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***Dear customer!***

You have got "ALMAG-01" Portable Magnetotherapy Device with a Travelling Pulsed Field (further mentioned as ALMAG) intended to be used for treatment and prophylaxis of a wide spectrum of diseases in the conditions of physiotherapy departments, patient care and prophylactic institutions and the patient himself in home conditions on doctor's advice. Taking the procedure with the help of ALMAG on the doctor's advice you should follow recommended therapeutic technique given in operating manual to the device.

ALMAG is belonged to the products of medical devices and it is included in the nomenclature of physiotherapeutic devices allowed for application in medical practice. RF Public Health Ministry Committee for new medical apparatus Minutes No. 7 of 9.08.1999. The registration certificate No.FS 022a0409 / 1024-04 of 14.12. 2004.

***ATTENTION!*** *Operating manual should be both carefully studied prior to the first application of the Device and followed strictly in the process of its operation. This will assure the device correct and safety operation. When being passed to a third man the Operating Manual should be enclosed to the Device..*

The present Operating Manual is a document proving the basic parameters and technical characteristics of ALMAG Device.

When purchasing a Device make sure of the seller's signature or merchandiser's stamp as well as of the sales date.

## **1. PURPOSE OF THE DEVICE**

### ***1.1 General information***

1.1.1 The Device is designed to produce a therapeutic effect on the human body with a travelling pulsed magnetic field and can be applied both at physiotherapeutic departments of patient care and prophylactic institutions and by a patient himself at home conditions.

1.1.2 The Device is to be sold either through retail or wholesale trading network..

1.1.3 The Device is designed to operate under normal environmental conditions for Temperate Cold climate design products, ambient temperature between +10°C - +35°C, atmospheric pressure from 86,6 kPa to 106,7 kPa (650 - 600 mmHg).

1.1.4 Electric safety class of the Device: Class II of B type according to IEC 601-1-2-93.

**1.2 Indications for use**

**Locomotor system diseases:**

- spinal osteochondrosis with reflex cervical spine, thorax and loin radicular syndrome
- deforming osteoarthritis
- arthritis and arthrosis of different joints: scapulohumeral periarthrosis, arthritis, epicondylitis, gout
- bursitis
- myositis
- parantnoit

**Locomotor system injuries and their after-effects:**

- bone fractures;
- internal joint damages;
- posttraumatic joint contracture;
- wound, soft tissue bruise, hematoma, posttraumatic edema;
- muscle and ligaments injuries;
- postoperative wounds;
- keloid cicatrix;
- sluggish purulent wounds, phlegmons, burns.

**Neurologic diseases:**

- diseases of peripheral nervous system;
- neuritises:
  - facial nerve neuritis
  - radial nerve neuritis
  - ulnar nerve neuritis
  - median nerve neuritis
  - sciatic nerve (ischias) neuritis
  - peroneal nerve neuritis
  - plexitis
- neuralgias:
  - trigeminal nerve neuralgia,
  - occipital nerve neuralgia,
  - intercostal neuralgia

**Traumas of central nervous system:**

- trauma of a backbone and a spinal cord;
- disorder of a spinal blood circulation,

- circulation with chronic ischemic illness of heart

**Brain vascular diseases**

- ischemic cerebral stroke.

**Diseases of cardiovascular system:**

- idiopathic hypertension of I- II degree;

- renal hypertonia;

- vegetovascular dystonia on hypertonic type;

- ischemic illness of heart with a stable stenocardia (under the medical supervision);

- obliterating atherosclerosis of vessels of the lower extremities (obliterating endarteritis).

**Diabetes mellitus complications:**

- diabetic angiopathy;

- diabetic polyneuropathy.

**Dermatologic diseases:**

- itching dermatosis;

- dermal plastic operation postoperative condition.

**Chronic nonspecific lung diseases:**

- chronic bronchitis;

- chronic pneumonia;

- bronchial asthma.

**Gastrointestinal tract disorders:**

- subacute and chronic pancreatitis;

- biliary dyskinesia;

- chronic gastritis

- stomach and duodenum ulcer;

**Female genital organs diseases**

- uterus and uterine appendages inflammatory diseases in the subacute period

- diseases caused by ovary hypofunction

- cesarean post operation condition

**Venous disorders of upper and lower extremities:**

- thrombosis of deep crus veins;

- chronic thrombophlebitis at the trophic disturbance stage;

- varicose disease

**1.3. Contraindications:**

- *inflammatory diseases in the acute phase;*
- *hemorrhage and predisposition to it;*
- *high-grade hypotension;*
- *purulent processes before surgical treatment;*
- *severe cardiac ischemia;*
- *early post infarction period;*
- *acute phase of cerebral blood circulation disturbance (stroke);*
- *pregnancy;*
- *systemic blood diseases;*
- *oncological diseases;*
- *thyrotoxicosis;*
- *diencephalic syndrome;*
- *the presence of implanted cardiostimulator in the zone of action*

Small metal inclusions in the bone tissue are not contraindications for the device application in the therapeutic doses.

**2. SPECIFICATIONS**

- 2.1 Mains circuit voltage ~220V (-10%; +10%) or ~230V (-10%;+6%), frequency 50Hz.
- 2.2 Power consumption: not more than 15 VA.
- 2.3 Weight: max. 0,62 kg.
- 2.4 Overall dimensions of:
  - electronic unit 137x60x44 mm
  - one of the coils of exposure assembly - 15xØ90 mm
- Note: extreme deviations: ±3%.*
- 2.5 The number of exposing coils-inductors - 4.
- 2.6 Amplitude value of magnetic induction on the functional surface (both flat surface) of the device exposure assembly coil-inductor: (20±6) mTl.
- 2.7 Pulse duration: 1,5 - 2,5 ms.  
Magnetic field pulse repetition frequency per coil: 6 Hz.
- 2.8 The device activation, its connection to the mains, is followed with LED light indication.

2.9 The device provides recurring-short-term operating mode within 6 hours: operation (action) period - (22±1) min., break - 10 min.

2.10 Device is automatically disconnected from the electric mains after (22±1) min. operation.

2.11 Environmental resistance of the Device is the type of moderate cold climate design apparatus.

2.12 The outer surfaces of the device are resistant to disinfection by chemical method: 3% solution of hydrogen peroxide with 0,5% detergent of "Lotos" type or 1% solution of chloramine.

2.13 Mean-time-between-failure: min. 1000 h.

2.14 Mean service life - five years.

2.15 The Device is made of the material which produces no irritating or allergic effect.

2.16 Maximum temperature after one operation cycle:

- device case, max. - 45 °C;

- device exposure assembly unit, max. – 41 °C

2.17 Class of the device depending on potential risk of application - 2a.

### **3. DELIVERY COMPLETE SET**

The delivery complete set includes:

- "ALMAG-01" device;
- magnetic field indicator;
- elastic medical bandage;
- operating Manual.

### **4. PRINCIPLE of DEVICE OPERATION**

#### ***4.1 Physiological effect of traveling pulsed magnetic field on human organism***

The cumulative scientific material testifies that in a basis of a medical effect of magnetic fields is their ability both to control the flow of the charged particles and to make action on the magnetised bodies irrespective of a condition of their flow. As a result you can have a positive effect upon natural biological process resulting in intensifying of intracellular and intercellular metabolism. Thus magnetic field therapy is undeniably promotes the body's own restorative function in the healing process by direct stimulation – without surgical intervention, without drugs, without side effect. Medical effect of magnetic field as compared both with static and alternating magnetic fields is mostly

expressed in travelling pulsed magnetic field of ALMAG device. The travelling pulsed magnetic field of ALMAG, with the frequency of impulses coinciding with those of the biological active frequency of the person organism( from 4 to 16 Hz) is able to achieve the best therapeutic effect as compared to that of constant and variable magnetic field.

The unique design of ALMAG induction coils allows travelling impulsive magnetic field to penetrate deep into tissues of the patient to 8 cm, that is successfully applied for the treatment of diseases of the internal organs. The influence of strictly rhythmical travelling impulsive magnetic field produced by the device on the diseased organs of the human body makes a positive effect on your body finally stimulating dysfunction recovery.

Besides, under the influence of a magnetic field in a place of the device positioning there is the improvement of blood flow and oxygen supply leading to the reduction both of blood viscosity and accordingly the risk of formation of thromboses. The vessels lumen is enlarged, additional capillaries are opened and their permeability are improved. All these result in increase of blood supply in the affected area; cells Oxygenium, immunoglobulins, building proteins provision; increase of capillary blood flow, improve of capillary tone and contractility as well as increase of capillary blood filling; moving of inflammation products out. The activation of metabolism prevents the disease worsen progressively grow, increases the process of regeneration and metabolic activity, recovery and of the diseased cells. The application of low-frequency travelling pulsed magnetic fields to treat patients with different pathologies has a number of beneficial effects on your body:

- stimulation the processes of nervous inhibition responsible for a sedative effect followed by emotional stress relief and sleep normalisation;
- cerebral vascular tone release, improvement of cerebral blood circulation, activation of nitrogenous and carbohydrate-phosphoric metabolism increases cerebral hypoxia resistance;
- systolic and diastolic pressure decrease down to normal values;
- analgesic effect due to sensitivity reduction of peripheral nervous receptors;
- training response and activity improvement of all endocrine systems;
- increase of vascular and epithelial permeability which leads to accelerated resolution of edema and introduced medicinal agents;
- metabolism improvement followed by attenuation of pathologic processes in the liver, heart and other organs;
- increase of body resistance to unfavourable effects.

A low-frequency travelling pulsed magnetic field due to the above curative effects has analgetic, anti-inflammatory and anti-edematous action and stimulates metabolic process. Immunocompetent organs (thymis gland, spleen lymph nodes, etc.) are especially sensitive to influence of low-frequency travelling pulsed magnetic field, increase of the number of leucocytes in the blood during the course treatment is the evidence of it. During the course of any disease treatment pulsed magnetic field makes influence on biologically active points all over the human body as a result the origination of reflex phenomena of muscles and inner organs connected to them. Course treatment with the help of ALMAG due to the above curative effects results in smooth increase of the level of adaptation (the ability of human organism to withstand undesirable action of outdoor environment as well as its ability to self-healing) that in its turn is very actual for the treatment both acute and chronic diseases..

#### **4.2 Arrangement of the device**

The Device consists of:

- an electronic unit (pulse generator) and of an exposure assembly unit comprising four connected coils-inductors designed to make effect on separate diseased parts of a body:

- cable of exposure assembly unit: (2,1±0,1)m

- the power cable: (1,2±0,1)m

The connections of all the separate units of the exposure assembly are flexible and permanent.

Note: the first coil-inductor is that one being connected to the cable of electronic unit

The electronic unit body is made of high impact polystyrene. There are two different colour light indicators (LEDs) on the electronic unit body. The green light indicates that the device is plugged to the power supply mains.

Green colour LTD signalling the availability of magnetic field action. The former is connected with the timer and is disappeared after 22 minutes of operation. And at the same time the action of device is stopped.

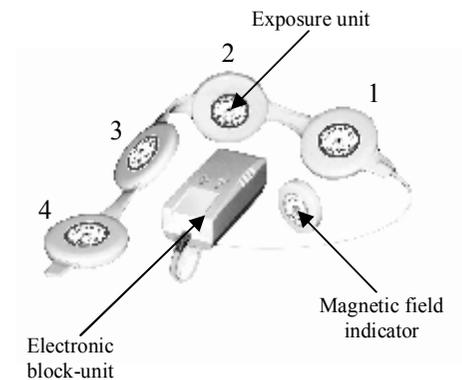


Fig. 1

*Note: In order to activate the device running mode it is necessary to unplug the device from mains and then to plug it again in ten minutes break.*

The blinking of green color LED in the center of each of four coils confirms availability of ALMAG serviceability. There is another means to check-up ALMAG device operating state, the indicator of a magnetic field is to be put on coils – inductors in turn. The presence of a pulse magnetic field will be followed with a blinking of a green bulb in the centre of the indicator or by vibration of the indicator of a magnetic field (depending on kind of the inductor).

Both sides of the coils-inductors are serviceable, therefore treatment can be carried out by the side which is most convenient.

Due to high penetrating ability of a magnetic field of the device treatment can be carried out also through clothes, a dry or damp gauze bandage, 1sm thick plaster bandage.

Take notice. Because of magnetic induction value of  $\pm 6$  mTl the glowing of green light o in the centre of inductor on the different surfaces of coils-inductors may be different on the check of the device state of operability. This can reveal itself if we remove magnetic field inductor from the surface of coil-inductors.

#### **4.3 Marking**

The markings on the Device are as follows:



*The mark defines the device as complying to Class II as regards electrical safety according to IEC 601-1-88;*



*“Caution, refer to the Operating Manual”;*



*“B type device”*

*The mark defines the device as complying to B type in regard to electric shock safety according to IEC 601-1-88.*

### **5 SAFETY MEASURES**

5.1 Please study the present Operating Manual carefully before you start to use the Device.

5.2 Perform external inspection of the Device prior to its application. There should be no the signs of damage both on the device body and coils-inductors or cable.

