MODERN OZONETHERAPY. MECHANISMS OF THE THERAPEUTIC EFFECT OF OZONE. FUNCTIONAL AND LABORATORY METHODS OF SUPPORT OF OZONETHERAPY.

STATE UNIVERSITY OF MEDICINE AND PHARMACY "NICOLAE TESTEMITANU"

DEPARTMENT OF INTERNAL MEDICINE

THE DISCIPLINE OF GERIATRICS AND OCCUPATIONAL MEDICINE

Optional course: Ozone therapy

Subjects:

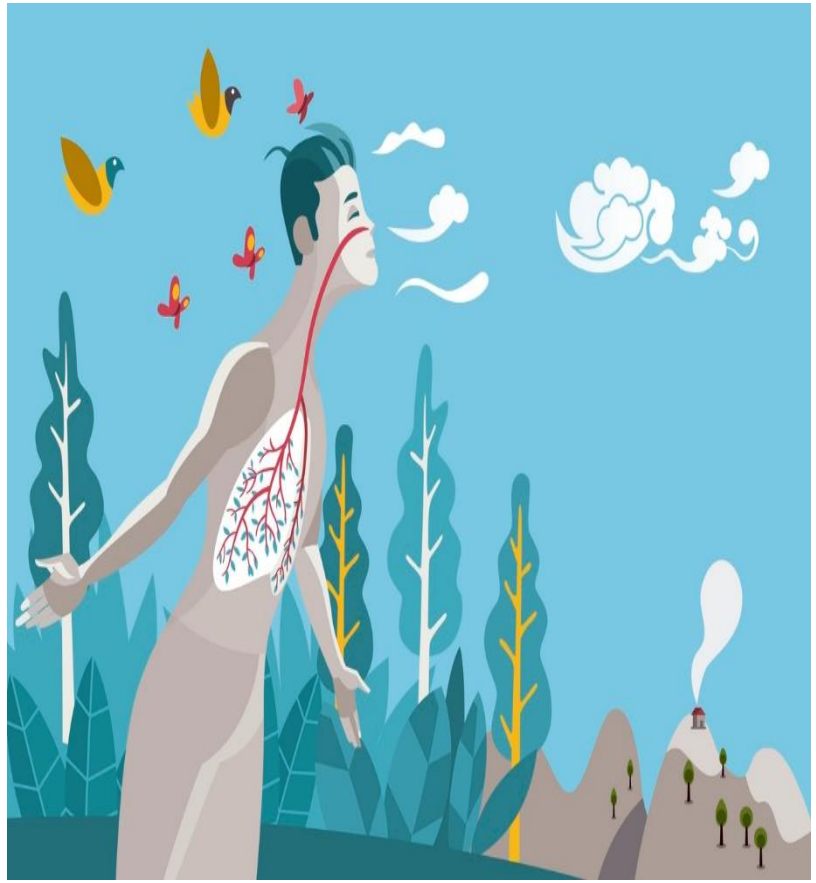
- Modern ozone therapy.
- Mechanisms of the therapeutic effect of ozone.
- Functional and laboratory methods of support of ozone therapy.

„ Oxygen is the source of life. Lack of it affects health, causes disease, and can cause death.”

dr. Eugene Blass.

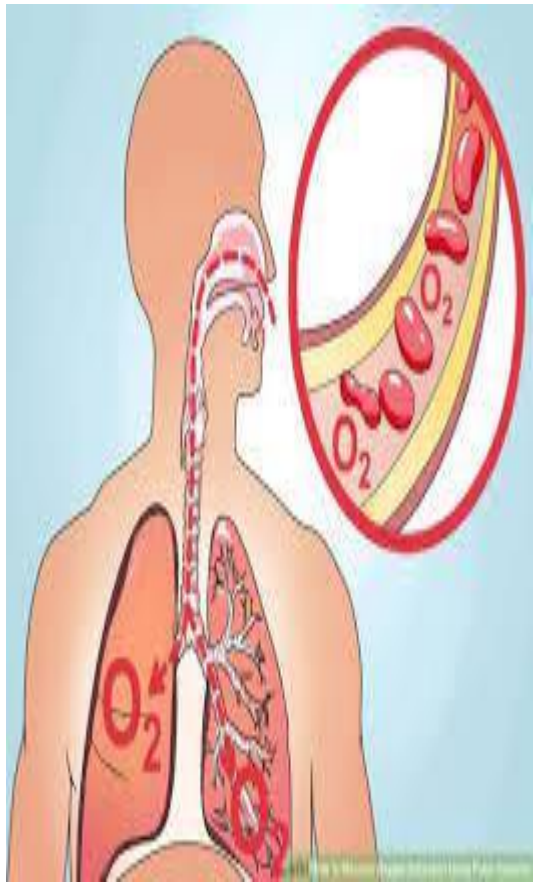
How important is oxygen to health?

- Most of modern life is carried out in stress, anxiety, polluted environment and food deficiencies, depriving the body of the necessary oxygen.
- At the beginning, the oxygen concentration in the air was 38%.
- At the beginning of the 20th century, the concentration of oxygen in the air was 32%.
- In the 1990's, this concentration had reached 15% in major cities and in industrial areas it could decrease 10%.
- Our bodies are receiving considerably less oxygen today. The causes are multiple: Environmental pollution, massive forest cutting, active and passive smoking, decreased water consumption, sedentary, stress.



- **If without food we can live for a few weeks, without water we can survive for a few days, without oxygen we can only survive for 4-5 minutes.**
- **The nutrients that enter our body use oxygen to convert their potential energy into usable energy.**
- **Oxygen needs to be present in the body so that toxins can be eliminated and the immune system can cope with diseases.**

THE ROLE OF OXYGEN



- To understand how oxygen works, we need to go back to the basics:

