Abstract

This thesis assesses the effectiveness of shock wave therapy for dysfunctional disorders of the musculoskeletal system. While we are well aware of the physical principles and history of shock wave generators, opinion differs on the treatment effectiveness mechanisms. The theoretical part of this work explains the effects of shock waves on various types of tissue, the differentiation of the cells, and the analgetic effect of therapy. It summarizes the indications, side effects and contraindications of shock wave therapy.

The research part of this thesis deals with the effectiveness of shock wave therapy at the Department of Rehabilitation and Sports Medicine at the Motol University Hospital, which specialises in various musculoskeletal disorders. This thesis evaluates the correlation between the effectiveness of shock wave therapy and length of time the patient has experienced difficulties before undergoing treatment. This thesis also reviews whether the number of treatment applications has the capability to influence the outcome of therapy.

The study is controlled by a control group of 22 patients. The total effectiveness of shock wave therapy is $p = 1,12*10^{-10}$. The shock wave therapy effectiveness of patients with heel spur is $p = 0,00176$. The shock wave therapy effectiveness of patients with painful shoulder syndrome is $p = 0,00002247$. The shock wave therapy effectiveness of patients with lateral epicondylitis is $p = 0,00058056$. Correlation coefficient between the effectiveness of shock wave therapy and length of time the patient has experienced difficulties before undergoing treatment is $r^2 = 0,6767725$. Statistical analysis of the effect of the highest total number of procedures is expressed by the correlation coefficient $r^2 = 0.9081185$.

The shock wave therapy is a new non-invasive therapeutic method with high effectiveness, convenience and safety. The shock wave therapy has the potential to influence many surgical, orthopedic and aesthetic disorders without the surgical risks.