Objective: Erectile dysfunction is a common problem in men, especially in 40-70 years of age. There are several ways in the treatment of this topic. One of these ways is a non-invasive non-pharmacological treatment due to the use of extracorporeal shock wave therapy (ESWT). There are a few devices and technologies for the ESWT. The aim of the study is to evaluate the effectiveness of radial shock wave therapy (RSWT) in treatment of erectile dysfunction by using the device BTL – 6000 SWT. It is a radial shock wave therapy device enabling the application of therapy by using handheld pneumatic applicator (Pic 1). One of the main effects of the application is neovascularisation. The application of shock waves stimulates the soft tissues which results in significant increase of the growth factors, such as the eNOS, VEGF, PCNA and BMP expression. These processes stimulate the growth and remodeling of new arterioles (Pic 2).

Methods: A prospective single/center, open label clinical study of the radial shockwave therapy system (BTL-6000 SWT, manufacturer: BTL Industries, Ltd.) in therapy of the patients with erectile dysfunction, who were the responders to PDE5is. We enrolled 22 men with vasculogenic ED with good or decreasing respond to PDE5is.

The patients are enrolled to the study according to the following inclusion criteria: erectile dysfunction existing for more than 6 months and/or one or more from the next criteria: metabolic syndrome, hypercholesterolemia, hypertension, diabetes, and atherosclerosis.

Assessment of erectile function was performed at screening, after the last treatment, and at the 3 month follow-up examinations by using the five items International Index of Erectile Function (IIEF-5) (Pic3). Patients mean baseline of IIEF-5 domain score was 14.09 after a 1-month PDE5is washout period. RSWT was applied to the penile shaft and crura at five sites. The therapy was administered in contact manner using direct application above the target area. The application pressure was set from the 1.5 bars to 2 bars, depending on how well the patient tolerated the treatment. The application frequency was 12 Hz. Patients underwent 4 treatments every 7 days. The therapy was performed in 5 consequent areas, 3 on the dorsum of shaft and penis and one on the left and one on the right side of shaft, with 600 pulses applied to each area (Pic4).

Results: We treated 22 men with vasculogenic ED, average age 52.6 ± 9.3 years. After the last treatment, significant increases in IIEF-5 domain scores were recorded in 11 patients (Pic 5). The patients mean baseline of IIEF-5 domain score was 14.09 after a 1-month PDE5is washout period. RSWT was applied to the penile shaft and crura at five sites. The therapy was administered in contact manner using direct application above the target area. The application pressure was set from the 1.5 bars to 2 bars, depending on how well the patient tolerated the treatment. The application frequency was 12 Hz. Patients underwent 4 treatments every 7 days. The therapy was performed in 5 consequent areas, 3 on the dorsum of shaft and penis and one on the left and one on the right side of shaft, with 600 pulses applied to each area (Pic4).

Conclusion: RSWT represents a new, effective, non-surgical, non-pharmacological, and well tolerated treatment for men with erectile dysfunction, who previously responded to pharmacotherapy. The therapy is painless and safe. RSWT is a new treatment option for erectile dysfunction, enabling the patient to achieve and maintain sufficient and dependable erections.