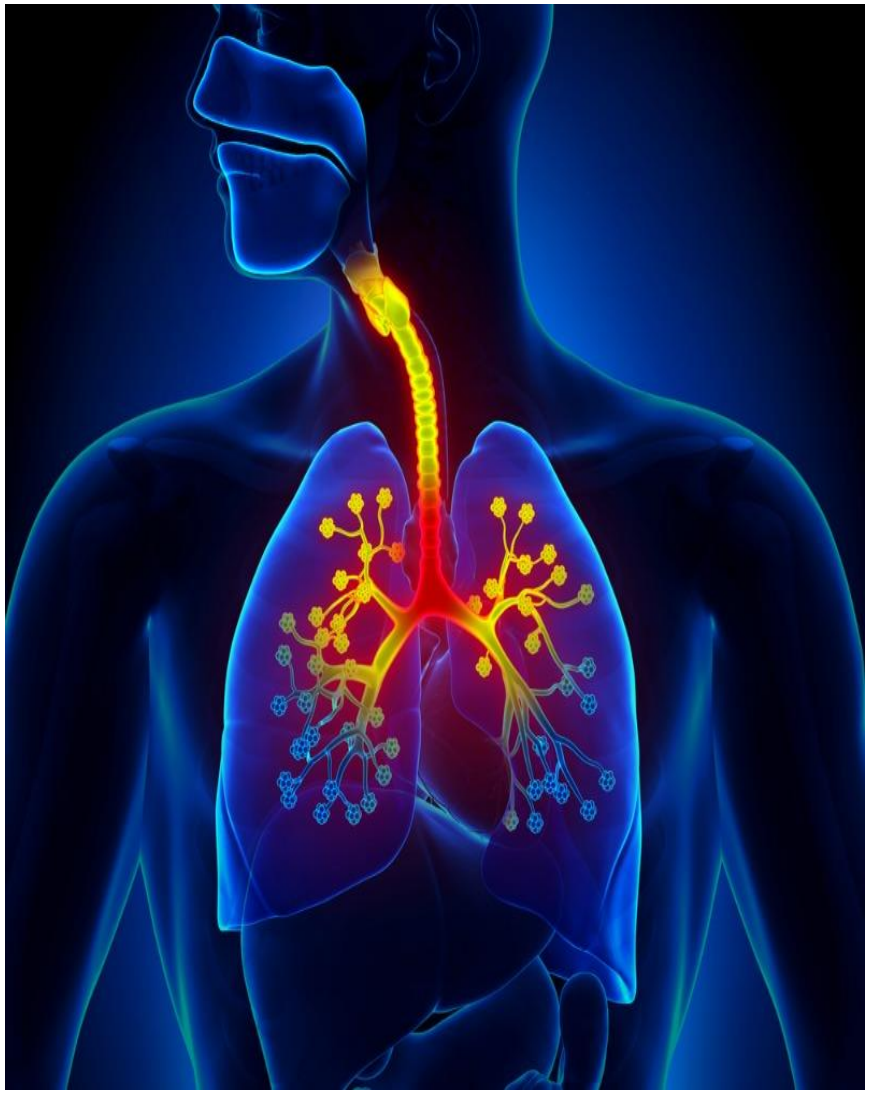
-The human body contains 65% oxygen, and this percentage decreases with aging.

-Oxygen plays a key role in almost all bodily processes:

It is necessary for cellular metabolism and to keep cells and tissues in working order.

As a result, oxygen deficiency can be fatal.

- Research has shown that almost all disease processes can be linked to oxygen deficiency.
- If we look at the oxygen saturation (pO_2 values) of infected or damaged tissues, we find that these values are much lower than they would be in health.
- Long-term insufficiency of oxygen saturation will put the tissue in the phase of chronic illness and no cure is possible thereafter.
- The importance of oxygen in the body has long been known and oxygen therapy is often practiced today.

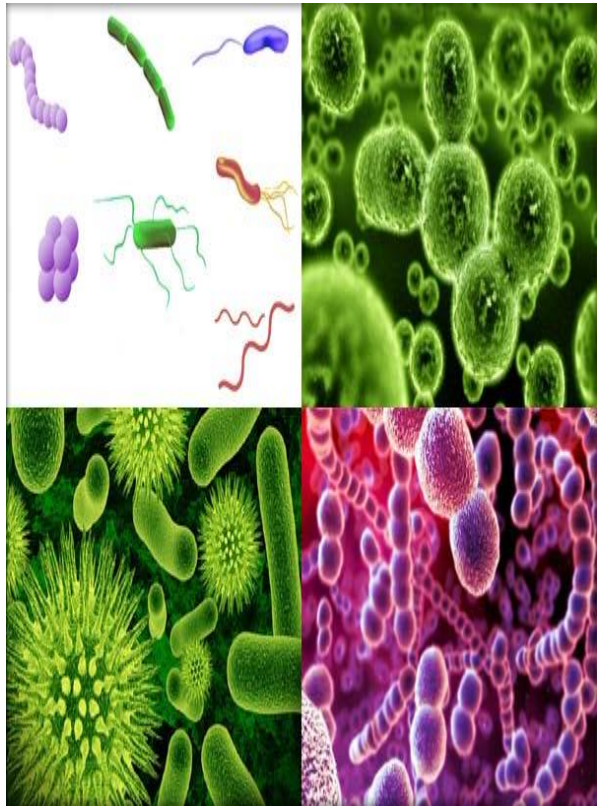


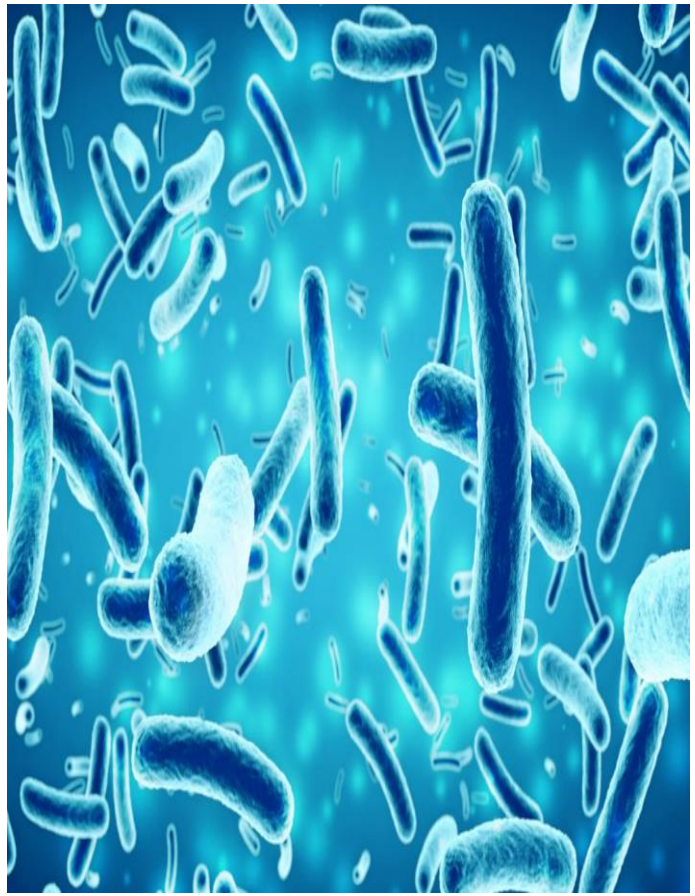
- An example is hyperbaric oxygen treatment, because oxygen supports the immune system and has an infection-inhibitory effect.
- Another basic example we all know is that wounds heal more slowly if covered than when allowed to “air dry.”
- Oxygen is so powerful that a cancer cell cannot divide.