5.3 The electronic unit is to be conveniently located in order to exclude the cable tension when you plug to mains. The working mains voltage: ~ 220 V ( $\pm 10\%$ ) or ~ 230 V (- 10%, +6%), frequency 50 Hz.

5.4 When wiping the outer surfaces of the Device make sure that moisture does not penetrate inside the electronic unit and coils-inductors. Protect the Device from dampness, shock and impact.

5.5 **CAUTION!** Do not use the Device with the damaged body, coils-inductors and cables.

5.6 Be sure that the mains voltage is 220 V ( $\pm 10\%$ ) or 230 V (-10%, +6%)

5.7 Safety precautions at therapeutic procedures:

**a) the first treatment procedure time should not last longer than 20 minutes; at treatment of two zones the total procedure time should not exceed 30 minutes,**

b) the time of the first 3 procedure if the treated area is cervico-thoracic should be not more than 10 minutes.

c) the direct application of the device on the heart region and brain is forbidden.

Note: there may be the signs of material outflow on the on the working surface of the device body, which are not considered as the body damage and do not make influence on the device serviceability .

**CAUTION!** Do not lift or carry the device by the power cable.

Do not place the operative device close (less than 0,5 m) to magnetic data carriers, audio, video-devices and others magneto-sensitive devices.

## **6 PREPARATION FOR USE**

- After storage or transported at temperatures below +10 °C it should be kept in the room at temperature (from +10 °C to +35 °C) for at least 4 hours;

- Before the application the outer surfaces of electronic unit and coils- inductors should be disinfected by their wiping using a piece of fabric cloth watered with 3% solution of hydrogen peroxide added with 0,5 % detergent of "Lotas" type or by 1% solution of chloramine.

While cleaning avoid leakage of the disinfection solution or detergent inside electronic unit and coils-inductors case.

To be sure in the presence of magnetic field, join the indicator of magnetic field to the effective surface of each coil-inductors of operative device.

The common effective surface is the effective surface of all non twisted four coils.

At the beginning of the treatment procedure the patient takes comfortable position which he could keep up to the end of procedure.

**WARNING!** *Portable Magnetotherapy Device with a Travelling Pulsed Field ALMAG-01 is equipped with fastening piece (elastic tapes).*

Procedures (usually 10-20 for the treatment course) are recommended to be carried out in equal intervals of time, preferable before having meal. It is undesirable to have meal, at least, within one hour after procedures. Some first procedures of a treatment course are to be carried out daily with the minimal 10 minutes duration procedure, gradually increasing their duration within 2-3 days up to the maximum. Common duration of procedures without special doctor's advise is 10-20 minutes.

Procedures are desirable to be carried out twice a day. During one course of treatment it is necessary to carry out treatment of only one disease. A repeated course, if necessary, is carried out in 30-40 days, and then in 3-4 months, that is 3-4 courses a year. Between the treatment course interval you can cure another diseased area of organ. In a rest it is possible to treat other range or a member. In case of appearance of undesirable symptoms (increase of pains, giddiness, etc.) procedures are to be carried out every other day with the same duration. If undesirable reactions are kept, it is necessary to stop treatment.

It is possible to carry out magneto-therapy for children only beginning with 1,5-2 years old.

ALMAG device have a good curative effect for the weakened, elderly age patients, suffering from diseases of cardiovascular system. That allows to apply the device in many cases when the treatment by some other physical factors is not indicated.

At treatment with ALMAG you can feel pleasant warmth in a place of device exposure going out from inductors.

Sometimes the patient feels the exacerbation of pain within the period of the first 3 days which are going away after taking some procedures.

Sometimes depending of the disease severity degree the expected amelioration may take place in 15-20 days.

Do not carry out magnetotherapy procedures on a background of taking alcohol.

## **7 THERAPEUTIC PROCEDURE**

### **LOCOMOTOR SYSTEM DISEASES**

**Osteochondrosis** - is degenerative dystrophic disease characterized by a affection of inter-vertebral disks, ostial-copular structure of spinal column and nervous system. As a result of loss of inter-vertebral disks amortization properties there is pressing and deformation both of a nervous root, the vessel or a spinal cord that invokes pain sensations.

Spinal column consists of 33-34 vertebrae, which constitute cervical, thoracic, lumbar, sacral and coccygeal parts of spinal cord. Between vertebrae are spongy cartilaginous tissue, so called disks, which serve as shock-absorbing padding. Next to each disk there is nervous root from spinal cord to that or another human body. Of the state of spinal cord nerves depends the normal functioning of all human organs and systems. If disk is in good condition (sound), it allows the vertebral segments to move easily, without nerve incarceration. With disks feeding disorder they are worn out, inter-disk pressure increases. With the time the near vertebrae become so close to each other that touch and irritate nervous root when move. In the course of time there may appear the formation of intervertebral hernia.

The mostly affected parts of spinal cord are lumbar and cervical parts, rarely – thoracic part.

**Symptoms:** The patients with lumbar affected part suffer from lumbar region pain at physical tension, quick inconvenient movement, long tension state or getting cool. The patient also may feel pain in such organs as bowels, sex organs.

If cervical parts is affected not only nerve roots and their arteries are subjects to pressure, but the spinal cord and inter-vertebral arteries. This is revealed itself with neck, shoulder and back of the head pain, which may be spread to arm, shoulder blade and the front area of chest.

Osteochondrosis of thoracic part of spinal cord is revealed itself with spinal column pain, pain syndrome from the side of human internal organs (heart, stomach, lung, liver, kidneys, urinary bladder, pancreas) and disorder of their function (dyskinesia).

Very often osteochondrosis is complicated with neurological complication as a result of nerve ending pressing.

At first the patient is prescribed with short-time bed rest within 2-3 days. With pain syndrome subside it is necessary to strengthen back muscle corset with the help of physical exercises.

Magneto-therapy with the help of ALMAG device is recommended to be carried out beginning with the first days of disease diagnosing.

**Curative effect.** To make anti-inflammatory, anti-edema, anesthetizing action. Beside we have: the improvement of nerve endings conduction being pressed between vertebrae resulting in recovery of the function of organs to which these nerve endings close come; Traveling pulsating magnetic field promotes the improvement of blood flow to the diseased area, increases metabolic activity in adjoin tissues leading both to disk tissue gradual recovery and normalization of its function.

Complex therapy, including magnetotherapy courses, physical exercisers, pharmacotherapy, restrains disease progressively worse thus making the patient status much more better.

**Treatment procedure.** The most optimum time to carry procedure out is before going to bed as after procedure it is not recommended to give a load on a spinal column. In case of acute stage of disease when motion is difficult and the patient is forced to be in the lying position, procedures are carried out two times a day - in the morning and in the evening. The interval between procedures should be not less than 6 hours. Max. procedure time is 15 minutes.

The patient is in lying position, the coils-inductors are placed along the focus projection of the affected area of the spinal column. (see fig. 2).

The first procedure time for patients with chronic disease is 10 min., with the further gradual rising up to 20 min.

Maximum procedure time is up to 30 min. (osteochondrosis complicated with neuritis). The course of treatment is 18 days, maximum – 20 days (with chronic form of disease), minimum – 15 days. After 6<sup>th</sup> and 12<sup>th</sup> day of treatment course there is an one day interval. ALMAG is indicated for acute osteochondrosis, complicated with neuritis. Procedures are taken once a day. The influenced parts are affected spinal column and then adjacent parts along the projection of affected nerves:

- sciatic, tibial, fibular (see fig. 3);
- radial, ulnar, median (see fig. 4).

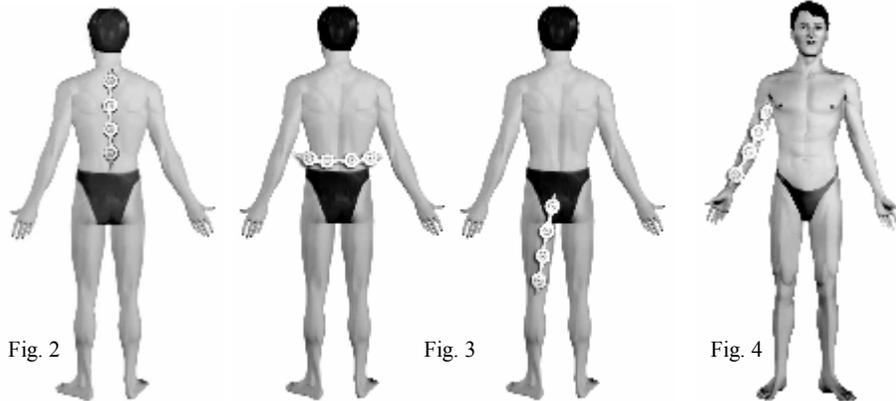


Fig. 2

Fig. 3

Fig. 4

Procedures time for osteochondrosis complicated with neuritis.

Table 1

The day of treatment	1	2	3	4	5	6
General procedure time	15 min	15 min	15 min	25 min	25 min	25 min
- spinal cord	10 min	10 min	10 min	15 min	15 min	15 min
- affected nerve	5 min	5 min	5 min	10 min	10 min	10 min
Interval	1 day					
The day of treatment	7	8	9	10	11	12
General procedure time	25 min	25 min	25 min	25 min	30 min	30 min
- spinal cord	15 min	15 min	15 min	15 min	20 min	20 min
- affected nerve	10 min	10 min	10 min	10 min	10 min	10 min
Interval	1 day					
The day of treatment	13	14	15	16	17	18
General procedure time	30 min	30 min	30 min	30 min	30 min	30 min
- spinal cord	20 min	20 min	20 min	20 min.	20 min.	20 min.
- affected nerve	10 min	10 min	10 min	10 min	10 min	10 min

### **DEFORMING OSTEOARTHRISIS**

**Deforming osteoarthritis** - disease of joints of the dystrophic character. It is characterized by the affection of articulate cartilages and periarticular tissues.

**The typical symptoms.** Disease is characterized by joints pain which is increased with the loading on the diseased joint and reduced in the state of rest; fractures; extremities arcuation, more often, thigh bones (femurs), accompanying with joints inflammation, joint stiffness in the morning.

Women above 40 years is more often suffer from osteoarthritis.

Patients suffer from osteoarthritis should avoid physical overloads and joints trauma. It is recommended to use the chairs with direct horizontal back, instead of soft armchairs, hard bed. Persons with overweight should change their diet. Physiotherapy exercises, especially swimming, are of great importance for osteoarthritis disease. Magnetotherapy by ALMAG device takes one of leading role in complex treatment and disease prophylaxis.

**Curative effect.** Travelling pulsed magnetic field has positive anesthetizing action, removes an edema, improves metabolism in periarticular tissues, makes regenerating action on an articulate cartilage, that finally prevents disease progressively worse growth

### **Treatment procedure.**

It is very convenient to carry out treatment of joints due to the presence of four coils-inductors in the device. If humeral, ulnar, knee, hand and ankle joints are affected with

osteoarthritis the coil-inductors are placed around a joint (wrapping it) (an example of treatment of a knee joint see on fig. 5). If hip joint is affected the coil-inductors are placed so that the last inductor is to be placed on a buttock (back projection of a joint). Two middle coils are to be put on a lateral projection, and the first one - on a forward projection of a joint (see fig. 6). Procedures time (see table 2).

The therapy with the help of ALMAG device is indicated for acute osteoarthritis, complicated with neuritis. Procedures are to be carried out 2 times a day with an interval not less than 6 hours. If two or more joints are affected, procedures are to be carried out 2 times a day, one procedure for each joint. For example, the treatment of the left arm (hand) joint is to be carried out in the morning, and right - in the evening. The total time of procedures a day should not exceed 30 minutes. Within of course of treatment it is possible to cure not more than two joints. After the course of treatment it is necessary to make an 10 days interval and only after its expiration you can start the treatment of the other joints or disease.

There is another technique of treatment if two interfacing joints are affected. In this case the coils are placed along the extremity, covering both joints. Procedures are carried out 2 times a day. The first procedure time for patients with chronic disease is 10 min., with the further gradual rising up to 20 min. Max. total procedure time a day is 30 minutes (if procedures are carried out twice a day). Recommended course of treatment is 18 days, max.- 20 (for chronic disease), min. -15. After 6<sup>th</sup>, 12<sup>th</sup> day you should do 1 day break. The scheme of a inductors location at simultaneous treatment of shoulder and elbow joints is given in a figure 7.



Fig. 5



Fig. 6



Fig. 7

It is not recommended to treat simultaneously two diseases for example, an arthrosis and an osteochondrosis within one course.

Repeated course of treatment is to be carried out in 30-40 days after the first one, and a supporting (prophylactic) course in 3-4 months after the termination of the second course.

Procedures time at a deforming osteoarthritis (see table 2).

