

*International Conference on***PHARMACEUTICAL AND BIOMEDICAL ENGINEERING***October 16-17, 2017 Osaka, Japan***Biotechnical system for accelerated healing of trophic ulcer****Dmitriy Belik and Fedor Blynskiy**

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**D**iabetic foot is a pathological state of human foot within diabetes mellitus disease. The cause of diabetic foot is complex damage of peripheral nerves, bones, joints, vessels. Moreover the risk of ulcerous-necrotic processes is increased. According statistics in developing countries the diabetic foot injuries make 40% of total diabetes mellitus diseases. Additionally, the diabetic foot is the cause of 80% amputations. Up to 6% of world population suffered from diabetes mellitus disease. Every 10-15 years the quantity of patient with diabetes is doubled. We suggest the biotechnical system for accelerated healing of trophic ulcer. It implements integral action of following biophysical effects: magnetoelectric, ultraviolet and bioimpedance. Magnetoelectric part is based on adaptation magnetic field gradient for the particular part of the trophic ulcer. This option is achieved by induction matrix switching according the pre-install system settings. Ultraviolet part decontaminates the ulcer surface. Bioimpedance part is a biological feedback which characterizes the healing process. Clinical experience shows that variable magnetic field utilization allows decreasing healing period in 1.5-2 times. Our biotechnical system is able to generate different types of magnetic fields: Standing wave, flowing amplification from ulcer side to its center. Therefore, there is a window of opportunity for WBC and fibroblast concentration which accelerates ulcer healing. Inductors are positioned over the injury thus the therapy effect is non-invasive. The system could be remotely controlled by the physician with designed PC user interface.

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