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Features of the application of electromagnetic bioresonant therapy of inflammatory infectious diseases

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Purpose: to develop an apparatus and method for electromagnetic bioresonance therapy of inflammatory infectious diseases.

Material & Methods: analysis of scientific and medical literature and information sources on the coverage of the influence of electromagnetic fields on biological objects, systematization and generalization of the results on the research topic.

Results: an apparatus and method for electromagnetic bioresonance therapy with the determination of the frequency of natural vibrations of the causative agents of the disease with the subsequent generation of forced pulses by the magnitude of their frequency, which coincides with the bioresonant frequency, were developed.

Conclusions: the determination of the frequency of natural oscillations of the causative agents of the disease and the further generation of forced pulses by the magnitude of their frequency, which coincides with the bioresonant frequency, significantly increases the therapeutic effect of treatment and at the same time reduces the duration of each cycle of action of the forcedly generated pulses, as well as the total time of treatment of the disease.

Keywords: electromagnetic bioresonance therapy, inflammatory infectious diseases.

Introduction

Many years of research by scientists have shown that absolutely all living things emit electromagnetic waves. The frequency range emitted by humans varies from 1520 to 9460 kHz, and pathogenic ones (molds, viruses, bacteria, worms, ticks) range from 30–900 kHz [3]. Many diseases are closely related to the presence of parasitic, bacterial and viral agents in the body, both infectious and living in various organs in a state of symbiosis with the tissue structures of this organ [8]. In order to suppress certain agents, it is not necessary to introduce antibiotics into the body, i.e. use chemotherapy methods that are far from harmless to the body [6]. Preventive measures, the use of various kinds of vaccines and antibiotics, antiviral and antifungal drugs does not lead to the complete destruction of these diseases. This is due to the emergence of resistant strains of microorganisms and the development of allergic reactions to medications. Medicines with a wider spectrum of action are constantly being created, which, at the same time, have significant contraindications to their use in a fairly wide range of patients and side effects. Therefore, medicine in the fight against these diseases pays increasing attention to non-drug methods of treatment. One of these methods at present is low-frequency electromagnetic therapy, based on the action of radiation of forcedly generated electromagnetic pulsed oscillations of a certain frequency, shape and amplitude in the bioresonance mode on various types of pathogens [1].

Knowing the frequencies of metabolic activity of certain agents, one can influence them with frequency fluctuations that will violate their own rhythms and thereby suppress their normal metabolic activity. According to relevant studies, such actions are absolutely harmless to the human body. The fre-

quencies of parasites and other pathogenic organisms lie in the range from 30 to 900 kHz. The resonant frequencies of the structures of the human body are in the range of 1–10 MHz. Frequencies harmful to the human body lie in the range of more than 1 MHz. Studies have shown that exposure to an extremely low range of electromagnetic fields of 3–30 Hz (electromagnetic vacuum) affects the specific rate of carbonate carbon assimilation in the time interval during which the visible development of microorganisms is observed after infection. The influence of an electromagnetic field in the range from 30 kHz to 100 kHz on microorganisms causes aggression of rod-shaped bacteria and increases reproduction [7].

Due to the action of such electromagnetic pulsed oscillations in the localization zone of pathogens or individual organs and systems of the body, the protective functions of pathogenic microorganisms are weakened, their metabolism is disrupted, the regulation of biochemical processes and their biological functions are reduced, and the amount of endotoxins assimilated by them and their metabolic products decreases. Moreover, the function of organs and systems of the human body is not violated [5].

It is known that living cells, organs of living beings, microorganisms are oscillatory circuits with a certain electric capacity and resistance and have properties such as inductance and the ability to generate and emit own pulses of an electromagnetic field that forms around them with a frequency and amplitude defined for different circuits. The source of these impulses are biochemical processes and metabolic activity of macro- or microorganism cells [6].