Table 2

Procedure No.	1	2	3	4	5	6
Procedure time	10 min	15 min				
Interval	1 day					
<b>The day of treatment</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>
Procedure time	15 min					
Interval	1 day					
<b>The day of treatment</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>
Procedure time	15 min					

**ARTHRITISES AND ARTHROSES OF VARIOUS JOINTS**

**SCAPULOHUMERAL PERIARTHROSIS**

**Scapulohumeral periarthrosis** is characterised by pain and stiffness in a shoulder joint related with different diseases such as: joint trauma, pancreatic diabetes, diseases of peripheric vessels, heart ischemic disease, bursitis, peri-arthritis.

**Symptoms with scapulohumeral periarthrosis:** pain in the shoulder at movement increasing in the night time, asymmetric affection, thumb pressure tenderness.

Patient suffers from scapulohumeral periarthrosis should limit the load on the diseased joint and does regularly, even immediately after the taken magneto-therapy course, physical exercises.

**Physical exercise No.1.**

Bend forward, the hands are freely falling down to the floor, this exercise allows the articular capsule to be relaxed under the action of its own weight.

**Physical exercise No.2.**

Bend forward, the strong hand leans on the chair hack, the back has no any tension. Vertical fallen down diseased hand makes pendulum motion.

It is better to take magneto-therapy with the help of ALMAG after physical exercises and joint heating with hot compress.

**Curative effect:** treatment procedures with travelling pulsed magnetic field have a number of positive effects : improvement both of blood micro-circulation and lymph drainage in the affected area, increase of capillaries permeability that, finally results in

normalization of metabolic processes, improvement of a joint function, at least, slows disease progress.

**Procedure:**

Coil-inductors are placed round the affected zone, involving a joint and nearby tissues (see fig. 8). Procedures are to be carried out 1-2 times a day. If both humeral joints are affected with periarthrosis, it is recommended to carry out treatment of only one joint during one procedure and during the next - another.

The first procedure time for patients is 10 min., with the further gradual rising up to 20 min. Max. total procedure time a day is 30 minutes ( if procedures are carried out twice a day).

Recommended course of treatment is 18 days , max.- 20 for chronic disease, min. -15. After 6<sup>th</sup>, 12<sup>th</sup> day you should have 1 day break. If you take the second course of treatment, the first procedures time is 15 min. The course of treatment is the same.

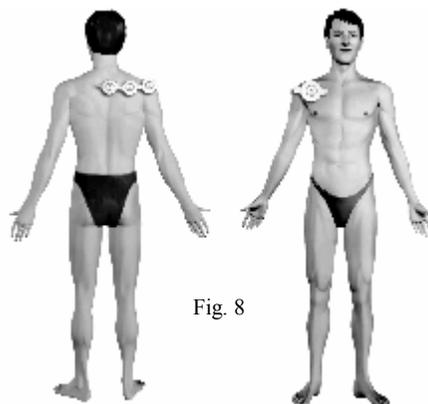


Fig. 8

**ARTHRITIS**

**Arthritis** - an inflammation of a joint which arises first of all in internal synovial membrane of joint. Inflammatory process can affect the other structures of a joint, as well, - a cartilage, joint capsule, periarticular tissues - ligaments, sinews.

**Symptoms:** the pain during active and passive movements, symmetric or asymmetric affection of the big or little joints depending on disease form, movement restriction (stiffness) , joint redness, its swelling, local or general rise of the temperature may also take place. It is very important to know that the treatment efficiency greatly depends on patient direct participation in treatment. The main aim of the treatment is to preserve joint functional ability, not make the disease be worsen. The patient should right estimate all unfavourable factors – physical activity, overcooling and disease early symptoms, as rapid fatigability, weakness, and take the proper measures: to restrict activity on the affected joints, bed rest.

**Curative effect:** ALMAG device is given the big role in prophylactics of relapses and supporting of a long remission.

The treatment of the joint with the help of travelling pulsed magnetic field promotes the improvement of blood circulation, inflammation processes are relieved, the pain is decreased, the permeability of vascular walls is increased resulting in acceleration of edema decomposition. Normalisation of metabolic activity in the diseased joint inhibits the further growth of disease, promotes the joint functional recovery.

**Procedure:** coils - inductors are placed around or along the affected joint, involving nearby tissues. The scheme of coils inductors location at treatment of arthritis of a knee joint is shown on fig. 5. Procedures are to be carried out 2 times a day. The scheme of coils inductors location at treatment of arthritis of an elbow joint is shown on fig. 9.

If several joints are affected with arthritis (for example, hip joint and elbow joint) you should use the method "one procedure – one joint". So during one treatment course you can treat not more than two joints a day. The interval between two procedures is to be not less than 6 hours. You can treat the other joints in 10 days after the first treatment course termination.

If two adjacent joints (for example, hip and knee joints or shoulder and elbow joints) are affected (diseased), coils inductors are placed along extremities, covering affected joints.

So this scheme allows to treat two adjacent joints at the same time for the light and mean forms of disease. Procedure time should not exceed 15 minutes. The course of treatment is 18 days.

#### ***EPICONDYLITIS***

**Epicondylitis** - an inflammation of a tendon tissues in a place of their fixation to a bone. It arises from microtraumas, joint inflammation and motor activity.

Mainly physical labour workers, agricultural workers and sportsmen are suffered from this disease.

**Symptoms:** pain in joint at movement and at palpation along affected tendon. Epicondylitis of elbow joint tendon can be followed with elbow nerve neuritis. And when heel tendon is affected there is pain in the heel when we tread (walk) (see fig. 10).

Shoulder epicondylitis – chronic, dystrophic affection of inside and outside shoulder epicondyles as a result of repeated stereotype movement of forearm, sport trauma, neck osteocondrosis.

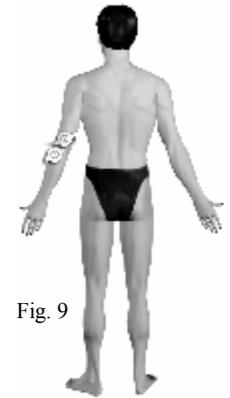


Fig. 9

**Symptoms.** Clinically epicondylitis is characterised with a pain of different intensity in the area of affected epicondyle which is felt to corresponding surface of forearm and intensified at palpation. At the beginning of the disease the rest in the affected joint is recommended for some days.

**Curative effect:** Among physiotherapeutic procedures magneto-therapy being carried out with the help of ALMAG device takes the important place. Under influence of the travelling pulsed magnetic field the pain relieves, edema resolves, the local blood-groove improves, the metabolism is normalised, muscles spasm of extension and flexion hand decreases. All this results in decrease of an inflammation and acceleration of joint restorative function.

**Treatment procedures:**

Procedures are carried out 2 times a day. Coils-inductors are placed around affected joint (for example, procedures for treatment of knee-joint epicondylitis see fig 5)

The scheme of treatment of elbow joint sinew complicated with a neuritis of an elbow nerve is as follows:

- 1) Procedure is carried out in a lying position;
- 2) ALMAG is placed in parallel to body;
- 3) The patient puts his sick hand with palm up along a body;
- 4) the first coil-inductor is put on the elbow joint, the second - on the elbow fold, that is two coils-inductors cover a joint from two sides;
- 5) Other two inductors have to be put on an internal surface of a shoulder aside to an axillary crease (hollow).

At shoulder joint epicondylitis it is necessary to influence two areas alternately with the purpose to rise treatment efficiency:

Procedure № 1: coils -inductors are placed along cervical and thoracal areas of a backbone, covering the 5th-10th -centimetre zone along both sides of a spine column. Procedure time is 5 minutes.

Procedure № 2: coils - inductors are placed on the affected epicondyle of a shoulder joint and the starting area of muscles fixed to it. Time of influence is 15 minutes.

Both procedures are to be carried out at the turn of a day with the purpose to reduce the activity of the hand after procedure. Course of treatment is min. 18 procedures



Fig. 10

The scheme of treatment of affected Achilles (heel) tendons is as follows:

1) A chain of inductors are put on a floor, the foot sole are on the two first coils-inductors, the heel is in the centre of the second inductor;

2) Other two conductors are placed along a back surface of a lower leg (a projection of a tendon) and the bottom part of gastrocnemius muscle and are fixed by fastening. (see fig. 10)

The first 3 day procedure time is 15 minutes, with the following increase up to 20 minutes once a day. The course of treatment is 18 days. The repeated course of treatment, if requires, is carried out in 2 months.

The procedure time at epicondylitis treatment (table 6).

### ***GOUT***

**The gout** - is a variety of rheumatic joint disease of which is caused by deposition of uric acid salts (urates). The excess quantity of uric acid can crystallize and lay in the joints that causes inflammation and intense pain. Attack of disease starts suddenly and goes on with different intensity for some days. The gout affects any joints: fingers, hands, elbows, knee, a foot. Usually men of over 40 years old and women within climatic period suffer from this disease.

Good curative effect is reached by application of complex treatment: to take antiinflammatory medical preparation and recommendations prescribed by the doctor and to carry out procedures with the help of ALMAG device. Active mode of life will do you good as well.

**Curative effect:** Therapy with ALMAG device is directed on the reduction of a pain syndrome in the period of disease attack, the termination of inflammatory process, normalisation of metabolic activity in a joint, finally, resulting in to dissolution of crystals of a uric acid.

The technique of carried procedures depends on a degree of pain syndrome.

#### **Procedure of treatment in the period of disease acute form:**

Taking into account that any touch to the affected joint during a pain attack causes a severe pain, treatment with a help of ALMAG is carried out without a contact of coils - inductors to a joint. The coil - inductor is taken in a hand and located above the affected joint on distance of 1-2 centimetres apart. Procedures time is 10 minutes.

#### **The procedure of treatment in the period of disease sub-acute form.**

ALMAG is put directly on a joint. The coils-inductors are placed around a joint when we treat knee, foot, elbow and hand joints. At the affection of foot fingers joints, coils-inductors are put on floor, then we put our foot on it: the heel is put on the first inductor, the foot fingers should be on the second inductor, the top of the foot is covered with the

third and the fourth inductors touching the bottom third of lower leg. The coils-inductors can be fixed. Procedure time 15 minutes.

Procedures are carried out 2 times a day.

The general course of treatment is 18-21 days.

The repeated course should be carried out in 30-40 days after the termination of the first, and the prophylactic (supporting) one - in 3-4 months after the second.

### ***BURSITIS***

Bursitis is the inflammation of joint periarticular bursa. It arises as a result of joint trauma, high physical activity, as well as aftereffect arthritis illness and some other infectious diseases. There are distinguished acute and chronic bursitis.

**Symptoms:** pain in the area of periarticular bursa, swollenness, restriction motion ability of joint.

**Curative effect:** With acute disease period, treatment procedures with the help of ALMAG device is to be taken after acute process subsides (usually on 3-7 day). With chronic clinical course – in the stage of disease remission. The purpose of treatment with the help of ALMAG is to relieve pain symptoms; to stop inflammatory process; restoration of joint function. Under the action of travelling pulsed magnetic field of the device there is improvement of a blood supply to periarticular bursa and adjacent tissues, normalization of metabolic processes, the acceleration of the edema resorption, decrease of inflammation. Treatment results in recovery or, at least, slowing of chronic disease further progress, remission period extension.

### **Procedure:**

The presence of four coils - inductors in the device makes the treatment greatly easy and handy. If bursitis strikes shoulder, elbow, knee, foot and hand joints, the coils-inductors are imposed around a joint, as though winding it (an example of treatment of a knee joint see fig. 5). At the affection of hip joint, coils-inductors are placed so that last inductor is to be located on the buttock, a back projection of a joint. Two middle inductors are being placed on a lateral projection of the joint, and the first one - on a front projection of a joint (see fig. 6).

Procedures are recommended to carry out 2 times a day, with an interval not less than 6 hours. If two joints or more are affected with bursitis, procedures are to be carried out 2 times a day, one time per joint (for example, one joint in the morning, the other in the evening). Total time of one procedure should not exceed 20 minutes. Within one course of

treatment it is allowed to treat no more than two joints. After a course termination it is necessary to have 10 days break.

It is possible to use another technique at treatment of adjacent joints (for example, shoulder and elbow joint). In this case the coils inductors are placed along an extremity, touching both joints by edges. Procedures can be carried out 2 times a day, one procedure on each group of adjacent joints.

The first course of treatment should be started with min. time duration –10 minutes gradually rising it up to 20 minutes. Maximum total procedure time is 30 minutes. (when procedures are carried out twice a day). Recommended course of treatment is 18 days, maximum –20 (with chronic clinic course of disease), minimum – 15. One day break is to be done after 6<sup>th</sup>, 12<sup>th</sup> day of treatment. Repeated course of treatment is taken in 30-40 days after the termination of the first one, prophylactic (supporting) course is in 3-4 months after the termination of the second course.

### ***MYOSITIS***

**Myositis** - an inflammation of skeletal muscles. It arises as a result of trauma of tense joints ( sport activity) , high physical activity, overcooling, as well as acute and chronic purulent processes, chronic infection diseases, virus diseases, parasite infection.

**Symptoms:** aching pain in muscles of arms, legs, body which is increased at movement (motion). Affected muscles are swollen, their strength is reduced. Sometimes the disease is accompanied with chill, rise in body temperature reduced ability to move the joint.

