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MODERN METHODS OF PHYSICAL THERAPY USING LASER TREATMENT AND ULTRA-HIGH FREQUENCY CURRENTS IN THE REHABILITATION OF PATIENTS

Modern methods of physical therapy using laser treatment and ultra-high frequency currents in the rehabilitation of patients

Recently, laser therapy is becoming increasingly popular, because the unique properties of laser radiation provide ample opportunities for its use in various diseases.

Laser therapy is a type of physiotherapy based on the use of radiation in the optical range, the source of which is a laser, a feature of this light flux is the presence of one fixed wavelength. Currently, physiotherapy uses laser radiation in the red and infrared part of the spectrum with a wavelength of 620 to 1300 nm. At such wavelengths, the range of therapeutic action is the widest, and the depth of penetration of radiation into the tissues is maximum.

Laser rays have anti-inflammatory, analgesic and anti-allergic effects, stimulate the phagocytic activity of leukocytes, have a beneficial effect on cellular and humoral immunity, improve microcirculation and rheological properties of blood, stimulate reparative processes, inhibit the process of peroxidation and inhibitory effects. pathogens.

One of the special options for laser therapy is intravascular laser irradiation of blood, which is now widely used in practice. The therapeutic effect of laser chemotherapy is based on the

consequences of the interaction of coherent monochromatic radiation with blood structures, primarily cellular elements.

The ability to modulate the properties and effects of laser radiation with other drugs was the basis for the development and application of combined methods of laser therapy. Methods such as magnetic laser therapy and laser phoresis have become the most widespread.

Magnetic laser therapy is a combined physiotherapeutic method, which is based on the simultaneous exposure to therapeutic and prophylactic purposes with low-intensity laser radiation and a magnetic field. According to clinical observations, their simultaneous use not only summarizes many physiological and therapeutic effects, but there are new physical and physicochemical phenomena (changes in ion-dipole interactions, optical properties of tissues), which enhance the therapeutic effect of the method.

Laser phosphoresis is a complex method of therapy based on the combined action of drugs and low-intensity laser radiation. The mechanism of penetration of drugs under the influence of low-intensity laser radiation is extremely complex and has not yet been fully studied. In laser phoresis, the drugs penetrate deep into the skin and are partially absorbed into the blood. The penetration of drugs deep into the tissues helps to increase the permeability of integumentary tissues, improve the rheological properties of blood and increase microcirculation.

Increasingly in the practice of physiotherapy is a method of exposure to an electric field of ultra-high frequency (UHF) in pulsed mode. In pulsed UHF therapy, the electric field has a pulsed nature.

Transcerebral combined amplipulse-magnetic therapy consists of a combination of two factors: an alternating magnetic field (50 Hz) and a sinusoidally modulated field. It is used in the early period of rehabilitation of patients who have suffered an acute cerebrovascular accident. Patients develop collateral circulation in the brain normalizes vascular tone, venous outflow, blood pressure,

autonomic hemostasis and microcirculation, improves lipid metabolism. PAMT helps to increase the effectiveness of treatment of patients with moderate hypertension.

Transcerebral combined amplipulse magnetic therapy is also recommended as a method of treatment of hypertensive syndrome in chronic glomerulonephritis and chronic pyelonephritis. At application of this complex analgesic, steady hypotensive and lipotropic action is noted.

Transcerebral pulsed magnetic therapy (TIMT) is used in patients with post-stroke disorders to improve muscle and joint sensation, increase muscle strength and range of motion, eliminate edema. As a result of increasing the activity of acetylcholinesterase and the level of endogenous serotonin in skeletal muscle, muscle activity increases.

Transcerebral amplipulse therapy involves the use of sinusoidally modulated current with a frequency of 5000 Hz for electrosonotherapy. This method has a stable antihypertensive effect, provides normalization of cerebral hemodynamics and correction of lipid metabolism. Recommended for patients with bronchial asthma in combination with thyroid disease.

Transcerebral high- and ultrahigh-frequency therapy consists in the use of high-frequency electromagnetic fields – 27.12 MHz and ultra-high frequency 40.68 MHz. This technique relaxes the smooth muscles of blood vessels, providing increased metabolism in brain tissues and reducing pain in subacute and chronic inflammatory processes. Due to this, they are successfully used in the occurrence of ischemic stroke due to atherosclerosis. As a result of treatment, most patients reduce headaches, dizziness, irritability and tearfulness, decreased muscle tone, improves cerebral circulation.

Thus, these methods of physiotherapy have a wide range of positive physiotherapeutic effects due to their unique effect on the human body, continue to be studied and have significant prospects for further use.