Known methods for electromagnetic bioresonance therapy of inflammatory infectious diseases are associated with the

generation of forced low-frequency electromagnetic pulses with a frequency that reproduces the bioresonant frequency of natural vibrations of pathogens outside the body and the directed action of these forced electromagnetic pulses through biologically active points or bioactive zones of localization of pathogens.

Currently, in medical practice, a method of electromagnetic low-frequency therapy is applied, based on the action of short electromagnetic pulses from 0.1 to 100 ms, with a current from 0.1 to 100 mA through electrodes to biologically active points of the human body (Pat. RU No. 2164424, A61N2/04, 2001) [2]. But the disadvantage of this method of treatment is its limited properties: it is suitable only for normalizing the functional state of human organs and systems affected by the disease and does not affect the etiological factors of inflammatory diseases caused by invasion of pathogenic and conditionally pathogenic microorganisms - bacteria, protozoa, microscopic fungi, viruses. All of the above lengthens the duration of treatment, does not allow achieving stable remission and reduces the period of remission of the disease, limits the use of this method of treatment.

In order to influence inflammatory infectious diseases, a method of electromagnetic bioresonance therapy is currently widespread, based on a previous clinical analysis of the type of pathogen or pathogens, determining the calculated range of natural frequencies and the amplitude of the electromagnetic waves of these pathogens and their localization zone and further multi-cycle action through the guiding antenna to the specified zone forcibly generated outside the body of low-frequency electromagnetic pulses with a frequency that reproduces the biological frequency of the natural vibrations of pathogens according to a given program (Pat. RU № 2055604, A61M37/00; A61N2/04, 1996) [9]. Thus, electromagnetic therapy allows you to rid the human body of the causative agents of the disease by treating the zone of their localization of forcibly generated electromagnetic pulse oscillations outside the body. At the same time, different invasiveness and features of metabolic processes in pathogens of inflammatory diseases in combination with features of the physical state, degree of immunity and the course of the pathological process in patients do not allow the exact determination by technical means of the physical characteristics of the natural vibrations of these pathogens, and, consequently, the generation of forced electromagnetic pulsed oscillations and their adequate treatment of the localization zone of pathogens of inflammatory infectious diseases bolevany [4]. This forces the multi-cycle processing of the localization zone of pathogens by electromagnetic pulsed oscillations by successively increasing their frequencies from an initial small value to a larger final value for each zone processing cycle. It is assumed that at what frequency of such generated pulses the latter will coincide with the frequency of natural vibrations of pathogens and occur as a bioresonance of vibrations of microorganisms, which causes a bactericidal or bacteriostatic effect. The effectiveness of such therapy, as well as the duration of the procedure, depends on the number of coincidences of the frequency of the natural oscillations of the pathogens and the forcedly generated pulsed oscillations, i.e. the duration of the bioresonance phenomenon. The more phenomena of bioresonance per unit time are realized, the greater and faster will be the bacteriostatic or bactericidal effect of electromagnetic therapy. In addition, when performing such therapy, the amplitude of the bioresonant frequency of natural vibrations

of pathogens can fluctuate in sufficiently small values from the ascending value, will not positively affect the results of therapy due to insufficient bactericidal or bacteriostatic effect on pathogens. On the other hand, too large an amplitude of resonant frequency oscillations does not exclude the possibility of destruction of human organ tissues. Control over a certain magnitude of the amplitude of the electromagnetic oscillations of the causative agents of the disease in the known method of bioresonance therapy is not expected, which also negatively affects the quality of treatment.

Purpose of the study: to develop an apparatus and method for electromagnetic bioresonance therapy of inflammatory infectious diseases, provides an accurate determination of the frequency and amplitude of natural vibrations of pathogens at the time of their bioresonance and the continuous generation of forced pulsed oscillations only at a certain frequency and a given amplitude of natural vibrations of pathogens, contributes to a significant increase in the number of power hitting them per unit time of therapy, reducing the total time therapy and increase the effectiveness of treatment.

Material and Methods of the research

Analysis of scientific and pedagogical literature and information sources on the coverage of the influence of electromagnetic fields on biological objects, systematization and generalization of results on the topic of research.