It is typical of myositis the sensation of pain at muscles palpation, the availability of painful small knots

Under the complex treatment you should strictly keep regimen of movement activity, to avoid the overcooling.

**Curative effect:** Travelling pulsed magnetic field of ALMAG device has a beneficial effect on disease clinical course: anti-edema action, improvement of tissue feeding and remove of inflammation product, stimulation of regeneration processes. Procedures are indicated in complex with anti-inflammation medicaments for external application.

### **Procedure:**

Coils - inductors of ALMAG device are placed along the effected muscles of a back, a belly cavity, the upper or lower extremities. If body muscles are effected inductors are put down on the couch, the patient is lying on them, so that the inductors were spread along affected zone. If muscles of upper or lower extremities are affected, inductors are located

along affected muscles and adjacent tissues. The location of ALMAG at back muscles myositis (see fig. 11).

Procedures are carried out twice a day. Procedure time – 10-15 min. The course of treatment is 10—12 days.



Fig. 11

***CREPITANT TENDOVAGINITIS***

Crepitant tendovaginitis (paratenonit) - an inflammation of tendinous vaginas (“soft cover”, tendon fibrous coat ) as a result of acute or repeated traumatism arising as a result of long-time hard work activity with repeated movements or a sport activity load. Crepitant tendovaginitis is developed in the area of heel tendons, tendon of binding or extension hand.

Treatment is necessary to be started with restriction of joints mobility (motion) in an extremity by placing rigid bandage for 3-4 days. Beginning from the 3-4 day you can apply ALMAG device.

The purpose of magneto-therapy is to make anesthetizing, anti-inflammatory and resorption action.

**Procedure:** coils -inductors are imposed along or around of affected zone. The treatment is to be started with 10 minutes, gradually, within the first 3-4 days the maximum procedure time is rising up to 20 minutes. The course of treatment is 10-18 procedures daily (depending on the effect)

**TRAUMAS OF THE LOCOMOTOR SYSTEM**

**FRACTURE OF THE BONE**

**Fracture** - infringement of bone tissue structure integrity.

Fractures can be closed, open, with displacement and without it.

Fracture is followed with intensive pain and fracture area deformation, tissue edema.

It is recommended to start treatment traumas on the 3-5 day from the moment of trauma in medical institution in the case of compound fracture or in home conditions.

**Curative effect** of the device use: resorption of the tissues edema, improvement of blood circulation, the speeding-up of bone tissue regeneration. Application of the device considerably speeds up the time of fracture treatment, reduces the rehabilitation period, promotes formation of callus, increase adjacent tissue strength. Due to well-timed application of ALMAG, the muscular spastic stricture is decreased, the atrophy of muscles and a rigidity in the next joints is prevented, functions of vegetative nervous system are normalised.

**Note: availability of metal design used to combine bone fragments is not the contraindication to ALMAG application.**

**Procedure:** coils -inductors are put on a plaster bandage or directly on an extremity along or around the bone. See fig. 12.

Procedures should be carried out two times a day.

Procedure time is 10-15 min. The course of treatment is 18 days.

In case of compound fracture demanding bone stretching procedure and an immobilisation, repeated course of treatment is carried out in 30-40 days.

If the patient is a child at the age 2-5 year old the procedure time is reduced to ¼ of the procedure time for the adult. If the child with bone fracture is older than 5 years old, procedure is as those for adults.

The device can be used to carry out short-time courses to treat pain syndrome appearing in the area of healed fracture within the time of weather change, overcooling. The course of treatment includes 7-8 procedures. Procedure time 15-20 minutes.



Fig. 12

***INTERNAL TRAUMAS OF JOINTS***

**Internal traumas of joints** - traumatic injury of joint without infringement of periarticular capsules integrity.

Treatment with ALMAG device is to be started on the 3 day from the moment of a trauma.

**Curative effect:** rapid reduction of tissues edema, acceleration of accumulated liquid and blood resorption out of joint cavity, increase of metabolic activity in the influenced area due to the improvement of blood flow results in regeneration of joint tissue. The treatment with the help of the device reduce the possibility of the formation of contraction (joint mobility restriction).

**Procedure:**

Coils - inductors are placed around of the affected joint (for example, treatment of a knee joint, see fig. 5). If two interfacing joints are injured (for example, shoulder and elbow), inductors are placed along arm covering these joints.

Procedures are to be carried out 2 times a day.

Procedures time is 10-15 min. The course of treatment is 18 days.

In case trauma demands joint immobilization, the prophylactic course of treatment is carried out in 30-40 days.

***BRUISE OF SOFT TISSUES, HEMATOMA, POSTTRAUMATIC EDEMA***

The treatment with the help of ALMAG is to be stated after the expiration of 12 hours from the moment of trauma taking.

**Curative effect:** Under the influence of magnetic field there is increase of capillary permeability, including lymphatic ones, rapid edema resorption. Decrease of blood coagulability in the influenced area leads to resorption of haematoma (bruise). Nerve ending pain sensitivity reduces, the pain is going down.

**The procedure:**

The procedure time is 10-15 minutes twice a day. The coils - inductors are placed along or around lesion focus. If the trauma is trivial (not large) the course of treatment is limited up to 6-12 procedures

***LIGAMENTS AND MUSCLES INJURIES***

**Symptoms:** the presence of haematoma, edema, restriction of movement in the joint because of the intensive pain.

**Curative effect:** ALMAG device is applied on the second or third day after rendering medical care, if there are stitches put in injured ligament or muscle. Procedure can be done through dressing, even through plaster bandage. The depth of travelling pulsed magnetic

field penetration of ALMAG device is enough to make required curative effect to the effected organ., besides it makes anaesthetic action, reduces oedema, speeds up tissue regeneration and promotes joint functional recovery.

**Procedure:** coils-inductors are placed around the injured joint. Treatment is to be carried out beginning with the first hours of getting trauma. It is recommended to apply cold for 20 minutes to the joint, then you may start magneto-therapy. The joint is wrapped with the device. Procedure time – 15 minutes. The first 3 days the procedures are carried out twice a day.

Beginning with the 5<sup>th</sup> day it is recommended to put hot compress before treatment procedure with the help of ALMAG. In this case, procedures are carried out once a day. Treatment course is 18 days.

#### ***POSTOPERATIVE WOUNDS***

**The curative effect** of the travelling pulsed magnetic field influence of the wounded surface results in reduction of the period of wound healing with the formation of elastic hardly noticeable scar. The application of the device after operation prevents the development of different complications, reduced the probability of herniation.

#### **Procedure:**

Treatment is to be started on third- fifth day from the moment of making operation. The procedure is made on area of a wound through both gauze (after wound treatment) or plaster bandage. Under the influence of magnetic field the action of the applied ointment is increased that greatly benefits healing process. The coils - inductors are placed along or round the lesion focus. The procedure time is 15 minutes once a day. The course of treatment is 7-18 days.

#### ***KELOID CICATRIX***

**Keloid cicatrix** - growth of a connective tissue as a tumour after an surgical operation, a burn and open, sometimes little traumas owing to the rising of fibroplastic reaction of an organism.

Treatment of keloid cicatrixes by the device should be started on 3-5 day after an operation or traumas. In case if keloid cicatrix has been already formed, the long-time and complex therapy is required, so ALMAG device is applied in complex with medicinal agents and other physiotherapeutic procedures. ALMAG magnetic field stimulates metabolism, renders anesthetizing, resorptional actions, promotes keloid softening and restoration of cicatrix elasticity.

The good therapeutic effect is reached by the application of ALMAG together with medicaments as the last potentizes the action of outward medicinal preparation.

**Procedure:**

Treatment is to be started at maximum early period of cicatrix formation. The coil - is imposed on area of cicatrix.

Procedures time 15 minutes once a day. The course of treatment is 7-18 days.

***SLUGGISH PURULENT WOUNDS, PHLEGMONS, BURNS.***

When being wounded, there may be pieces of clothes and other foreign body, besides the wound can be dirtied. Under the favourable conditions for development of pathogenic flora in the wound and spreading of infectious agents in the surrounding tissue there may be complication of the wound clinical course, including suppurative complication as phlegmon.

Phlegmon is acute generalized suppurative inflammation of soft tissues and when suppurative fluid is spread along cellular area. Phlegmon is appeared as a result of bacterium penetration in the soft tissues and can be developed practically in any part of human body.

Burns may be thermal, electric, chemical and radial. ALMAG device is applied mainly to treat thermal burns after-effects.

Treatment of purulent wounds, phlegmons and burns by device ALMAG is to be start after carrying out of urgent surgical actions, wound treatment with antibiotics, antiseptics and other medicinal preparations. **Magnetotherapy should be prescribed by the attending physician.** The running impulsive magnetic field stimulates regeneration of the injured tissues due to improvement of blood circulation and metabolism, promotes decrease of a pain symptoms, speeds-up processes of a cuticularization, thus greatly facilitates healing. The good therapeutic effect is reached by the application of ALMAG together with medicaments.

**Procedure:** coils-inductors are imposed over a wet or dry gauze bandage along or around affected area (after wound treatment). Procedure time is 10-15 minutes once a day. The course of treatment depending on burn degree is 10-18 days. It is recommended to repeat magneto-therapy with the help of ALMAG especially at the severe cases in 30-40 days. It minimises the cosmetic defects after a wound or burn.

***DISEASES OF PERIPHERIC NERVOUS SYSTEM***

**Neuritis** is in inflammation of the peripheral nerve revealing itself in various motion and sensitivity disorders.

This disease predisposition is bacterial and virus infection, internal and external intoxication, overcooling, the lack of vitamins, vassal and other disorders, traumatic nerves pressing.

ALMAG device is applied for local neuritis with symptoms: stable dull pain spreading attack-like along the nerve duration, sensitivity and motor disorders, little reduction of muscle value and weight (atrophy) in the affected area.

Recovery process takes 2-3 weeks, but more often lasts more long period of time, especially at middle age.

**Procedure:** the device is placed so that the first inductor was on the area, next to spinal column, and the last one on the far one. The first course of treatment is to be started with the minimum 10 min. duration gradually rising it up to 20 min. If it is required to influence two areas, the time of influence is divided into two and the procedures are carried out on the both areas one after another without break. Max. total procedure time is up to 30 min. (when procedures are carried out twice a day) Recommended course of treatment is 18 days, maximum – 20 (with chronic clinical course of diseases), minimum – 15. After 6<sup>th</sup> and 12<sup>th</sup> day of treatment 1 day interval is to be done. The time of the first procedures is 15 min. at the repeated course of treatment. The course of treatment is the same.

#### ***FACIAL NERVE NEURITIS***

This disease is more spread one.

The cause - overcooling, infection, intoxication, trauma.

**Curative effect** of ALMAG device: to improve anti-inflammatory effect of complex therapy, to activate both blood circulation and lymph outflow in the face area, to promote improvement of a facial nerve conduction, to restore function of mimic muscles, to avoid the formation of muscular contracture (firm restriction of mobility). **In acute stage of disease process, ALMAG device is applied only under the prescription of the attending physician.**

#### **Procedure:**

The coil-inductor is placed without strong pressing on a point of a facial nerve output. The point of a facial nerve output is under an auricle at lower jaw base (see fig. 13). Area of a facial nerve output is influenced first, then -the contracture zone, the rest tree inductors, being not involved the process of treatment, are taken aside.

The total time of procedure should not exceed 30 minutes.



Fig. 13

***RADIAL NERVE NEURITIS***

The radial nerve has been mainly affected in the area of shoulder middle part both at fracture and pressing to it during deep sleep.

ALMAG curative effect: to speed up the recovery of a radial nerve conductivity, to reduce degree of muscles atrophy, to improve blood supply of tissues in a zone of radial nerve innervation, to restore function of hand extension.

**Procedure:**

Coils - inductors are imposed on an internal surface of the lower third of shoulder, forearm and hand according to the following scheme:

- 1) the patient position - lying;
- 2) a chain with inductors are placed on diseased hand palm-up;
- 3) the first inductor covers the lower third part of the shoulder and fixed with elastic band which is included in the complete set of the device (see fig. 14).
- 4) the third inductor is on area between palm and o an elbow fossa, the fourth one is - on the palm.



Fig. 14

***ULNER NERVE NEURITIS***

The course – injury in the area of elbow joint, infection.

The aim of magneto-therapy with the help of ALMAG device is the same as for radial nerve neuritis. The device is placed in a way so that the first inductor is on the area close to the vertebral column and the last one – on the far located area.

***MEDIAN NERVE NEURITIS***

**Device curative effect:** to speed up the recovery of median nerve conductivity, to reduce the degree of muscles atrophy, improve tissue blood supply in the area of median nerve innervation, to restore the function of extension hand muscles.

**Procedure:**

Coils-inductor are imposed on internal surface of shoulder (along the nerve trunk) (see fig. 15).