- In the case of chronic lesions, because the pO2 value is reduced, the body is not able to repair the tissue, for this it will need oxygen.
- By applying oxygen, you support the body's own healing processes.
- Oxygen stimulates normal cell division and helps to form new blood vessels (neovascularization), allowing the wound to exit the chronic phase.

AEROBIC AND ANAEROBIC BACTERIA

- Anaerobic bacteria are often found in infections. If we take the oral cavity as an example, virtually all problems that occur – such as caries, gum infections and halitosis – are caused by anaerobic bacteria.
- Aerobic bacteria, on the other hand, have useful properties and ensure the balance of bacterial flora
- However, the antibacterial substances used to treat patients will not differentiate between "good" and "bad"; they will kill all bacteria, creating an imbalance of bacterial flora.
- By applying a low dose of oxygen over a longer period of time, you can ensure that only anaerobic bacteria are destroyed.
- Aerobic bacteria will survive, avoiding the creation of an imbalance.
- In addition to having this antibacterial property, oxygen is also an antifungal and antihistamine substance.





- There is definitely a correlation between oxygen levels in the body and disease!
- It is important to remember that stress, fear, anxiety, worry, depression interfere with the respiratory process and reduce the amount of oxygen entering the body, which can lead to disease.
- So the key to achieving maximum health is to perfect the supply of oxygen to the cells, because only in this way can the cells function properly.
- If the amount of oxygen that reaches the cells is reduced, they will turn to another source of energy to maintain vital functions, in this case the metabolism will be affected.

Ozone

- Ozone is a compound that contains three oxygen molecules.
- When administered in the human body, it superoxygenates the blood, causing increased production of enzymes that form antioxidants and improving mitochondrial function.
- Ozone stimulates oxygenation, improves energy production and metabolism, modulates the immune system and acts as a direct antimicrobial agent (useful in treating bacterial, viral, parasitic and fungal infections).

- Through these processes ozone decreases aging disorders and degenerative diseases.
- Ozone therapy is a method of treating diseases by introducing a mixture of ozone and oxygen into the body.
- This composition has an anti-inflammatory, antibacterial and antiviral effect and, in addition, increases metabolism and increases the body’s defenses.
- This makes the procedure effective in the treatment of many diseases and improves the effect of many drugs.

DEFINITION OF OZONE THERAPY

- Ozone therapy is a therapy based on the injection or insufflation into the body of a certain amount of ozone, through various techniques, which in certain areas of pathology has allowed unexpected therapeutic results due to the direct action of ozone during local applications such as disinfectant, revitalizing and trophic, due to the pain reliever and myorelaxant action, as well as due to the strong antibacterial and virustatic effect of the systemic type of ozone.

MEDICAL OZONE is a drug with a

- chemical formula,
- pharmacological actions and
- well-defined biological effects,
- having certain therapeutic indications.

From a chemical point of view, medical ozone is a mixture of pure medical oxygen and pure medical ozone, in which the concentration of ozone varies, depending on the disease, the route of administration and the intended therapeutic purpose, between the concentration of 1 and 100 micrograms/ml.

- Unlike other drugs that can be bought at the drugstore, medical ozone cannot be bought at the pharmacy, because the medical ozone molecule has a short life span.
- The ozone molecule, meaning "triatomic oxygen", exerts its biological effects precisely because of its ability to rapidly decompose into the 3 oxygen atoms that are component, with the release of the contained energy and the generation of important metabolic effects thanks to both the energy brought into the body and the extra oxygen reached tissues and cells.

WHAT ARE THE PHARMACOLOGICAL ACTIONS OF MEDICAL OZONE?

The pharmacological effects of medical ozone depend on the ozone concentration administered:

a) Ozone concentrations between 80-100 micrograms/ml exert a strong cytotoxic effect very useful for the rapid disinfection of wounds and especially chronic leg ulcers, diabetic ulcers and surgical or non-surgical wounds with a reduced tendency to healing.

b) ozone concentrations of 1 to 40 micrograms/ml (with optimum between 10 and 30 micrograms/ml) exerts a very strong biostimulant and scarring effect, useful for tissue regeneration in general and especially for wound healing.

WHAT ARE THE BIOLOGICAL EFFECTS OF MEDICAL OZONE?

- Bactericidal action, virucide, fungicide - useful in rapid disinfection but also in the treatment of skin, vaginal, dental infections, hepatitis B and C;
- Promotes wound healing and tissue regeneration;
- Immunostimulant effect;
- Rapid analgetic action - quickly cancels painful manifestations of joint, muscle, ligamentary;
- Anti-inflammatory Efectant;
- Myorelaxanated action;
- Reduction of inflammatory edema;
- Revitalizing and improving well-being;
- Detoxifying effects;
- Improves energy metabolism (beneficial effects in type II diabetes) and increases physical and intellectual performance;

etc.....

- The extra oxygen produced in living tissues by the decomposition of medically administered ozone will generate important biological effects:
- will increase the efficiency of metabolism;
- increases tissue and cell viatlity;
- increase local energy production;
- it will stimulate the defense and detoxification systems;

- induces an increase in the amount of biologically active substances in the immunocompetent cells (interferons, interleukins, growth factors, intercellular communication factors and tissue regeneration);
- It will intensify the production of tumor cell destruction factors and stimulate the activity of cells endowed with the natural ability to destroy tumor cells (NK cells = natural Killer);
- and last but not least, it will increase the body's ability to destroy biological aggressors in the surrounding environment that infect and kill it (bacteria, viruses, fungi).