Results of the research

We have developed and proposed for use in medicine an apparatus and method for electromagnetic bioresonance therapy of inflammatory infectious diseases, which provides for determining and fixing the frequency of their oscillations in the mode of bioresonance of their own electromagnetic oscillations of pathogens at a certain amplitude in the first cycles of the multi-cycle action of forcibly generated electromagnetic pulses, and the following therapy to carry out forcibly generated pulses in the fixed frequency mode, and, thus, help to reduce the duration of procedures and improve the quality of such therapy (Figure 1).

The problem is solved in that in the method of electromagnetic bioresonance therapy of infectious inflammatory diseases, based on a preliminary analysis of the type of pathogen, determining the calculated range of natural frequencies and the amplitude of the electromagnetic waves of the pathogen and



Fig. 1. Apparatus for electromagnetic bioresonance therapy of infectious inflammatory diseases

their localization zone and further multi-cycle action through the guide antenna to the specified zone of the compulsorily generated low-frequency electromagnetic pulses with a frequency that reproduces the bioresonance frequency of the proper path vibrations, according to a given program, according to the invention, in the first cycles of the action of forcedly generated electromagnetic pulses, their frequency is determined at which the bioresonance of the natural vibrations of the pathogens occurs, and in subsequent cycles, the action of the generated pulses is carried out by the magnitude of their frequency of oscillations reproduces the bioresonance of the natural vibrations of the pathogens, while the amplitude of the bioresonance frequency oscillations must be in the range of 1,5–2,5 upward amplitude of these oscillations.

Determining the frequency of natural oscillations of pathogens of the disease at the first stages of the action of forcedly generated electromagnetic pulses in the bioresonance mode of natural vibrations of pathogens and the further generation of forced pulses by the magnitude of their frequency, coincides with the bioresonant frequency, significantly increases the therapeutic effect of treatment and simultaneously reduces the duration of each cycle of the action of forcedly generated pulses and the total time of treatment of the disease.

Tracking the amplitude of the natural vibrations of pathogens when they are forced to generate electromagnetic pulses, and conducting electromagnetic therapy under conditions when the amplitude of the natural vibrations of pathogens in the conditions of their bioresonance should be within 1.5–2.5 of the rising amplitude of natural vibrations, provides the optimal bactericidal action on pathogens does not create conditions for organ damage and maintains the balance of microbiota (beneficial microflora) in the human body.

The method of electromagnetic bioresonance therapy of inflammatory infectious diseases is as follows. Previously, before the indicated therapy, an analysis of the type of pathogens (bacteria, protozoa, microscopic fungi, viruses, etc.) is carried out and determined from the official tabular data of the guidelines for electromagnetic therapy, the calculated frequency range of electromagnetic oscillations of pathogens F_z and their ascending amplitude A_v , as well as the localization zone of pathogens. Using a microprocessor, a control program is drawn up through the control keyboard, which consists of a cycle-cycle effect on the localization zone of pathogens forcibly generated by the generator of low-frequency electromagnetic pulses F_g with a gradually increasing frequency from the initial frequency F_H to the final frequency F_C during the first two or three cycles of action indicated pulses. At the same time, during one or several cycles of the action of forcedly generated pulses, their frequencies coincide with the frequencies of natural vibrations of pathogens F_v . This is recorded on the indicator of the apparatus at the moment of bioresonance of oscillations of pathogens, at which the amplitude of their oscillations A_p increases by 1,5–2,5 times compared with their ascending value A_v . The moment of reaching the target amplitude of the bioresonance is controlled by a bioresonance sensor, which sends a signal to the interruption module of the generation of forced electromagnetic pulses, which, in turn, fixes this frequency, coincides with the frequency F in the natural oscillations of the pathogens, in the memory unit.

In the following cycles of therapy, the generator generates electromagnetic pulses with an oscillation frequency F_p , which

corresponds to the frequency of electromagnetic oscillations of pathogens at the moment of their bioresonance, at which the amplitude A_p of their oscillations increases significantly, creates conditions that adversely affect the functioning of pathogens in the human body (Figure 2).

