Effectiveness of shock wave therapy: implementation of a soft wide focus applicator in patients with erectile dysfunction (2016)

AUTHORS(*): Joseph P. Saffon, Juan M. Martínez, Carolina Sandoval, Hector A. Corridor.

INTRODUCTION

Low-intensity extracorporeal shock wave therapy (LI-ESWT) is of great clinical interest for the treatment of erectile dysfunction (ED), chronic pelvic pain (CPP) and Peyronie's disease. Extensive research in animal and human studies showed that the beneficial effect of LI-ESWT is due to its angiogenic properties. It is thought to stimulate neovascularization by inducing the expression of regeneration- and growth-related factors, like for example eNOS, VEGF and PCNA although the precise underlying mechanisms are not entirely clear yet. Thereby LI-ESWT can increase penile blood flow and endothelial function and represents a new, sustainable therapeutic strategy to restore erectile function, independent of, or supporting the conventional palliative medication. [1][2][3]

OBJECTIVE

Progress report on LI-ESWT in the treatment of vascular ED using a SWFA (soft wide focused applicator) handpiece for a cohort of 20 patients in a clinical center in Bogota, Columbia.

METHODS

Clinical records of patients treated at the medical centre were reviewed during the first half of 2016, with diagnosis of vascular ED and underwent a protocol of LI-ESWT once a week for 5 weeks, energy flux density 0.15mJ and 3000 pulses per session, with the MTS urogold100® and applicator OP155. Outcome measurements: Erection Hardness Score (EHS), International Index of Erectile Function, 5-item version (IIEF-5).

RESULTS

20 patients with a mean age of 53.1 ±12.1 years were included. At admission, 70% of patients had mild / moderate (n = 14), 20% (n = 4) moderate and 10% (n = 2) severe ED according to the IIEF-5 scale. After five sessions 25% (n = 5), and after one month follow-up even 45% (n = 9) of patients showed a clinical important difference (defined as an increase of ≥ 4 points) in the IIEF score with an average increase of 5 points (18 ±4.4, p= 0.001). Assessing the EHS, 55.5% of patients at baseline (mean EHS: 3 ±0.6) had an erection insufficient to penetrate, this proportion decreased significantly to 28% after therapy (mean EHS: 4 ±0.7, p = 0.05), a beneficial effect that was still persisting after one moth follow-up (mean EHS: 4 ±0.7, p = 0.04).

CONCLUSIONS

The preliminary results of LI-ESWT in the treatment of ED with the MTS urogold100® and applicator OP155 are promising and indicate a clinically significant improvement in both, the IIEF and EHS by this technology. Studies with a larger group of patients, a longer follow-up and a comparative shock wave protocol setup are necessary to further assess the statistical, clinical significance and efficacy of this improvement in erectile function upon LI-ESWT.

(*) Boston Medical Group, Bogota, Columbia

[1] Y. Vardi, B. Appel, A. Kilchevsky, and I. Gruenwald, "Does low intensity extracorporeal shock wave therapy have a physiological effect on erectile function? Short-term results of a randomized, double-blind, sham controlled study," *J. Urol.*, vol. 187, no. 5, pp. 1769–1775, 2012.

[2] R. Assaly-Kaddoum *et al.*, "Low Intensity Extracorporeal Shock Wave Therapy Improves Erectile Function in a Model of Type II Diabetes Independently of NO/cGMP Pathway.," *J. Urol.*, vol. 196, no. 3, pp. 950–6, 2016.

[3] Z. Lu, G. Lin, A. Reed-Maldonado, C. Wang, Y.-C. Lee, and T. F. Lue, "Low-intensity Extracorporeal Shock Wave Treatment Improves Erectile Function: A Systematic Review and Meta-analysis.," *Eur. Urol.*, vol. 2838, no. 16, pp. 1–11, 2016.