CLINICAL EFFECTS OF OZONE

In medical practice the most important are the following effects of ozone:

1. Bactericide, fungicide and virucide.

- When externally applied in the form of a gaseous mixture or in an ozonated solution, it is recommended to use high concentrations of ozone that produce a direct oxidative effect on the membrane of the organism.
- Ozone can destroy virtually all types of bacteria, viruses, fungi and protozoa. Gram-positive bacteria and capular viruses that have a lipid biolayer are particularly sensitive to oxidation.
- The use of therapeutic ozone concentrations provides bactericidal effect that indirectly activates the non-specific defense system (activation of phagocytosis, improved synthesis of acitokine-interferons, necrotic factor of interleukin tumor), as well as cell components and humoral immunity. Evidence of partial oxidation of viral receptors has been reported.
- In addition, inhibition of the enzyme revers transcriptase that promotes AIDS has been revealed, thus leading to the destruction of the virus.

2**. The anti-inflammatory** effect is revealed in the ability of ozone to oxidize compounds containing double bonds, arachidonic acid and its derivatives - prostaglandins.

- These biologically active substances participate in the development and support of the inflammatory process.
- In addition, ozone regulates metabolic reactions in the tissues at the site of inflammation and resolves pH.
- The effectiveness of ozone therapy in bronchial asthma can be partially explained by the oxidation of double bonds in such pathological compounds as leukotrians, also derived from arachidonic acid.

3. **The analgesic** effect of ozone is ensured by the oxidation of albuminolysis products, so-called algopeptides.

- It acts on the nerve endings in the damaged tissue and determines the intensity of the pain response.
- In addition to this, the analgesic effect is also caused by the normalization of the antioxidant system and, consequently, the decrease in the amount of toxic molecular products of lipid peroxidation on the cells, which changes the function of the enzymes incorporated in the membrane, which participate in ATP-synthesis and in maintaining the vital activity of organs and tissues.

4. **The detoxifying effect** of ozone is revealed in the correction and activation of metabolic processes in the liver and renal tissues, thus providing them with the main function of neutralization and evacuation of toxic compounds from the organs.

5. **Activation of oxygen-dependent processes**.

- Ozone doses, however small, cause increased free and dissolved oxygen content in the blood with rapid intensification of enzymes that catalyze aerobic oxidation of carbohydrates, lipids and proteins with the formation of the ATP energy substrate.
- Of great importance is the activation of mitochondria of the h-ATP-ase, responsible for conjugation of respiratory processes and oxidative phosphorylation, resulting in ATP synthesis.

6. **The optimization of pro and anti-oxidant systems** is considered one of the main effects of systemic ozone therapy that is achieved through its influence on cell membranes to balance the level of lipid peroxidation products and antioxidant defense system.

- In response to ozone occurs the compensatory increase in antioxidant activity - superoxydismutase (SOD), catalase and glutathioperoxidase.
- Because of aerobic restoration, the accumulation of NADH2 and NADPH2 occurs, which function as proton cadoners to restore the oxidized components of the non-enzymatic antioxidant system (glutathione, vitamin E, ascorbic acid, etc.). The use of exogenous antioxidants with the preliminary calculated dose is mandatory when using high concentrations of ozone.

7**. The hemostatic effect** of ozone depends on the dose.

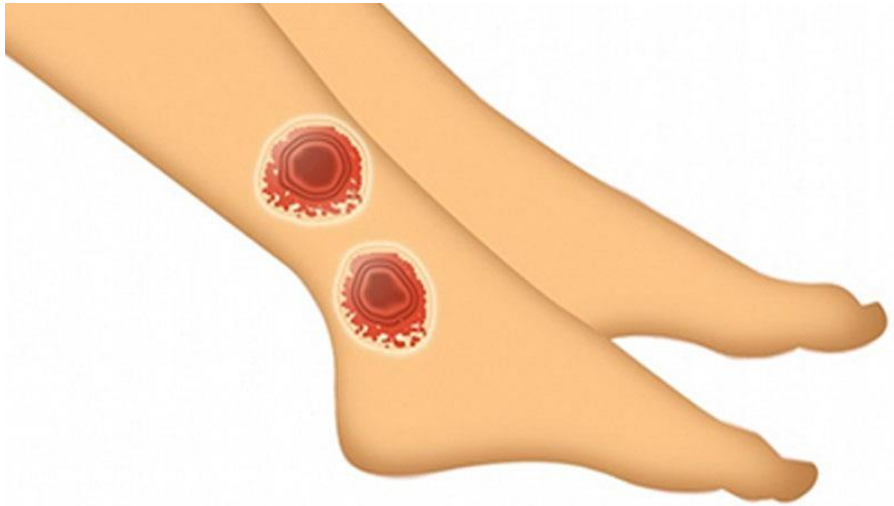
- High concentrations administered cause an obvious hypercoagulation effect, while low concentrations are characterized by decreased platelet and coagulative levels of hemostasis and increased fibrinolytic activity.

8. **The immunomodulatory effect** of ozone is based on its interaction with the lipid structures of the membrane cells and depends on the chosen dose.

- Low concentrations of ozone promote the accumulation of ozone on the membranes of phagocytic cells – monocytes and macrophages.
- Thanks to ozone, these cells stimulate the synthesis of various cytokines.
- Cytokines, being biologically active peptides, contribute to the subsequent activation of the non-specific defense system (increasing body temperature, generating the acute phase in the liver) and besides this, activate cellular and humoral immunity.
- All together facilitate the treatment of secondary immunodeficiency.

- High concentrations of ozone produce an aggravating effect on lipid peroxidation processes in the cell membrane of the same phagocytic cells with the accumulation of toxic and lipid peroxidation products, which inhibit cytokine synthesis and thus eliminate the activation of T-helper lymphocytes.
- This effect is used in the management of patients with autoimmune pathology (rheumatoid disease, disseminated sclerosis, scleroderma) without taking medication.

EXAMPLES OF INDICATIONS OF OZONE TREATMENT



INFECTED WOUNDS AND LESIONS, WHICH HEAL HARD, FUNGAL SKIN LESIONS - disinfecting effect, cleaning wounds, improving their healing. Initially, the treatment uses the disinfectant properties of ozone to produce a clean, bacteria-free wound (by killing fungi and bacteria). In the second stage, against the background of the use of low concentrations of ozone, stimulating repair, fast healing of wounds is ensured.