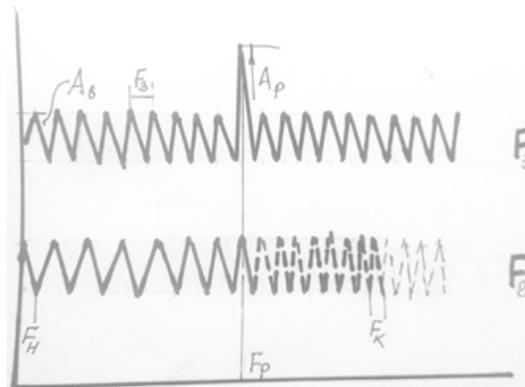


Fig. 2. United diagrams of electromagnetic impulse oscillations: F_z – natural oscillations of pathogens, F_g – forcedly generated in the zone of their localization of electromagnetic low-frequency impulses

Achieving the amplitude A_p of the electromagnetic waves of the causative agents of the disease at the time of their bioresonance, which should exceed the ascending amplitude of A_v by 1,5–2,5 times, provides the proper bactericidal effect of the compulsively generated impulses and does not create conditions for damage to organs and beneficial microflora of the human body. Moreover, the duration of each session of such therapy is within 15–20 minutes, and the total duration of treatment is 6–10 sessions.

Clinical case.

Patient S., 32 years old, male, complained of abdominal pain, stool 5–6 times a day with mucus and blood, weight loss, general weakness, decreased performance. Sick for 3 years with periodic (1–2 times a year) exacerbations that occur after an error in nutrition and psycho-emotional stress. Clinical diagnosis: ulcerative colitis, chronic recurrent course, stage of exacerbation, moderate form. Coprogram data: the consistency of feces is mushy, alkaline, an admixture of mucus and blood. Microscopy revealed muscle fibers, undigested fiber, starch grains, iodophilic flora; a significant number of leukocytes, red blood cells, intestinal epithelial cells. Stool analysis for the detection of *Staphylococcus aureus* (*Staphylococcus aureus*) is positive. According to table recommendations, the range of natural oscillations of *Staphylococcus aureus*: 352000 kHz – 357 200 kHz.

Patient S. was assigned electromagnetic low-frequency therapy with a frequency of forcedly generated electromagnetic pulses, increased during one cycle: the initial frequency was 352,000 kHz, the final frequency was 357,200 kHz, and the degree of increase in frequency was 10 Hz. In the first cycle of therapy, a bioresonance was determined with the amplitude A_p of oscillations of the pathogen, which exceeded the ascending amplitude A_v by 1,5–2,5 times, when the oscillation frequency F_p of the compulsory generated pulses reached 356970 kHz and coincided with the same oscillation frequency of the pathogens. In subsequent cycles of the action of the compulsory generated impulses, an influence was carried out through the guide antenna into the zone of the intestinal

projection with a frequency of 356 970 kHz, the duration of the procedure was twenty minutes. The procedures were appointed every other day, the total number of procedures – 7. After the electromagnetic bioresonance therapy, the general condition of the patient improved, the clinical manifestations of the disease decreased, a repeated coprogram indicates the absence of *Staphylococcus aureus* in the feces.

Conclusions / Discussion

1. The determination of the frequency of natural vibrations of the causative agents of the disease and the further generation of forced pulses by the magnitude of their frequency coincides

with the bioresonance frequency, significantly increases the therapeutic effect of treatment and at the same time reduces the duration of each cycle of action of the forced pulses, as well as the total time of treatment of the disease.

2. Monitoring the health status of patients who underwent a full course of electromagnetic therapy according to the proposed methodology testifies to the high effectiveness of treatment, the total duration of treatment is reduced by 1,5–1,85 times.

Prospects for further research. It is promising to develop an apparatus and method for ultrasonic exposure in inflammatory infectious diseases.

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