Fig. 15

***SCIATIC NERVE (ISCHIAS) NEURITIS***

**Ischias** – is the inflammation of the sciatic nerve.

**Symptoms:** the burning, shooting pain in the lumbar spine and in the leg along the sciatic nerve. The person is not able to bend or straiten himself up. There is the feeling of stupor, tingles along the nerve location, the lack of muscles strength in the leg, especially in the foot following with forced body position.

**Curative effect:** to make sedative, anti-edematous and anti-inflammatory action both on sciatic nerve and adjacent tissue, to reduce vascular and muscle spasm, to normalise blood circulation, tonus and metabolism.

**Procedure:**

Treatment is to be started in the sub acute period. At first, the indicators by two are placed from both sides of a lumbosacral part of a backbone (paraverttebly), then - along a nerve, on a back surface of a hip and a shin (see fig. 3). Procedure time is 15 minutes. Recommended course of treatment is 18 days, maximal – 20 (with chronic clinical course of disease), minimal – 15. One day interval is to be done after the 6<sup>th</sup> and 12 day of treatment. At a bilateral ischias (injury of two extremities) treatment procedure is carried out in turn, procedure time is 15 minutes. Procedures are carried out once a day, better in the night time. The course of treatment is 18 days.

### **PERONEAL NERVE NEURITIS**

Peroneal nerve neuritis may be at traumas, different infection and intoxication.

#### **Curative effect:**

In a zone peroneal nerve innervation the travelling pulsed magnetic field has soothing, anti-edema, and anti-inflammatory actions; reduces the vascular and muscular spasm, normalises blood circulation, a tone and a metabolism in tissues.

#### **Procedure:**

Treatment is to be carried out in sub-acute period and pain relieve. For convenience procedure is recommended to be carried out lying on a stomach (belly). The first inductor is placed on the top part of a popliteal space, others three are placed on shin external surface from the affected part (see fig. 16).

You can seat during the procedure.

One inductor is placed on the chair edge and pressed by the affected leg. The rest three inductors are placed on the external surface of the lower leg and fixed with elastic tape. The treatment is to be started with the minimal duration of 10 minutes gradually rising it up to 20 minutes. If it is necessary to make the influence of two zones, procedure time is divided into two and the procedures are to be carried out in turn without interval between them. Maximal total procedure time is 30 min, twice a day.

Recommended course of treatment is 18 days, maximum - 20 (with chronic clinical course of disease, minimum – 15. One day interval is to be after 6<sup>th</sup> and 12<sup>th</sup> day.

### **PLEXITIS**

**Plexitis** - damage of a nervous plexus. The cause of a plexitis - infection, a trauma, an intoxication.

Among plexitises the most frequent are brachial (shoulder) and lumbosacral plexitises. There are distinguished neurologic (starting) and paralytic (late) clinical stages of disease. Neurologic disease clinical course is revealed itself with spontaneous pain and painful sensations arising and growing at movement, pressure on plexus, its fascicles and going out nerves. Paralytic (late) clinical stages is characterized by atonic paralysis, reduction or absence of sensitivity, vegeto- trophic disorders in the innervation zone of plexus affected part.



Fig. 16

When the whole plexus is injured there is a pain in the supraclavicular and clavicular areas which are felt in the hand. As a result we have flabby paralysis or arm muscles paresis.

**Device curative effect:** to make anti-inflammatory action in the area of nerve plexus projection, recovery both of nerve-muscles system conductivity in the zone of lesion focus and function of paresis affected muscles.

**Procedures:**

Procedure is carried out lying on a back, but is possible to carry it out in a sitting position. The first and the second inductors are being placed on the area of a collar bone and shoulder plexus (a projection of a shoulder plexus), the third and the fourth along the internal side of the arm affected by plexitis (see fig. 17) (**нет рисунка**)

Procedures time is 15 minutes. The course of treatment is 18 days, maximum - 20 (with chronic clinical course of disease), minimum – 15. One day interval is to be taken after 6<sup>th</sup> and 12<sup>th</sup> day

In the case of bilateral plexitis, procedures are carried out in turn, one procedure time is 15 minutes for one side once a day better in the evening time.

**Lumbosacral plexitises** is mostly the result of traumas (plexus gunshot wound, squeezing by the bone fragments at both spine fracture and hip bones etc.) new formation going out of hip bones or abdominal cavity organs, gynecologic diseases. The treatment procedures of lumbosacral plexitis is the same as for peroneal nerve neuritis.

**NEURALGIA**

Neuralgia is burning and shooting pain arising as a result of spreading along the nerve trunk and its branches and being located in the zone of definite nerves or nervous root location. Neuralgia can be arisen as a result of trauma, intoxication, stipulated by the liver and kidney diseases, malignant growth, salts of heavy metals, bacterial toxins, alcohol, metabolic disorders at diabetes mellitus., chronic processes in gastrointestinal tract and others.

ALMAG device is indicated for trigeminus nerve neuralgia, cervical nerve and intercostal neuralgia.



Fig. 17

**TRIGEMINAL NERVE NEURALGIA**

**Symptoms:** acute burning and shooting pain in the cheek, upper and lower jaws, and rare in frontal bone. Attack of pain is going on from some seconds till some hours.

Treatment by ALMAG device is to relief of pain syndrome and elimination of the disease causes. The action of travelling magnetic pulsed field is directed to reduction of peripheric nervous receptors sensitivity, improvement of a blood circulation to the branches of the affected nerve resulting in relief of pain sensations and duration and frequency of pain attacks. The device has anti-inflammatory, vasodilating action. Application of the device in complex treatment of trigeminal nerve neuralgia together with medicinal preparations considerably increase medical effect

**Procedure:** The first inductor is placed on the affected part of face covering cheeks and the base of lower jaw bone. The rest inductors are to be put on the collar zone. (see fig. 18). The first procedure time is minimum 10 min gradually rising up to 15 minutes within 5 days.

If it is necessary to make the influence of two zones, procedure time is divided into two and the procedures are to be carried out in turn without interval between them. Maximal total procedure time a day is 30 min

Recommended course of treatment is 18 days, minimum – 15. One day interval is to be taken after 6<sup>th</sup> and 12<sup>th</sup> day.



Fig. 18

**OCCIPITAL NERVE NEURALGIA**

**Procedures:**

Coils - inductors are imposed on a projection of a point of an occipital nerve output and a back surface of a neck (see fig. 19). (нет рисунка)

The first procedure time is minimum 10 min gradually rising up to 15 minutes within 5 days. Maximum procedure time is 30 min twice a day.

Recommended course of treatment is 18 days, minimum – 15. One day interval is to be taken after 6<sup>th</sup> and 12<sup>th</sup> day.



Fig. 19

***INTERCOSTAL NEURALGIA***

Intercostal neuralgia symptoms: persistent or colicky belting pain spreading from spinal bone to the chest or middle line of belly. The pain is increasing with physical activity, body movement, cough, sneezing, deep breath. Curative effect is directed to elimination of the proximate course of disease and rapid relief of pain syndrome.

ALMAG device raises the complex therapy efficiency. The big advantage of a magnetotherapy is practically complete absence of a side effect, good tolerance of a magnetic field by patients when the other physiotherapeutic procedures can be counter-indicated for them.

**Procedures:**

ALMAG is imposed bilaterally on a corresponding segment of a backbone along affected nerve endings. (see fig. 20).

The first procedure time is 15 minute gradually rising up to 20 minutes within 5 days. Maximum total procedure time a day is 30 minutes (if procedures are carried out twice a day). Recommended course of treatment is 18 days, minimum – 15. One day interval is to be taken after 6<sup>th</sup> and 12<sup>th</sup> day.



Fig. 20

***TRAUMAS OF THE CENTRAL NERVOUS SYSTEM  
VERTEBRAL COLUMN AND SPINAL CORD TRAUMAS***

Traumas of a vertebral column and spinal cord are very dangerous, as can result in functions disorder of many organs and systems of an organism and even to a paralysis. On the vertebral column there are spinal nerve endings (roots) innervating different body organs. So if lumbar spine is affected you can feel the pain bowels, genital organs. With spinal column trauma, there are may be the break of blood and lymphatic vessels resulting in both spinal cord and spinal nerves feeding aggravation (worsening), disorder of nerve conductivity that makes it difficult to perform their function.

Magneto-therapy by the ALMAG device, if there are no contraindications, is to be started after carrying out of urgent medical manipulations. The magnetic field makes anesthetizing, anti-inflammatory, anti-edema action, stimulates a metabolism and tissue regeneration. Besides action of a magnetic field promotes the grow of nervous pulses transit, activates the work of immuno-competent bodies and increases host defenses.

**Procedures:**

Position of the patient - lying on a stomach (belly). Coils-inductors are placed along a spine column. If it is not possible for any reasons to turn patient over he is slightly lifted and inductors are put under affected area of a spine column so that the first inductor was close to the head and one of the inductors was directly on the injured projection. The treatment is to be started with 15minute procedure, gradually rising it within 5 days up to 20 minutes.

Maximum total procedure duration a day is 30 minutes (if procedures are taken twice a day). Recommended course of treatment is 18 days, minimum – 15. One day interval is to be taken after 6<sup>th</sup> and 12<sup>th</sup> day of treatment.

***DISORDERS OF THE SPINAL BLOOD CIRCULATION***

Spinal cord is supplied with the blood of some artery branches. The front and two back spinocerebral artery going down to lower end of spinal cord are recharged by the spinal branches of other arteries coming into spinal cord through intervertebral foramina. These foramina are formed between two adjacent vertebrae. When intervertebral disks are affected (osteochondrosis) intervertebral foramen grows narrow, closed adjacent vertebrae traumatize the nervous endings and press blood vessels. The disease aggravation leads to the onset of ischemia zones (the lack of blood circulation) in different spinal column parts. There are appeared osteophytes in the cervical spine resulting in chronic disorder of spinal circulation (myelopathy).

**Curative effect:**

In a complex of medical manipulations ALMAG device pulsed magnetotherapy has big efficiency. The influence of travelling pulsed magnetic field promotes both the opening of the additional capillaries, improvement of blood circulation on the whole and partly compensate inadequate blood supply of spinal cord zones. The treatment by the device, alongside with medicament therapy, reduces or completely stops disease progressing, promotes normalization both of spinal cord and spinal nerves functions.

**Procedure:**

Position of the patient - lying on a stomach. Coils-inductors are placed along a spine column covering cervical part. If it is impossible to lay the patient on a stomach, the patient is slightly lifted and inductors are put under a backbone.

The treatment is to be started with 15minute procedure, gradually rising it within 5 days up to 20 minutes.

Maximum total procedure time a day is 30 minutes if procedures are taken twice a day. Recommended course of treatment is 18 days, minimum – 15. One day interval is to

be taken after 6<sup>th</sup> and 12<sup>th</sup> day of treatment. The course of treatment is to be repeated in 2 months.

***BRAIN VASCULAR DISEASES  
ISCHEMIC CEREBRAL STROKE***

The insult (disorder of a cerebral blood circulation) may be hemorrhagic and ischemic. Cerebral haemorrhage is caused by the arteries rupture (break).

The main causes are the change of vessels' wall and high arterial pressure. Often young and energetic persons suffer from hemorrhagic stroke.

***The treatment of hemorrhagic stroke after-effects with the help of ALMAG device is contra-indicated, so it may provoke bleeding.***

Ischemia insult is caused by sharp decrease of blood supply to separate brain areas. Mainly people with atherosclerosis, hypertension, pancreatic diabetes diseases, heart pathology suffer from ischemia insult.

People suffering from vessel diseases should be very vigilant: it is necessary to measure regularly blood arterial pressure, the level of cholesterol and sugar in blood.

There are some symptoms of brain disaster: intense headache (especially in the evening) following with feeling of sick and vomit;

- giddiness
- sleepiness.

As a result of dysfunction of blood supply there are affection of different area of central nerve system. Symptoms depends on what part of brain is affected. There may arise the weakness of muscle tonus in extremities (fail of leg or hand). The change of speech.

**Curative effect.** ALMAG device is applied both to prophylaxis of an insult, and to treat an ischemic insult after effects **after doctor's advice**. Pulsed magnetic field has hypotensive (decreasing blood arterial pressure) and hypocoagulatory (reduction of blood viscosity) action, the application of ALMAG device reduces stroke risk and allows to reduce rehabilitation period.

Prophylaxis of an insult is strongly recommended for the persons, suffering from cardiovascular diseases (prior to treatment you should consult doctor). Clinical practice has shown, that patients easily tolerate a magneto-therapy (if are there no contraindications for it application). The treatment of ischemic insult after-effects with the help of ALMAG device is to be carried out only under the control of the attending physician which will define the duration of the treatment course going out (reasoning) from a state of the patient.

**Procedures:**

Procedures for ischemic cerebral stroke and brain vessel diseases:

Position of the patient - lying on a back.

The first stage of treatment. Inductors are laid under a collar zone (see fig. 21). Procedures are carried out 1-2 times a day depending on patient state and reaction of an organism to the action of magnetic field. Arterial pressure is to be controlled before and after procedures.

Time of the first three-six procedures is 10 minutes, gradually rising up to 20 minutes. The course of treatment is 18-20 days. 1 day interval is to be done after 6<sup>th</sup> and 12<sup>th</sup> day.

