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APPLICATION OF BDELLOTHERAPY IN THE TREATMENT OF OSTEOARTHRISIS

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Bdellotherapy (from Greek *bdella* (leech) + *therapy*) or hirudotherapy (from Latin *hirudo* (leech) + *therapy*) is the method of treatment by means of application of medicinal leeches. Scientists differentiate three main groups of biologically active substances contained in the secretion of the leech salivary glands. The first group includes antihemostatics – hirudin and hementin. The second one contains lytic compounds including destabilase, hyaluronidase, collagenase, lipase and esterase. The third group consists of blockers of the body protective reactions: bdellines and eglins. The main properties of the leech salivary gland secretion are anaesthetic, anti-inflammatory, and fibrinolytic. Leech enzymes proper influence upon the circulation, ischemia and hypoxia of the tissues – the three main factors determining the development and progressing of a disease. Osteoarthritis (OA) is a chronic disease of joints of a degenerative-inflammatory character characterized by injury of cartilages, remodeling of bone epiphysis, development of osteophytes, and at later stages – stable deformity of joints (the ICD code 10:M15-M19). It has been constantly increasing in the world, and it is more often diagnosed among young people and associated with disorders of ability to work and ache.

According to the Order of the Ministry of Public Health of Ukraine № 676 dated 12.10.2006 and on the basis of a unified clinical protocol of medical aid and medical rehabilitation the treatment of osteoarthritis includes the following: 1. Anaesthetization achieved by analgesics (nonopioid, opioid – only in case of ineffectiveness or intolerance to other medicines not long); nonsteroidal anti-inflammatory drugs (NSAIDs); drugs of systemic enzyme therapy; prolonged forms of glucocorticosteroids in the form of intra-articular injection (in case of inefficacy of other anti-inflammatory drugs no more than 4 injections a year). 2. Chondroprotectors. 3. Topical application of NSAIDs in the form of ointments and gels. 4. Medicines improving microcirculation. 5. Orthopedic treatment.

With the purpose to reduce pain syndrome in case of OA nonopioid analgesic paracetamol is widely used which causes less side effects from the side of the upper portion of the digestive system (bleeding, perforation) than NSAIDs. Although in case of an increased dose of the drug to 2 g the signs of irritable bowel syndrome may occur. At the same time, paracetamol has been recently determined not to increase arterial blood pressure, and on the contrary NSAIDs cause arterial hypertension. In case of ineffective action of paracetamol and a high risk of side effects after NSAIDs therapy its combination with NSAIDs in the form of gel, cream or ointment is recommended: on the basis of ibuprofen, piroxicam, diclofenac etc. Anaesthetic effect in this case is not long. Eglins from the leech secretion are enzymes preventing dystrophic changes of the tissues, eliminating pathologic changes in joints and preventing their further injury. The enzymes hyaluronidase and collagenase from the leech secretion in combination with the standard therapy of patients suffering from OA intensify positive dynamics of treatment, reduce pain and swelling syndromes. Longer anaesthetic effect is observed with simultaneous decrease of NSAIDs dose which in its turn reduces manifestation of side effects on the mucous membrane of the stomach and duodenum. Therefore, bdellotherapy can be recommended for patients having underlying disorders of the digestive tract.

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MECHANISMS OF NON-ALCOHOLIC FATTY LIVER DISEASE DEVELOPMENT IN PATIENTS WITH ARTERIAL HYPERTENSION AND OBESITY DEPENDING ON GENETIC PREDICTORS

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The aim of the research was to study the association of polymorphism of ACE (I/D) and PPAR- γ 2 (Pro12Ala) genes with the onset of non-alcoholic steatohepatitis and steatohepatosis in patients suffering from essential arterial hypertension (EAH) and abdominal obesity (AO).

96 patients with non-alcoholic fatty liver disease (NAFLD), stage II EAH of 1-2 degrees of high and very high risk with concomitant AO took part in the research: the here were 41,67% (40) of men and 58,33% (56) women, the average age was 53,70 \pm 5,34 years. The function of the liver was studied by the activity of organ-specific enzymes. The study of polymorphism of PPAR- γ 2 (Pro12Ala) and ACE (I/D) genes was carried out by using the PCR method. The control group consisted of 50 practically healthy individuals.

First degree obesity was diagnosed in 27,08% (26) individuals, second degree AO was found in 58,33% (56), 14,58% (14) of patients had third degree AO; 16,67% (16) individuals suffered from steatohepatitis with minimal activity of mesenchymal and inflammatory process, the rest 83,33% (80) of the patients had steatohepatosis. Among the residents of the Northern Bukovyna suffering from NAFLD, AO and EAH the deletion in the 16th intron of the ACE (rs 4646994) gene in the homozygous condition occurs in 32,29% of cases, which is by 14,29% more frequently than in the individuals of the control group ($\chi^2=3,38$; $p=0,048$). The unfavorable D-allele of the ACE gene is associated in patients with NAFLD and EAH with II and III degree obesity ($\chi^2=5,24$; $p=0,022$ and $\chi^2=6,11$; $p=0,013$, respectively) and occurs in general more frequently in patients by 12,29% ($\chi^2=3,99$; $p=0,046$). The DD genotype and D-allele are also associated with a higher incidence of steatohepatosis by 20,57% ($\chi^2=3,81$, $p=0,05$) and 13,75% ($\chi^2=4,68$, $p=0,03$), respectively.

Frequency of homozygous missense mutation in chromosome 3 of codon 12 of exon B of PPAR- γ 2 (rs1801282) gene exists in 2,0% of practically healthy individuals and in 5,21% of patients with NAFLD, EAH and AO