Comparison of Low Intensity Shockwave for Erectile Dysfunction Using Electrohydraulic vs Electromagnetic Radial Shockwave Generators

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Introduction
Low intensity shockwave therapy (LSWT) has emerged as a novel treatment of arteriogenic erectile dysfunction (ED). Part of the difficulty of comparing results in the literature is the use of multiple different machines and protocols. Even controlling for total energy applied, the shape of the waveform depending on the shock generator is different and might produce variable biologic effects. Furthermore, each manufacturer recommends different frequency and duration of pulses. To date, no studies have directly compared results between devices.

Aim
To compare outcomes of LSWT for men with ED between devices that generate either electrohydrolic spark waves or electromagnetic radial waves.

Method
- Retrospective chart review of men receiving LSWT with either Urogold 100 or Zimmer enPuls Pro machine for 6 weekly treatments
- Urogold protocol: 3000 shocks total at 0.09 mJ/mm²
- Zimmer protocol: 10,000 shocks at 15 Hz and 90 mJ energy
- 6 treatment sites: one at each crus of the penis and 2 on the shaft bilaterally
- SHIM score assessed erectile function before and 6 weeks after therapy.
  - Men also self reported erectile hardness on a scale of 0 (no change), 1 (firm enough for penetration) or 2 (completely firm).
  - Data was compared with paired or unpaired t test, Chi squared or Kruskal-Wallis as appropriate and significance set at p<0.05

Results
- 24 men were treated with the Urogold and 23 with the Zimmer device.
- Both groups were equivalent in age (61.3 vs 60.4 years), duration of ED symptoms (61 vs 70 months) and starting SHIM score (9.3 +/- 4.2 vs 9.0 +/- 4.7, p=0.67)
- Post treatment there was a clinically and statistically significant increase in SHIM for both machines
  - Urogold: SHIM increased from 9.3 to 15.5 (p<0.001)
  - Zimmer SHIM increased from 8.7 to 16.0 (p<0.0001)
- Proportion reaching erectile hardness for penetration favored Zimmer device, not statistically significant (see graph)

Conclusion
In our patient population, LSWT was effective for arteriogenic ED in the majority of patients and there was no significant difference in outcomes between an electrohydrolic and an electromagnetic radial device.