In the presence of paralysis the second course of treatment is to be taken in 10 days after the first one. The action on the spine column (the first inductor is to be on the cervical spine zone, the rest are placed lower) is 5-10 minutes and on the paralysed extremities (leg and /or hand) is 5-10 minutes on each extremity.

The repeated courses of treatment are to be compulsory carried out in 2 months.

In the case of brain vessel disease the treatment is carried out according to the first stage of ischemic cerebral stroke treatment.



Fig. 21

**DISEASES OF CARDIOVASCULAR SYSTEM**

**HYPERTENSION DISEASE of I-II DEGREE**

Hypertension disease is repeated registration of arterial pressure increase. The factors promoting the development of hypertension disease are as follows:

- inheritance;
- the weight of the body (a person with the body excess weight has hypertension disease 2-6 time more frequently. )
- fatness relating to hereditary metabolic dysfunction.;
- alcohol (daily use of alcohol results in high arterial blood pressure up to 6,6 mm

Hg. As compared with those who use alcohol once a week) ;

- increased use of salt;
- the absence of physical activity;
- psychosocial stress .

At present there is the following classification of hypertension disease according to the value of arterial pressure:

Characteristic of arterial pressure (AP)	Systolic pressure arterial pressure (upper) mm.Hg.	Diastolic arterial pressure (lower) mm.Hg
Optimal	Up to 120	Up to 80
Normal	130	85
High	130-139	85-89
Hypertension :		
I degree ( soft )	140-159	90-99
I degree ( frontier)	140-149	90-94
II degree ( moderate)	160-179	100-109
III degree ( heavy)	> 180	> 110
Systolic	> 140	> 90

The curative effect:

- The influence of travelling pulsed magnetic field produced by ALMAG device on a collar zone results in vessels vasodilatation, reduction of peripheric resistance that gives the reduction of arterial pressure. Besides there are reduction both of heart beat frequency and contractile heart muscle function that testifies to positive effect of travelling pulsed magnetic field on power supply of heart pump function.

Under the influence of the device on a collar zone and a projection of paranephroses there is increase of endocrine system activity that promotes the production of hormonums and enzymes; improvement both of the cerebra blood circulation, brain metabolism. Besides there is the increase of the brain resistance to the low oxygenium content. It is especially actual for patients suffers idiopathic hypertension disease, but an ischemic insult as well. Magnetic field stimulates processes of nerve system inhibition, has the positive effect on sleep, relieve emotional stress. In connection with this ALMAG is indicated at high psychoemotional activity.

Procedure carried out with ALMAG device is effective for all stages of hypertension disease and allows to lower a dose of taken medicines without risk to increase arterial pressure (**only under the control of the doctor!**)

**Procedure:**

At treatment of I degree hypertension, the coil - inductors are imposed on a collar zone (see fig. 21). The patient is in sitting or lying position depending on his state of health. Procedures are carried out once a day depending on the patient of health and organism reaction on magnetic field action. In case if there is increase of arterial pressure at the definite period of a day the procedures are to be taken 1-15 hour before its rise. The arterial pressure is to be checked up before and after procedures. The time of first three-six procedures is 10 minutes with further gradually increasing up to 20 minutes. Course

of treatment – 18-20 procedures. After the 6<sup>th</sup> and 12<sup>th</sup> procedure it is necessary to take 1 day break.

At treatment of II degree hypertension the effect (action) is carried out not only on a collar zone (see fig. 21), but also on paranephroses area (procedure time is 10 min.) (see fig. 22). In this case it is convenient to carry out procedure being in lying position. Procedure time is 10 minutes.

With the purpose to trace treatment efficiency you should check up arterial pressure before and after procedures in 30 minutes.

**At stable pressure decrease it is necessary to consult attending medical doctor on a possibility to reduce the dose of taken medicinal preparations.** As a rule, after the first course of treatment there is no considerable improvement of patient state of health therefore in 30 days it is recommended to carry out repeated course again. Further on the breaks between courses are increased till 2-3 months. The hypertension, as a rule, has chronic character, therefore it requires long and persistent treatment. That is why it is necessary to carry out repeated and preventive courses of magnetotherapy treatment (3-4 times a year) even if arterial pressure becomes normal. The people suffer from hypertension disease should give up smoking, alcohol. Patients with weight excess having sedentary life is recommended to keep to a diet and go in physical culture.



Fig. 22

### ***RENAL HYPERTENSION***

Renal hypertension is arterial hypertension the origination and clinical course of which is connected with kidney disease.

The magnetotherapy by ALMAG device is a component part of the complex therapy directed to the decrease of arterial pressure up to normal digits (readings) and normalization of kidneys function. The device should be applied under the control of the attending medical doctor or after consultation with the expert.

#### **Procedure:**

Position of the patient - lying on a back. At first coils -inductors are placed on the area of kidney and adrenal projection to the left and to the right of a backbone (see fig. 22). The exposure time on this zone is 10 minutes. Then the inductors are placed (removed) on a collar zone. (see fig. 21) The time of exposure is 10-15 minutes. The maximal total

procedure time is 25 minutes. Procedures are carried out once a day. Course of treatment - 18 procedures. After 6-th and 12<sup>th</sup> procedure it is necessary to make 1 day break. During the course of treatment it is necessary to check arterial pressure before the procedure and in 30 minutes after its expiration with the purpose to trace the treatment efficiency.

***HYPERTONIC TYPE of VEGETO-VASCULAR DYSTONIA***

The disease has many names reflecting that or another peculiar feature of pathological process: “neurocirculatory dystonia”, “hyperventilation syndrome“, syndrome of vegetative dysfunction”, “cardiac neurosis “ etc.

**Symptoms.** Vegeto-vascular dystonia has many symptoms. In a basis of the disease is dysfunction of a normal vegetative regulation of internal body organs activity. Besides there are neural disorders, rapid fatigability, irritability, headache, sometimes vegetative crisis which reveal themselves in various and a lot of symptoms: complains on short breath, lack of air, palpitation, chill, discomfort in chest, giddiness, reduction of eyesight or ear, the lack of voice.

As disease has a lot of displays, only the doctor can put the exact diagnosis and to prescribe treatment.

Cardiovascular syndroms of vegeto-vascular dystonia come to hypertensive, hypotonic and cardial. Target for application of ALMAG is the travelling pulsed magnetic field is the hypertensive syndrom.

Application of the ALMAG device is directed to the normalization of increased arterial pressure, stimulation of adrenal glands function which make hormones regulating metabolic function, regeneration of vascular tonus, speeding-up of nerve impulse conductivity from spinal cord to internal organs.

**Procedure:**

The treatment can be carried out in the sub-acute form after acute process of vegetative crisis subsiding. Position of the patient - lying on a back to the left and to the right of spinal column (see fig.22). At first coils-inductors are placed on the area of kidney and adrenal projection to the left and to the right of a backbone (see fig. 22). The exposure time on this zone is 10 minutes. Then the inductors are removed on a collar zone. (see fig. 21)The time of exposure is 10-15 minutes. The maximal total procedure duration - 25 minutes. Procedures are carried out once a day. Course of treatment - 18 procedures. After 6-th and 12<sup>th</sup> procedure it is necessary to make 1 day break.

***ISCHEMIC ILLNESS OF HEART WITH THE TENSION STABLE STENOCARDIA***

Concept « ischemic illness of heart » includes group of the diseases caused by disparity between the need of a myocardium in Oxygenium and its supply. Disease base is the atherosclerosis of the heart vessels - coronary arterias.

Ischemic illness of heart includes such diseases as: stenocardia, myocardial infarction, postmyocardial infarction cardiosclerosis, impaired cardial function, rhythm abnormalities (dysfunction).

Stenocardia is short time feeling of pressing, squeezing and burning behind the breast bone causing by transient myocardial ischemia. The pain can be reflected into arm, shoulder-blade, neck, lower jaw.

ALMAG device can be applied only for therapy of stable stenocardia of I (attacks arise only at excessive physical activity) and II (attacks arise at more than 500 m distance walking, rising to the second floor ) functional class tension.

Treatment includes complex therapy: medicamental and a magnetotherapy, which gives more expressed clinical effect, than application of each of these methods separately.

Pulse magnetotherapy applying ALMAG device is carried out **only under the control of the attending physician** on a background of obligatory taking of medicines, under the regular control both of the electrocardiogram and parameters of a lipidic metabolism.

Complex therapy , including pharmacotherapy and magnetotherapy, gives the more expressed clinical effect; if they are used separately. The pulsed magetotherapy with ALMAG device is carried out only on recommendation and control of attending medical doctor on the background of medicine, systematic monitoring of electrocardiogram and the indications of lipidic metabolism.

The purpose of ALMAG device action on the collar zone is directed to blood pressure normalization or its decrease in the system of deep and subcutaneous veins, arteries, decrease of heartbeat frequency. One of the most important manifestations of travelling pulsed magnetic field on the human organism is the activation of carbohydrate and lipidic metabolism, that gradually leads (results) to the reduction of cholesterol in blood., as a result the disease progressive deterioration is retarded. Under the influence of travelling pulsed magnetic field, there is the improvement of blood micro-circulation, analgetic action, increase of magnesium biological activity in the blood that results in reduction of development of pathologic processes in the heart.

**Procedure:**

The position of the patient - lying on the back.

Coils-inductors are imposed on a collar zone (see fig. 21). Procedure time is 10-15 minutes once a day. The course of treatment is 18 procedures. One day break is to be taken after 6<sup>th</sup> and 12<sup>th</sup> procedure.

***OBLITERATING ATHEROSCLEROSIS (ENDARTERITIS)  
OF LOWER EXTREMITIES VESSELS***

**The atherosclerosis** is the wide-spread chronic disease characterized by the infiltration (hardening) of the arteries walls with fat cells and growth of a connective tissue with the formation of fibrous plaques, narrowing a lumen and the disturbing (violating) physiological function of affected arteries that results in disorder of blood circulation.

Many internal and external factors may be the reason for atherosclerosis development. Smokers, people eating fat food rich with cholesterol make up the risk group. Individual organism peculiarity, for example, low activity of making out ferments by the liver destroying cholesterol.

**Symptoms:** the appearance of ischemia symptoms (inadequate blood supply to extremities). At first the disease reveals itself only with big physical activity; causing the weakness and increased muscles tiredness, the feeling of chill in the extremities, later their numbness and pain. The affection may be not the same in both extremities.

With obliterating atherosclerosis the pain may arise in all group of muscles: sural, femoral, buttocks and may be of different intensity even in the rest of state, during the long-time walking it may be very severe and makes the patient suffers hard.

**Curative effect:** ALMAG device is recommended to be applied for prophylaxis of an atherosclerosis, an obliterating endarteritis, as well at initial stages of disease under doctor advice and control. Magnetic field generating by ALMAG device has anesthetizing, anti-inflammatory effect, improves blood flow due to the dilatation of vessels lumen, reduces parietal thrombogenesis. Magnetotherapy plays an important part in normalization of blood circulation at a level of microcirculatory channels of the smallest arteries, capillaries and veins systems, providing a metabolism in organ tissues, including vessels wall.

The devices with a purpose of prophylaxis can be recommended to the patients suffering from diabetes, a gout, a psoriasis, an idiopathic hypertension, an obesity, and also to the people who lead not active way of life, smokers. ALMAG is applied as an obligatory element of the complex therapy for obliterating endarteritis including the taking of medicines, a diet, physical exercises, etc.

**Procedure:**

Coils-inductors are placed along vessels and nerves direction of the affected extremity: the first coil is usually put on area a little lower than patella, last coil - on the back side of the foot (see fig. 23).

Procedures can be carried out in sitting position, having fixed inductors on an extremity with the help of fastening elements. Procedure time is 10-15 minutes for one leg. Procedures are carried out once a day for both legs in turn. The course of treatment is min.18 procedures. One day interval is to be taken after 6<sup>th</sup> and 12<sup>th</sup> procedure.

The treatment of an obliterating endarteritis takes a long period of time, the repeated course of a magnetotherapy is to be carried out in 30-40 days. The further courses of treatment can be carried out with an interval from 30 days to 3 months after the end of last one. **The doctor's advice is obligatory!**

***PANCREATIC DIABETES COMPLICATIONS  
DIABETIC ANGIOPATHY***

Diabetic angiopathy is the vascular complication as a result of long period noncompensated diabetes and associated with it disorders of carbohydrate and lipidic metabolism. The mostly affected body parts are lower extremities. The form of affection – beginning from slightly expressed trophic disorders up to trophic ulcer and diabetic foot gangrene resulting in extremities amputation.

ALMAG device is applied as an obligatory element of complex angiopathy therapy in pre-gangrenous period. The magnetic field of ALMAG device has anesthetizing, antispasmodic action, favorably influences carbohydrate, lipide and albuminous metabolism, improves a collateral blood circulation.