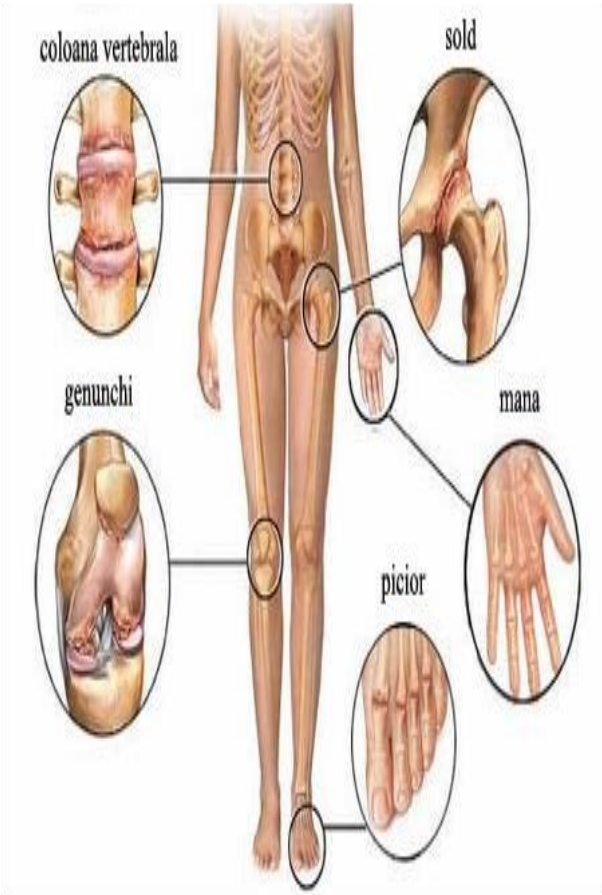
CIRCULATORY DISORDERS, ESPECIALLY IN DIABETES MELLITUS, ANGIOPATHY - improved oxygen intake by activating erythrocyte metabolism; restoring the blood microcirculation system; activating the antioxidant system and processes of cellular energy supply.

GENERAL WEAKNESS AND IMBALANCE OF THE IMMUNE SYSTEM, SUCH AS CHRONIC INFLAMMATORY PROCESSES (HEPATITIS) - activation of the immune system and antioxidant.

CHRONIC MUSCLE PAIN, ARTHROSIS, RHEUMATOID ARTHRITIS - anti-inflammatory effect due to the activation of antioxidants and radical captors, modulating the immune system.

Inflammatory and degenerative diseases of the joints, especially in the early stages (stages 1 and 2), in which there has not yet been a pronounced bone deformity, are most receptive to the medical use of ozone. This applies to knee or shoulder joint gonarthrosis.

In these cases, in addition to the classic medical tactics of the main treatment, intra-regional injections of articular ozone are particularly effective in combination with motion therapy. It contributes to the manifestation of the anti-inflammatory properties of ozone, modulation of immunity and activation of cellular cartilage metabolism.



DISEASES ASSOCIATED WITH DISORDERS OF THE CARDIOVASCULAR SYSTEM

- Human health depends largely on the condition of the blood vessels and the composition of the blood.
- With ozone therapy, the blood becomes more saturated with oxygen, its elements improve qualitatively: Erythrocytes, leukocytes, platelets.
- Ozone has an expansion effect on vessels, especially capillaries. All this ensures an increased supply of oxygen and nutrients to organs and tissues.
- Therefore, ozone therapy is effective in diseases associated with vascular damage, circulatory disorders and lack of oxygen - coronary heart disease, sclerosis of brain vessels and lower extremities.

ENDOCRINOLOGY - DIABETES MELLITUS

- Insidious disease of diabetes mellitus. It flows differently.
- Some patients require constant insulin injections, others limit themselves to taking pills, and others manage to follow a diet. But for all three categories of patients, for all diabetics, it is dangerous for its complications.
- The fact is that 10% of them develop serious vision problems over time, and 2% completely blind.
- More than half of people develop diabetic foot syndrome. Heart attacks and strokes are common. In addition, immunity suffers, and furunculosis, pyelonephritis and lung diseases often develop.
- Damage to the eyes, nervous system and lower extremities is based on changes in the smallest vessels with narrowing and malnutrition of vital organs, as well as due to lack of oxygen. Under the influence of excess sugar, the quality of the blood changes.
- Hemoglobin, which carries oxygen from the blood to the tissues, is “glycolized” and affects the transport of oxygen. By improving blood circulation and oxygen intake, ozonotherapy is one of the best ways to prevent the development of diabetes complications - cataracts, angiopathy, arthropathy, etc.

GERONTOLOGY

In connection with age-related changes, primarily in the vessels, chronic oxygen deficiency increases. This refers primarily to the brain, which uses the highest amount of oxygen. Accounting for 2% of our total body weight, it requires 20% of the oxygen consumed by our body. Hence the decrease in memory, performance, physical activity, organ dysfunction. Ozone therapy eliminates oxygen deficiency, increases energy metabolism in tissues. restores the normal functioning of organs and systems. Patients feel vigorous, effective and strengthened again.

ARTHROLOGY - DISEASES OF THE SPINE AND JOINTS

With age, degenerative changes occur in the cartilage tissue of the spine and in the joints, mainly the knees. It is manifested by pain, limit in walking, movements and daily work. Periarticular and intra-articular administration of ozone-oxygen mixtures, due to its pronounced anti-inflammatory and analgesic effect, relieves patients' pain, activates them and returns to normal work activities.

CONDITIONS ACCOMPANIED BY IMMUNODEFICIENCY

Ozone primarily increases the energy of the immune system, that is. increases the body’s defense. Therefore, ozone therapy helps treat diseases caused by impaired immune responses - bronchial asthma, rheumatoid arthritis. Ozone is a good support for many chronic diseases because. chronic disease is always a consequence of secondary immunodeficiency. The effectiveness of ozone therapy in frequently and long-term ill children who are treated as gas enemas has been proven.

OZONE AND TASK

Ozone therapy can become a real panacea to support the health of future mothers who are contraindicated in powerful drugs and procedures. Ozone in the blood in the early stages of pregnancy prevents toxicosis, and in later periods - anemia in women and fetal hypoxia. Good results are given by the life-giving gas in case of miscarriage, combats infection, helps the mother recover after birth.

