

Shockwave Therapy for Knee

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95% SWT efficiency

TITLE: SHOCKWAVE THERAPY FOR KNEE OSTEOARTHRITIS

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Osteoarthritis is a widespread disease affecting 10% of the world's population. According to various authors, frequency of this pathology ranges from 30 to 55% among all orthopedic patients who visit the doctor. Among all degenerative dystrophic joint diseases, deforming knee osteoarthritis occurs in 54.7-68.7% of patients, at the same time the advanced stages of disease occur in 75% of patients.

Gonarthrosis often occurs in young people, including those engaged in sports activities and active labor activity. In case of gonarthrosis 80% of patients note the decrease in quality of life, and invalidation rates from 10 to 27% of observations, leading to handicap in 10 to 27% of cases. The treatment of patients suffering from deforming knee osteoarthritis is a challenge for doctors who deal with this disease. The main reasons bringing the patient to visit a doctor are pain and decreased joint function.

The complex approach of osteoarthritis patients' treatment implies the wide use of physiotherapeutic methods. Their application promotes the microcirculation improvement in subchondral bones, synovial membrane and periarthritic tissues, the improvement of metabolism and regression of destructive processes.

Nevertheless, the remaining high occurrence of the disease and long rehabilitation process of patients make the search of new effective methods and recovery facilities actual. A promising method of conservative therapy of arthritis patients is the application of extracorporeal shockwave therapy (ESWT), a new method of treatment which represents a promising alternative surgery treatment of deforming knee osteoarthritis.

In medicine shockwaves have been applied for the first time in 1980 for lithotripsy of renal stones, and in 1985 for lithotripsy of the gall stones. The first publications describing application of shockwaves therapy for orthopedic pathology and consequences of trauma appeared in the beginning of 1990s. Application of the shockwaves in orthopedy by means of devices for lithotripsy has shown that they do not meet the requirements for treatment pathologies of the musculoskeletal system. During the last decade special devices using various types of shockwaves generation were developed. All of them are aimed on generation of the pressure impulse transferred to tissues with the maximum loss of energy for which purpose the various constructive environments are used. Shockwaves of all the cascade of effects which begins with application of the physical energy in the form of acoustic waves and finally results in restoration of vessels and metabolic activity improvement by means of various physiological mechanisms. The shockwave (acoustic waves) bearing high energy to painful spots and tendons or musculoskeletal tissues with subacute, subchronic and chronic conditions activates healing, regeneration and repair of tendons and soft tissues. The international studies show an average ESWT efficiency of 77% for separate pathologies up to 92%.

Given the above, an objective of this research was the investigation of the results of shockwave therapy application for gonarthrosis. We observed 30 patients with gonarthrosis showing joint function decrease of I-II grade. The average age of patients was 62(±5) years. The disease started between 5-3 years before the study started. Clinical history showed the prevalence of the painful syndrome with restriction of flexion and extension in the affected extremity up to 40° and decrease in muscular force. The palpation revealed painful spots on the back of the leg, in the joint area. Pain was significantly increasing at movements.

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Methods Patients received ESWT with the device BTL-6000 SWT TOPLINE. There were 3 to 6 sessions performed with an interval of 3–6 days between them. The session included 2000–3000 shocks with various frequency (10–15 Hz) and pressure from 1.5 to 3.5 bars.

Results After the treatment course 85% of patients showed considerable improvement. The morning stiffness rate was reduced by 44%, joint index reduced by 39%, and functional index reduced by 18% compared to the initial data.

Conclusion Shockwave therapy with the device BTL-6000 SWT TOPLINE is an effective treatment of deforming knee osteoarthritis. In 95% cases shockwave therapy decreases the painful syndrome and also improves the function of knee joints.