**Procedure:**

For procedure with the help of ALMAG of affected with diabetic anginopathy vessels of shin, the shin (lower leg) is wrapped with device covering the back of foot (see fig. 24). The first inductor is put close to knee, the last to the foot. Procedures are carried out twice a day.



Fig. 23



Fig. 24

In case of femoral segment vessels affection , procedures are carried out once a day. At first ALMAG device is imposed on an anterointernal surface of a hip then on the lower leg (see fig. 24). In the case if vessels are affected along all length of lower extremity, inductors are imposed on the affected areas, by turns. Don't forget about the right location of inductors. – the first one should be placed close to the body, and the last one – to the foot. The optimal position of the patient - lying on the back, and as a variant - sitting position. ALMAG can be fixed on an extremity with the fastening elements.

**Attention! ALMAG application is a component of complex therapy of diabetic angiopathy. The course of treatment is carried out only under doctor's advice and control. During treatment it is necessary to control the level of glucose both in blood and lipids and take endocrinologist consultation!**

With radical changes it is necessary to carry out Doppler scanning of lower extremities vessels and take surgery consultation.

#### ***DIABETIC POLYNEUROPATHY***

*Diabetic polyneuropathy* is complication of a diabetes, with the affection of peripheral nervous system.

Symptoms:

- sensation of chill in legs;
- the loss of perceptibility and numbness;
- burning , unpleasant sensations appearing with dress and bed linen touch;
- sudden severe numbness of feet;
- muscles atrophy;
- the bad healing of scratch, wounds , one-two months instead of one-two weeks;
- severe pain in lower leg in the state of rest, in the night time;

ALMAG device is applied in the complex therapy aimed, first of all, on the fundamental (underlying) disease. The action of a magnetic field results in improvement of nervous pulses conductivity along the nervous fibers that promotes recovery of affected peripheral nervous endings functions. Due to the pain relief there is decrease of a pain symptoms, very often painful for the patient; improvement of microcirculation in an area covered by coils inductors resulting in normalization of metabolic processes in the peripheral nervous endings and around of them. All these in a complex with medicament therapy inhibit disease progressing, makes the life of the patient better.

**Procedure:**

Position of the patient - lying on a stomach or sitting. Coils - inductors are imposed on two fields (see fig. 25):

- field No. 1 - the back surface of a hip;
- field No. 2 - popliteal space and gastrocnemius muscle.

Procedures are carried out once a day, better in the evening time. The total procedure time –30 minutes, 15 minutes for each zone. In case of affection of both lower extremities, procedures are carried out in turn, once a day. The course of treatment is 20 days. In 60 days upon the termination of a course of treatment you can carry out the repeated course of treatment under the doctor’s recommendation. The supporting course of magnetotherapy are recommended to be carried out 3-4 times a year.

**Attention! During treatment the control of a level of glucose and lipids in blood as well as the endocrinologist’s advice is obligatory!**

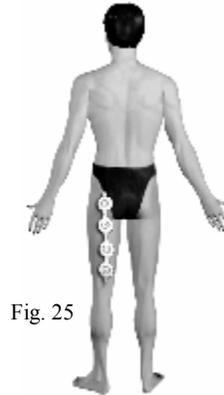


Fig. 25

**DERMATOLOGICAL DISEASES**

**ITCHING DERMATOSIS**

Any person faces (comes across) with cases of medicinal medications, foodstuff intolerance, unusual reactions to chemical substances household, including synthetic clothes, cosmetics, etc., and a professional environment. It is counted up, that about 10 % of the population all over the world on the average suffers allergic diseases, one of which is the neurodermite. The cause for allergic diseases is agents – allergens which are able to increase the organism sensitivity. They are mainly divided into two groups: exo-allergens (coming from environment) and auto-allergens (existing the organism itself as a result of metabolism disorder, dysbacteriosis. Except the above causes, disorder of functional state of nerve system different parts plays an important role in appearance of neurodermite.

Neurodermite clinical course has two form: narrow (restricted) mainly located on neck, popliteal space, bend of elbow, inguinofemoral fold and diffusive involving any parts of skin. Affected surface is covered with flakes, blood scabs and fissures. Treatment: Regimen normalization, dieto-therapy, removal of allergens and treatment of associated

illness. It is prescribed to take antihistamine, antisesitizer, stimulators, vitaminotherapy as well as physiotherapeutic procedures.

Physiotherapy clinic: make hyposensibilizing, anti-inflammatory, inch-sedative action, to restore the trophism and fuction of vegetative nerve system of peripheral structures.

**Procedures:** influence by ALMAG device is carried out not only on the affected areas of skin, but also on an area of a spinal cord innervating this affected part. . The procedure time is 10 minutes for each part. It is allowed to make treatment of four affected parts (5 minutes for each part) within one procedure. The total procedure time a day is 30 minutes. With process localization in bend of elbows or in the area of wrist joints the influence is carried out both on the affected area and thoracocervical part of spinal column. With localization of affected skin in inguinofemoral fold, in the area of knee and talocrural joints in influence is carried out on the affected area and lumbar spine.

#### ***DERMAL PLASTIC OPERATIONS POSTOPERATIVE CONDITIONS***

Application of a travelling pulsed magnetic field is a constituent part of the rehabilitational period after dermal plastic operations. ALMAG exposure on area of an operational suture promotes both faster formation of an elastic suture and reduction of risk of occurrence of aftereffects. Procedures are carried out in 3 days after operation. Treatment procedure technique is as that for skin plastic operation.

#### ***CHRONIC NONSPECIFIC LUNG DISEASES***

##### ***CHRONIC BRONCHITIS***

**The chronic bronchitis** is a lingering disease characterized by an irreversible affection of all large, mean and fine bronchus.

Chronic bronchitis is connected with long-time irritation of bronchus by different harmful factors (smoking, air contaminated with dust, smoke, oxide-carbon, sulfur, nitrogen and other chemical compound. It is provoked as well by respiratory infection. Pathology of upper respiratory tracts is also plays negative role, generic predisposition is marked as well.

Symptoms: cough in the morning with the separation of mucoid sputum, later on the cough bothers in the day and night time, which is increased in cold and damp weather, with a time it becomes permanent (stable) In the acute period of the disease mucoid sputum is muco-purulent or purulent; short breath.

**Treatment.** Such therapeutic agents as: antibiotics, expectorants agents, bronchodilators, sputum diluting agents , plentiful drink are prescribed during the exacerbation period (acute condition). Besides, respiratory gymnastics, physiotherapeutic

treatment (inhalations, electrophoresis, magnetotherapy, etc.) are components of treatment. In home conditions inhalations and a magnetotherapy by ALMAG device are widely applied.

**Magnetotherapy curative effect:** to increase micro-circulation both in pulmonary, bronchial tree and tissue; to improve sputum discharge (remove); to stimulate regeneration and to stop the affection of a bronchial tree.

**Procedure.** Treatment is to be started in the sub-acute period or disease attack subside with the purpose of prophylaxis. The area of exposure is bronchus. (see fig 26). Exposure assembly unit of the device is bent in two at the angle of 90°, the patient lies on it, the device is located between shoulders. Procedure time is 10-15 minutes twice a day. The course of treatment is 10 days. In the case of chronic bronchitis the course of treatment is 18 day.



Fig. 26

### **CHRONIC PNEUMONIA**

**Chronic pneumonia** is a recurrent lungs inflammation with the affection of all structural pulmonary elements. The risk factors are: chronic bronchitis, often acute respiratory virus diseases, immunodeficiency state, action of unfavorable natural factors.

Symptoms: periodic temperature rise up low grade fever (37,5), cough with the separation of muco-purulent sputum, sweating, dull ache in chest in the affected area., rough breath. Complicated with chronic bronchitis and lungs emphysema, there is appearing shortness of breath. Treatment at the acute disease clinical course is that as for acute bronchial pneumonia. When the disease is in the subside phase, therapeutic physical training and sanatorium-and-spa-treatment is indicated.

Curative effect as a result of use of traveling pulse magnetic field: to increase the microcirculation in pulmonary tissue, including a bronchial tree; to improve the sputum remove, to stimulate the regeneration and to stop the bronchial tree affection.

**Procedure.** Treatment with ALMAG device is to be carried out in the sub-acute phase of the disease with purpose of exacerbations prophylactic. Thew area of influence is bronchus and lungs projection (see fig 26) Exposure assembly unit of the device is bent in two at the angle of 90°, the patient lies on it, the device is situated between shoulders. Procedure time is 10-15 minutes twice a day. The course of treatment is 18-20 days. In the case of relapse prophylactic, the course of treatment is 10 day.

### **BRONCHIAL ASTHMA**

**Bronchial asthma** is a chronic recurrent disease with attacks of dyspnea or the asthmatic status because of a bronchus spasm, mucous edema, increased discharge of bronchial mucus. Bronchus spasm is provoked by nonspecific allergens: the pollen of flowers, grass, trees, home dust, cats and dog wool etc., food allergens (eggs, citrus, fish, milk etc), medicine (aspirin, analgin etc.), mechanic and chemical things (metal, wood, cotton, silicate dust, acid and alkaline, smoke), physical and meteorological factors, neuropsychic influence, both tick`s, insects allergens, neuropsychic influence.

**Symptoms and clinical course:** Bronchial asthma has intrinsic and atopic clinical course with an attack of asthmatic fit of different intensity, the patient status may be satisfactory in the period between attacks. The attack may start with rich flow of liquid from nose, strong cough, difficult remove of sputum, shortness of breath.

Breath is short, outward breath is difficult, slow and spasmodic following with strong, whistling wheeze which can be heard at a distance. The patient takes forced position to make the breath easy. The face is puffy and pale. Pulse is increased.

Among the other methods of treatment, physiotherapeutic treatment is widely applied at all stages: inhalation, acupuncture, travelling pulsed magnetic field etc.

**Curative effect.** The purpose of treatment with traveling pulsed magnetic field: to render antispasmodic effect; to increase microcirculation in a pulmonary tissue, including a bronchial tree, to improve discharge (remove) of bronchial mucus

**Procedure.** Procedure with the help of ALMAG device should be carried out after attack remove or in the period of attack subside.

Action is carried out on area of lung – 15 minutes (see fig.26), on the area of adrenal gland – 10 minutes. (see fig. 22)., once a day. The course of treatment – 18-20 days.

### **DISEASES OF A GASTROINTESTINAL TRACT SUBACUTE AND CHRONIC PANCREATITIS**

**Chronic pancreatitis** - the inflammatory disease of a pancreas resulting in progressing decrease of external and internal secretion functions. Risk factors leading to the disease progress are: alcoholism, illness of bile passages, stomach and duodenum, toxic effect – chemical substances (agents) , including medical drags, malnutrition.

**Symptoms:** at chronic clinical course of disease: pain syndrome following with sickness, vomiting, belting pain, epigastric pain. At acute clinical course of disease there may be intoxication , the high rise of the temperature. The disease complication – pancreatic diabetes.

Treatment of chronic pancreatitis supposes complex therapy including physiotherapeutic procedures.

Physiotherapeutic procedures by travelling pulsed magnetic field render:

- anesthetizing, anti-inflammatory action;
- increase micro-circulation in a pancreas tissues;
- stimulate regeneration and to stop disease progressing.

**Procedure.** Treatment with ALMAG within the sub-acute period or the period of attack subside with the purpose of prophylaxis is carried out on the area of a pancreas (see fig. 27).

Procedures time is 15 minutes one hour before meal or in 2 hours after the meal twice a day. The course of treatment is 18 days.



Fig. 27

***BILIARY DYSKINESIA***

**Biliary dyskinesia** - functional disorder of gallbladder and gall channels motor activity owing to non-agreed, delayed, insufficient or excessive reduction of gallbladder or sphincteric system.

**Symptoms:** as a rule, patients complain of a dull pain in the right of hypochondrium, the dyspeptic effect: appetite loss, an eructation, a nausea, a bitter taste in a mouth, an abdominal distention. The leading role in the mechanism of this disorders belongs to the changes of neuro-vegetative innervation and excretory function of digestive tract, malnutrition.

Dietetics takes an important place in treatment of dyskinetic disorder: exception of fat, fried, pickled food, meat and fish soup, smoked products, chocolate, ice-cream. Cholagogue medications (agents) and mineral waters together with physiotherapeutic procedures and magnetotherapy.

Magnetotherapy with a traveling pulsed magnetic field is carried out with the purpose to render anesthetizing, anti-inflammatory and spasmolytic action.

**Procedure.** Treatment with ALMAG device is to be carried out in the sub-acute phase or attack subside period with the purpose of prophylaxis. Action is carried out on area of a liver and gallbladder (see fig. 28 ).



Fig. 28

Procedures time is 15 minutes twice a day in one hour before or in 2 hours after meal. The course of treatment is 18 days.

### ***CHRONIC GASTRITIS***

Chronic gastritis is the disease of a stomach revealing itself with a long inflammation of its mucous. Clinical course of the disease is undulating in the form of acute condition and long remission.

**Gastritis symptoms** in the period of disease acute clinical course depends on acidity of gastric juices. With the secretion insufficiency there are dull pains in the spoon area, sickness, regurgitation, eructation mostly with an air, the sense of weight and overeating. The disease may be complicated with diarrhea, porridge-like stool.