HERPES

Herpes rashes on the lips, intimate places, shingles cause a lot of problems. Gynecologists are well aware of papillomavirus. Cytomegalovirus prevents a woman from becoming a mother. It has now been shown that patients with herpes are more likely to develop cancer. Ozone works in the body in many ways. If he encounters viruses in a free state, he destroys them. If the virus is in the cell, then ozone creates the conditions for its destruction by the cell itself. It protects healthy cells from getting the virus into them.

VIRAL HEPATITIS

Similarly, ozone acts on the hepatitis virus. It is effective for any type Of virus A, B or C. Ozone therapy gives the same results as treatment with modern drugs, but it is much easier to tolerate by patients and costs several times cheaper. Repeated courses of ozone therapy protect against the development of complications of hepatitis - cirrhosis and liver cancer.

LABORATORY METHODS IN SUPPORT OF OZONE THERAPY

- Laboratory diagnosis is an important medical branch, without which it is impossible to imagine the work of doctors today. It facilitates diagnosis and gives specialists the opportunity to choose the most effective treatment regimen, focusing on objective test data.
- Laboratory diagnosis (including its numerous sections such as: Clinical biochemistry, clinical hematology, cytology, immunology, virology, microbiology, bacteriology, parasithology, etc.) is one of the fastest growing branches of modern medicine.
- Ozone requires targeted investigations to identify all the details of the patient's health and so ozone can be a successful intervention.

TASKS THAT THE LABORATORY DIAGNOSIS SOLVES:

- accurate diagnosis;
- the search for new methods for the study of biological materials;
- study using a wide range of analyzes of the functioning of all organs and systems of the body;
- detection of pathological changes at any stage;
- control of disease progression;
- evaluation of the effectiveness of therapy.

TYPES OF LABORATORY TESTS CARRIED OUT WITH THE PURPOSE OF ENSURING OZONOTERPEUTUL WITH LABORATORY DETAILS

- bacteriological research;
- biochemical analysis;
- hemostatic studies;
- histological studies;
- serological studies;
- immunology, immune status;
- a bound immunosorbent test;
- general clinical trials;
- PCR, Diagnosis of DNA;
- cytological studies;
- microbiological research.

LABORATORY RESEARCH PROGRAMS IN OZONE THERAPY

Allergy examination

Diagnosis of stomach diseases

Diagnosis of liver diseases

Diagnosis of kidney disease

Diagnosing the risks of developing cancer

Diagnosis of carbohydrate metabolism (diabetes mellitus, metabolic syndrome)

Diagnosis of urogenital infections

Diagnosis of thyroid function

Assessment of hormonal status

Task planning

Preoperative exam

Prenatal screening

Risk of developing atherosclerosis

INSTRUMENTAL METHODS IN SUPPORT OF OZONE THERAPY

IMAGING:

RX: Based on the properties of röntgen radioscopy, x-ray: (MRF- micro-radio-photography) pulmonary, simple renal or contrast-based substances, liver, bone, joint, cranial, CT;

ultrasound: cardiac, abdominal, thyroid, mammary glands;

Nuclear magnetic resonance;

Nuclear imaging uses the physical property of certain radioactive isotopes.

FUNCTIONAL SCANS:

I don’t have to go to the office. Bile ducts, exocrine pancreas (tubing or fibroscopic- endoscopy: Esophageal, gastroscopy, colonoscopy), visual analyzer (visual acuity), acoustic-vestibular analyzer (audiometry), nervous system (EEG - electroencephalogram), foot plant (baropodometry).

CONTRAINDICATIONS TO OZONE THERAPY

- internal hemorrhage;
- allergic reaction to ozone;
- thireotoxicosis;
- myocardial infarction;
- acute pancreatitis;
- hypotension;
- convulsive syndrome;
- alcohol intoxication;
- thrombocytopenia;
- hypocalcemia;
- intoxicated.

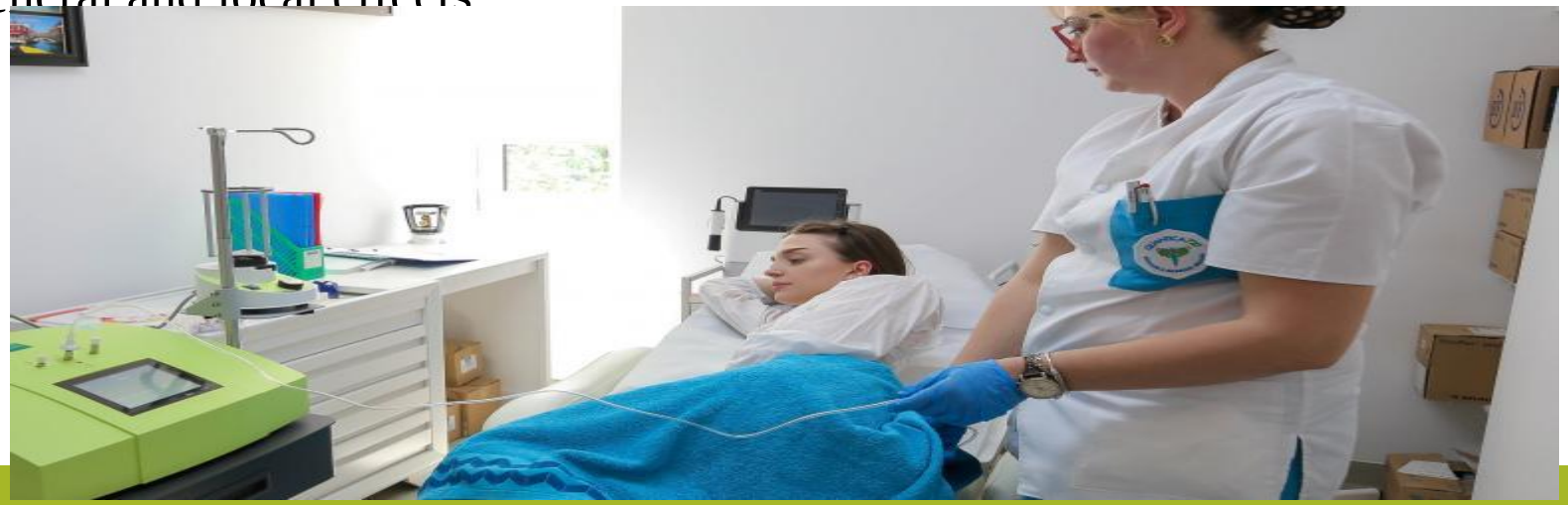
METHODS OF OZONE THERAPY

MAJOR OZONE AUTOHEMOTHERAPY.

