1–1.5cm with a volume of 1–2ml. The course consists of 8 -10 procedures.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б)

INFLAMMATORY BRAIN DISEASES (MENIGITE, ENCEPHALITIS)

Administration:

- Intravenous infusions with ozonated saline
- Minor autohemotherapy-
- Autohemotherapy major -ozone dose -1000-1200µg/100ml

The treatment includes all the procedures listed above

Major autohemotherapy is performed every second day alternated with intravenous infusions of ozonated physiological serum or minor autoshemotherapy, overall, 12-15 procedures.

Note: Ozone therapy is performed in addition to anti-inflammatory treatment

MIGRAINE

Administration:

- Intravenous infusions with ozonated saline, ozone concentration is 1200µg/l
- Rectal insuffations with ozone/oxygen mixture
- Major autosemotherapy
- Minor autosemotherapy
- Subcutaneous injection of ozone/oxygen at biologically active points

The treatment consists of the procedures listed above

1. Intravenous infusions of ozonated saline or rectal infusions with ozone/oxygen mixture are to be done daily or every two days to 8-10 procedures.
2. Minor autohemotherapy is done twice a week, up to 3 – 4 procedures.
3. Intravenous infusions with ozonated saline, rectal infusions with ozone/oxygen mixture and minor autosemotherapy can be replaced with major autosemotherapy up to 8 – 10 procedures, the first two performed daily and then 2 – 3 times a week.
4. Subcutaneous ozone/oxygen injections into the biologically active points of the neck and collar area should be performed daily.

MONO- AND POLI-ISCHEMIC AND COMPRESSIVE NEUROPATHY

Ozone therapy, although it does not eliminate the causes of compression of the nervous trunk, it stimulates the regeneration of the affected nerve by improving the neurology and microcirculation, decreasing hypoxia and activating oxygen metabolism in ischemia of the nervous tissue.

Administration:

- Intravenous infusions with ozonated saline
- Rectal insufflations with ozone/oxygen mixture
- Major autohemotherapy

The course consists of any of the forms of administration listed above, up to 8 – 10 procedures. Infusions with ozonated saline are done daily or alternately.

Rectal insuffations with the ozone/oxygen mixture are made starting with 200ml, which is to be increased with the addition of another 100 ml each day until the necessary dose.

STROKE

Energy metabolic imbalance and significant decrease in the content of macro-energetic compounds are thought to be the main cause responsible for the changes that occur in neurons in ischemic stroke.

The use of ozone therapy in patients with cerebral infarction can be very beneficial due to the effect of ozone optimization on the blood in terms of oxygen transport, increased oxygen use, activation of glycolysis, Krebs cycle, oxidation of fatty acids.

Administration:

- Intravenous infusions with ozonated saline
- Autosemotherapy major -dose of ozone-1mg/100ml blood.

During treatment, one of the routes should be chosen.

The first 3 – 4 intravenous infusions with ozonated saline are done daily, then each day (3-4 procedures) with the rest done twice a week. The course includes 10 procedures.

The first 2 major autosemotherapy procedures are done daily, the next 3 – every two days, the rest – twice a week, up to 8 – 9 procedures for the course.

Patients with ischemic stroke experienced positive changes in the oxygen transport system (43% increase in PO2 after ozone saline infusion and 26% increase after ozone therapy), in the blood clotting system (platelet decrease by 10-15%) the aggregation capacity with 8-10% activation of fibrinolysis), improvement of lipid spectrum (10-12% decrease in total cholesterol, 7-10% in β-lipoprotein, 12-15% decrease in atherogenic inefficiency).

Ozone therapy should not be administered in cases of ischemic stroke with an unconfirmed diagnosis.

Thank you!