At the abdominal palpation there is moderate pain in epigastric area

Under gastritis disease with normal and increased acidity beside pain syndrome, there is heartburn after the meal, acid eructation, susceptibility to constipation, the tongue is covered with white fur, very often in is complicated with duodenitis – the inflammation of duodenum mucosa.

**Therapeutic effect** of a chronic gastritis comes to correction of a diet, normalization of a gastric secretion, correction of stomach motor malfunction infection sanitation. Within the period both of exacerbation relief and remission physiotherapeutic procedures, including ALMAG, are indicated. The use of ALMAG device has even some advantages in comparison with stationary physiotherapeutic equipment as it allows the procedures to be carried out in home conditions under the doctor advice.

**Therapeutic effect:** to render anesthetizing, anti-inflammatory action, to increase microcirculation in a wall of a stomach and to speed up regenerative processes.

**Procedure.** Epigastric area is the zone of influence. (see fig. 27)

The treatment procedure is carried out in an hour before the meal or in 2 hours after it. Procedure time is 15 minutes twice a day. Treatment course is 18 days.

### ***STOMACH AND DUODENUM ULCER***

**Stomach ulcer** is one of the most wide-spread diseases of digestive apparatus, 50% patients of gastroenterology departments in hospitals are patients with ulcerous affections of stomach or duodenum. The disease is the result of disbalance.

The clinical presentation of disease is characterized by a pain in epigastric area immediately or after a meal depending on localization of a ulcer. Patients are suffered from dyspeptic symptoms - an eructation of swallowed air, sickness, a heartburn, constipations.

Application of ALMAG device as a component of complex treatment is recommended within the period exacerbations relief (subside) and a phase of remission.

**Therapeutic effect.** The traveling pulse magnetic field generated by ALMAG device at the therapy of a stomach ulcer promotes the blocking of nervous pulses out of pain center and rendering anesthetizing, trophic effect on vessels and internal organs in the field of device action, reduction an inflammation and stimulation of metabolism and tissue regeneration.

**Procedure.** The action is carried out on area of a stomach or the duodenal intestine (see fig. 27) The treatment procedure is carried out in an hour before the meal or in 2 hours after it. Procedure time is 15 minutes twice a day. Treatment course is 18 days.

#### ***DISEASES OF FEMALE GENITALS***

#### ***INFLAMMATORY DISEASES OF A UTERUS AND UTERINE APPENDAGES IN THE SUBACUTE PERIOD***

Inflammatory diseases of female genitals takes perhaps the first place both on frequency and gravity among gynecologic diseases of caused disorder.

**Disease aftereffects:** uterine bleeding, whites, pain in the sacrum and lower part belly area with spreading pain in leg, sterility. Among the inflammatory diseases of female genitals the most spread are: vulvitis, a vaginitis, endometritis.

Gynecological diseases pathogens are different microorganisms, but the further process progress depends on organism response. So to take good curative results, the treatment is to be directed to the organism as a whole, in other words it should be not only "local", but "common" one.

The main among the therapy methods to treat chronic inflammatory diseases can be combined into 4 groups: pharmacological, physiotherapeutic, biological and operative.

The application of travelling pulsed magnetic field generated by ALMAG device refers to physiotherapeutic methods of treatment .

**The purpose of treatment** with ALMAG device in the period acute process relief (subside) and in a phase of remission: to render anti-inflammatory, anesthetizing action, improvement of hemodynamics of small pelvis organs, stimulation of metabolic processes and increase of immuno-biological reactivity of an organism.

**Procedure.** The action is carried out on the projection of female genitals (see fig.29). Procedure time is 15 minutes twice a day. Treatment course is 18 days.

**Attention! treatment of gynecologic diseases with the help of ALMAG device during menses is counter-indicated.**



Fig. 28

#### **DISEASES CAUSED BY OVARIES HYPOFUNCTION**

One of the disease caused by ovaries hypo-function is hypo-menstrual syndrome as a result of which there may be infantilism, chronic infections, dysfunction of endocrine gland the activity, avitaminosis and some others. It may be primary and secondary. The primary hypomenstrual syndrome is characterized by little (scanty) and rare menstruation at the beginning of sexual maturity. The cause of it is decreased function of ovaries alongside with general sex genital infantilism.

The secondary one is progressing after definite period of normal menstruation as a result of inflammatory diseases, chronic infection, intoxication. At hypomenstrual symptoms when there is neuro-vegetative dysfunction and hormonal sterility, treatment includes hormonal medications (agents), the balanced diet, the right interchange of work and rest, physiotherapeutic procedures for normalization of endocrine organ function.

**Therapy effect.** Creation of favorable conditions for ovaries function due to improvement of microcirculation and metabolic processes in them.

**Attention! treatment of gynecologic diseases with the help of ALMAG device during menses is counter-indicated.**

**Procedure.** Action is carried out on area of ovaries - 15 minutes and the collar zone - 10 minutes. Treatment course is 18-20 minutes. It is obligatory to carry out repeated course of treatment in 2 months.

**CESAREAN POST OPERATION CONDITION**

Application of traveling pulsed magnetic field is an component part of complex therapy with the purpose to quick women rehabilitation at post Cesarean sections. The application of ALMAG device on area of an operational suture and uterus area promotes faster formation of an elastic suture, uterus subinvolution and reduction of risk of complications occurrence.

Procedures are carried out in 3 days after operation.

Procedure technique is as that for post-operation wounds.

**DISEASES OF VENOUS SYSTEM OF THE UPPER AND LOWER EXTREMITIES**

**DEEP VEIN THROMBOSIS OF A LOWER LEG**

The deep vein thrombosis of a lower leg is characterized by feeling of gravity in legs, arching pains, lower legs edema.

The predisposing factors leading to the disease progress are traumas, change of blood coagulability (haemostasia), the venous congestion, caused by varicose illness, body overweight.

**Symptoms:** pain, the sense of weight and edema, the patient suffers from accompanying thrombosis complicates (the most frequent among them is thrombophlebitis- vein inflammation)

**Device curative effect.** The treatment with the help of ALMAG generated traveling magnetic field promotes reduction of coagulability (the blood flow is increased as a rule with this disease). Besides there is an improvement of microcirculation and increase of permeability of vascular walls. All this results in partial dissolution of a thrombus, decrease of an edema, pain sensations and promotes thrombophlebitis prophylaxis

**Procedure:**

Treatment is recommended to be carried out once a day at affection of both extremities and twice - at affection of one extremity. ALMAG is placed along the veins so that the first inductor is put close to foot, and the fourth – close to the knee or directly on knee fossa. (see fig.30).



Fig. 30

Procedure time is 10-15 minutes. Treatment course is 18 days. It is recommended to carry out repeated course in 2 months.

The joint application of ALMAG device together with ointments containing Heparinum and anti-inflammatory medications increases the therapy effect.

***CHRONIC THROMBOPHLEBITIS IN A STAGE OF TROPHIC DISORDERS***

**Chronic thrombophlebitis** in a stage of trophic disorders - the inflammatory disease of veins more often arising on a background of varicose illness of lower leg veins

**Symptoms:** pain and infiltration along the affected veins; skin redness over them. Disease long-term clinical process can lead to the occurrence of trophic ulcer in the lower-third of foot or area of ankle joint as a result of venous blood haemostasia leading to disorder of tissue feeding .

**Treatment** of chronic thrombophlebitis at a stage of trophic disorders on a background of medicamental therapy with a help of ALMAG device promotes the decrease of blood coagulability, thrombus dissolution and restoration of a blood flow in vessel. Anti-inflammatory action reduces inflammatory process in the affected vessels. Improvement of microcirculation around both the affected vein and trophic ulcer results in increasing of blood inflow rich with building elements, Oxygenium, and outflow (washing away) the accumulated products of an inflammation, Carbonei dioxydum. All together results in liquidation of the inflammatory phenomena and healing of a trophic ulcer.

**Procedure:**

At treatment of the chronic thrombophlebitis complicated with a trophic ulcer procedures on the area of trophic ulcer is carried out after cleansing preparation and change of a bandage twice a day. Treatment is carried out through a gauze bandage.

The first inductor is places on area of a trophic ulcer (gauze bandage) and the rest – along the affected veins. Procedure time is 10-15 minutes. The course of treatment is 18 days.

As the disease has chronic clinical course it takes the long supporting treatment, allowing to avoid relapses, after the first course of treatment, it is necessary to make an interval of 40 days and carry out a repeated course. Further on for the maintenance of a remission it is recommended to carry out one more course of treatment with an 2-3 months interval between courses of treatment..

***VARICOSE ILLNESS***

**Varicose illness** - veins varicose connected to valval apparatus (organ) and vascular wall malfunction.

Predisposing factors leading to the disease progress are congenital weakness of vascular wall, pregnancy, body overweight, the long-time standing position, heavy physical job. Arising of varicose illness is also connected with vessels trauma, thrombophlebitis. Varicose illness has some stages : compensation, subcompensation, decompensation.

Treatment with the help of ALMAG device is carried out at all three stages of varicose illness under the attending physician's advice.

**Clinical effect:** to increase capillary blood - flow; to improve contractive abilities of a vascular wall; to decrease the sizes of varicose veins, especial at the first stage of development of disease.

All these allow to prevent the increase of pain syndromes and occurrence of spasms. Improvement of microcirculation promotes metabolic processes and ulcers healing. Decrease of blood coagulation under the influence of alternating magnetic field promotes trombophlebitis prophylaxis.

**Treatment procedure:**

Procedures are carried out once a day with the affection of two extremities and twice a day with the affection of one. ALMAG device is placed along veins (see fig.30). The first inductor is places close to the foot, and the fourth one – close to directly on knee fossa. Procedure time is 10-15 minutes. The course of treatment is 18 days. Repeated course of treatment is carried out in 2 months. The joint application of ALMAG device together with ointments containing Heparin and anti-inflammatory medications increase the therapy effect.

**8 MAINTENANCE**

8.1 Maintenance of the Device should be conducted by the operating personnel.

8.2 Maintenance procedure is presented in the Table.

Description of job	Periodicity
1. Visual inspection of the device body and the mains cable for soundness.	Prior each procedure.
2. Cleansing, disinfection.	One time a month or when handing the device over to another user.

**9 STORAGE AND TRANSPORTATION**

Storage of the Device is in manufacturer package :

- environmental temperature : between +40 °C and -50 °C;
- relative humidity at +25 °C: up to 98 %;
- atmospheric pressure: from 84 to 106,7 kPa (630-800 mmHg);
- atmosphere should be free of acid or alkaline vapours as well as of any other aggressive admixtures.

The Device in the manufacturer's package can be transported by motor, railway or water (with the exception of sea vessels) air means of transport in accordance with the transport regulations.

Transport conditions:

- environmental temperature: between +50 °C and -50 °C;
- relative humidity at +25 °C: up to 100%;
- atmospheric pressure: from 84 to 106,7 kPa (630-800 mmHg).

The packed Device should be protected from to direct atmospheric precipitation or mechanical impact.

**10 ACCEPTANCE CERTIFICATE**

ALMAG-01 Stationary Portable Magnetotherapy Device with a Travelling Pulsed Field, works serial number \_\_\_\_\_ is produced and accepted in conformity with TU 9444-004-40279992-99 and is recognised ready-to-service.

Date of production \_\_\_\_\_ Stamp

\_\_\_\_\_  
(signature of the person responsible for acceptance)

ALMAG-01 Portable Magnetotherapy Device with a Travelling Pulsed Field is packed in compliance with requirements provided for by design documentation.

Date of packing \_\_\_\_\_  
Packed by \_\_\_\_\_ Stamp

Accepted after packing by \_\_\_\_\_  
signature

ALMAG-01 Portable Magnetotherapy Device with a Travelling Pulsed Field is packed in compliance with design blueprints and specifications.

Date of packing \_\_\_\_\_  
Packed by \_\_\_\_\_ Stamp

Accepted after packing by \_\_\_\_\_  
signature

### **11 MANUFACTURER'S WARRANTY**

The manufacturer guarantees the device quality to conform to the requirements of the user manual under conditions of proper transportation, usage and storage.

Warranty period is 12 months after sale.

Within the warranty period the manufacturer shall repair or replace the defective device or its parts free of charge on presentation of the guarantee bond.

*Warranty provisions:*

The warranty is only valid with correctly filled-in guarantee bond quoting the serial number, date of sale and a vivid stamp of the vendor.

The warranty is void if:

-the device shows evidence of alien interference or repair attempt by a non-authorized servicing company

-unauthorized changes into the design or construction of the device have been introduced

-the device shows mechanical damages

-the device is damaged through introduction of alien objects, substances or liquids

-the device is damaged through application using a mains power non-conforming to the State standards

Manufacturer address: JSC "Yelatma Instrument-Making Enterprise", 25, Yanina st., 391351, Yelatma town, Ryazan region, Russia. Tel./fax : (49131) 2-09-60.

***FOR NOTES***