- Take 50-150 ml of venous blood in a special container with anticoagulants, after which an ozone-oxygen gaseous mixture is injected, the contents of the container is mixed well and gently, then the blood is reinserted into the patient's vein. It is the most effective ozone therapy procedure, used as a basic method of treatment by ozone therapy of any of the listed pathologies.

COLON THERAPY WITH OZONE-OXYGEN MIXTURE.

- Rectal insuffation of a gaseous mixture of ozone-oxygen is carried out with a Janet syringe.
- The 50-500 ml gas with an ozone concentration of 5-60 µg/ml is injected into the rectum via a special plastic tip.
- The time to introduce ozone is from 0.5 to 5-10 minutes.
- To perform this procedure, a preliminary cleaning of the intestine is recommended.
- Intestinal insufflations of the ozone-oxygen mixture are used, on the one hand, as a local agent that has anti-inflammatory, disinfectant, antiparasitic and normalizing effect on the composition of the intestinal microflora.
- On the other hand, these procedures have a systemic effect on the patient's body, contribute to the correction of various metabolic disorders and, by their nature, being a method of general ozonotherapy, serve as an alternative to intravenous administration. Thus, rectal insuffation of an ozone-oxygen mixture combines general and local effects



MINOR AUTOHEMOTHERAPY is a way of administering ozone, mainly used to treat dermatological conditions such as acne and allergies, but also to increase the performance of the immune system. Like other forms of ozone administration, even in the case of minor autoemotherapy it is not recommended to completely stop the classical treatment, because ozone therapy is a complementary method, even if it is a natural treatment.

Minor autohemotherapy assumes that 10 ml of blood is collected in a syringe, mixed with ozone, and then re-injected intramuscularly.

Ozone fragilizes the cell membrane of the red blood cells, which break down, and when they are reintroduced into the body by injection, they become the target of a real "inspection" by the immune system. Basically, the body “sees” an intruder and begins to investigate it.

As the DNA of the intruder is the same as that of all cells, a process of “general inspection” is triggered. It is somewhat similar to the action of an antivirus on the computer. As direct consequences, there is an increase in immunity and a decrease in the production of pro-inflammatory factors, which maintain processes such as acne or allergic reactions.

Minor autohemotherapy is also used in oncological patients, because in cancer the growth of the immune system affected by allopathic treatment is a real problem.

INJECTION OF OZONE-OXYGEN MIXTURE.

- With this method of administration, the ozone-oxygen mixture is injected subcutaneously into tissues near the joint using a special thin needle.
- The ozone concentration in the ozone-oxygen mixture is 1-5 mg/ml.
- The amount of gas introduced into the periarticular space depends on the size of the joint and varies from 1-3 ml (for a small joint) to 15-20 ml (for a large joint).
- It is used in the treatment of inflammatory and dystrophic lesions of the joints: Arthrosis, arthritis, in the treatment of fractures.
- General ozone therapy procedures are recommended for rheumatic joint injuries.
- The course of treatment includes 8-10 procedures performed in 4-6 weeks.
- Periarticular ozone injection is recommended to be performed 3-5 times a week.

GASIFICATION OF THE FLOW OF THE PARANASAL SINUSES AND EAR CANAL

With this method of exposure, a gaseous mixture of ozone-oxygen is injected with a syringe into the nasal or auditory pathways, respectively. Do not use needles and stings, the procedure is extremely comfortable and takes only a few minutes. The course of treatment is usually 6-10 procedures daily or once every two days.

INTRODUCTION OF OZONE IN TRIGGER POINTS AND PAINFUL MUSCLE SEALS, PARAVERTEBRAL REGION.

The technique is used in the treatment of osteochondrosis, myofascial painful syndromes. At the same time, a mixture of ozone-oxygen is injected with a thin needle directly into the trigger points and/or acupuncture, tense muscles, paravertebral to relieve pain, relieve stress, improve local blood circulation and metabolic processes.

MANAGEMENT OF WATER AND OZONE OIL.

Republica Moldova
Ministerul Sănătăţii

CERTIFICAT DE INOVATOR

Nr. *5426*

Pentru inovaţia cu titlul

Metodă de tratament a acneei vulgaris cu ozon.

Inovaţia a fost înregistrată pe data de **16.02.2015**
la Universitatea de Stat de Medicină şi Farmacie
"Nicolae Testemiţanu"

Se recunoaşte calitatea de autor(i)

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Data eliberării **22.03.2015**

L.Ş.

(Semnătura autorizată)

Republica Moldova
Ministerul Sănătăţii

CERTIFICAT DE INOVATOR

Nr. *5437*

Pentru inovaţia cu titlul

Metodă de tratament cu ozon a herpesului bucal

Inovaţia a fost înregistrată pe data de **17 .03.2015**
la Universitatea de Stat de Medicină şi Farmacie
"Nicolae Testemiţanu"

Se recunoaşte calitatea de autor(i)
Bodrug Nicolae, Luca Ecaterina, Antonova Natalia, Barba Doina, Calancea Valentin, Baraniuc Ludmila, Zlatovcena Alla, Scurtu Alina, Chetrari Alisa

Data eliberării **16.04.2015**

L.Ş.

(Semnătura autorizată)

Republica Moldova
Ministerul Sănătăţii

CERTIFICAT DE INOVATOR

Nr. *5434*

Pentru inovaţia cu titlul

Metoda de tratament cu ozon în Medicina Estetică Şi dereglările metabolismului local al epiteliului.

Inovaţia a fost înregistrată pe data de **02 .03.2015**
la Universitatea de Stat de Medicină şi Farmacie
"Nicolae Testemiţanu"

Se recunoaşte calitatea de autor(i)
Bodrug Nicolae, Luca Ecaterina, Antonova Natalia, Barba Doina, Nicolau Natalia, Podoroghin Marina, Grigoriu Liudmila, Coţaga Igor, Chetrari Alisa

Data eliberării **03.04.2015**

L.Ş.

(Semnătura autorizată)

Republica Moldova
Ministerul Sănătăţii

CERTIFICAT DE INOVATOR

Nr. *5442*

Pentru inovaţia cu titlul

Metoda de tratament a eczemelor cutanate cu ozon

Inovaţia a fost înregistrată pe data de **06.04.2015**
la Universitatea de Stat de Medicină şi Farmacie
"Nicolae Testemiţanu"

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Data eliberării **22.04.2015**

L.Ş.

(Semnătura autorizată)

Republica Moldova
Ministerul Sănătăţii

CERTIFICAT DE INOVATOR

Nr. *5441*

Pentru inovaţia cu titlul

Metoda de tratament a psoriazisului cutanat cu ozon

Inovaţia a fost înregistrată pe data de **21.03.2015**
la Universitatea de Stat de Medicină şi Farmacie
"Nicolae Testemiţanu"

Se recunoaşte calitatea de autor(i)

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Data eliberării **22.04.2015**

L.Ş.

(Semnătura autorizată)

Republica Moldova
Ministerul Sănătăţii

CERTIFICAT DE INOVATOR

Nr. *5446*

Pentru inovaţia cu titlul

Metoda de tratament a micozelor cutanate cu ozon

Inovaţia a fost înregistrată pe data de **13.04.2015**
la Universitatea de Stat de Medicină şi Farmacie
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Data eliberării **29.04.2015**

L.Ş.

(Semnătura autorizată)

Republica Moldova
Ministerul Sănătăţii

CERTIFICAT DE INOVATOR

Nr. 5436

Pentru inovaţia cu titlul

Metodă de tratament a demodecidozei cu ozon

Inovaţia a fost înregistrată pe data de 10 .03.2015
la Universitatea de Stat de Medicină şi Farmacie
"Nicolae Testemiţanu"

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Data eliberării 10.04.2015

L.Ş.

(Semnătura autorizată)

Republica Moldova
Ministerul Sănătăţii

CERTIFICAT DE INOVATOR

Nr. *5462*

Pentru inovaţia cu titlul

Metodă de tratament cu ozon a plăgilor trofice

Inovaţia a fost înregistrată pe data de 17.05.2015
la Universitatea de Stat de Medicină şi Farmacie
"Nicolae Testemiţanu"

Se recunoaşte calitatea de autor(i)

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Data eliberării
29.05.2015

(Semnătura autorizată)

Republica Moldova
Ministerul Sănătăţii

CERTIFICAT DE INOVATOR

Nr. *5427*

Pentru inovaţia cu titlul

Metodă de tratament a polineuropatiilor diabetice cu ozon

Inovaţia a fost înregistrată pe data de **16 .02.2015**
la Universitatea de Stat de Medicină şi Farmacie
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Data eliberării **18.03.2015**

L.Ş.

(Semnătura autorizată)

Republica Moldova
Ministerul Sănătăţii

CERTIFICAT DE INOVATOR

Nr. *5431*

Pentru inovaţia cu titlul

Terapia cu ozon în dereglările circulatorii ale Diabetului Zaharat

Inovaţia a fost înregistrată pe data de 24 .02.2015
la Universitatea de Stat de Medicină şi Farmacie
"Nicolae Testemiţanu"

Se recunoaşte calitatea de autor(i)

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Data eliberării 24.03.2015

L.Ş.

(Semnătura autorizată)

Republica Moldova
Ministerul Sănătăţii

CERTIFICAT DE INOVATOR

Nr. *5443*

Pentru inovaţia cu titlul

Ozonoterapia-metoda de tratament anti-aging

Inovaţia a fost înregistrată pe data de **06.04.2015**
la Universitatea de Stat de Medicină şi Farmacie
"Nicolae Testemiţanu"

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Data eliberării **22.04.2015**

L.Ş.

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DE INVENȚIE
DE SCURTĂ DURATĂ

Nr. **1490**

Eliberat în temeiul Legii nr. 50/2008 privind protecția invențiilor

Titlul: **Metodă de diagnostic al stărilor precanceroase gastrice morfologic schimbate**

Titular: **UNIVERSITATEA DE STAT DE MEDICINĂ ȘI FARMACIE "NICOLAE TESTEMIȚANU" DIN REPUBLICA MOLDOVA, MD**

Data depozit: **2020.09.21**

Durata brevetului : **6 ani**

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Nr. **1541**

Eliberat în temeiul Legii nr. 50/2008 privind protecția invențiilor

Titlul: **Metodă de tratament al infecției cu virusul SARS-CoV-2 de formă medie**

Titular: **INSTITUȚIA PUBLICĂ INSTITUTUL DE FIZIOLOGIE ȘI SANOCREATOLOGIE A MEC, MD**

Data depozit: **2020.10.27**

Durata brevetului : **6 ani**

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Nr. **1561**

Eliberat în temeiul Legii nr. 50/2008 privind protecţia invenţiilor

Titlul: **Metodă de tratament complex al infecţiei cu virusul SARS-COV-2**

Titular: **IP UNIVERSITATEA DE STAT DE MEDICINĂ ŞI FARMACIE "NICOLAE TESTEMIŢANU" DIN REPUBLICA MOLDOVA, MD**

Data depozit: **2021.02.25**

Durata brevetului : **6 ani**

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Descrierea invenţiei, revendicările şi desenele constituie parte integrantă a prezentului brevet de invenţie de scurtă durată

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Nr. **1575**

Eliberat în temeiul Legii nr. 50/2008 privind protecția invențiilor

Titlul: **Dispozitiv pentru menținerea recipientelor în procesul de barbotare a soluțiilor de uz curativ**

Titular: **IP UNIVERSITATEA DE STAT DE MEDICINĂ ȘI FARMACIE "NICOLAE TESTEMIȚANU" DIN REPUBLICA MOLDOVA, MD**

Data depozit: **2021.05.14**

Durata brevetului : **6 ani**

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Descrierea invenției, revendicările şi desenele constituie parte integrantă a prezentului brevet de invenție de scurtă durată

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CONCLUSION

- Therefore, the analysis of literature data and its own results allows us to conclude the high clinical and economic effectiveness of ozone therapy and allows us to recommend ozone therapy at large in practical medicine.

- Thank you!