27TH WMSM
WORLD MEETING ON SEXUAL MEDICINE 2026

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Condensed sequential multi-zonal low-intensity extracorporeal shockwave therapy for vasculogenic erectile dysfunction

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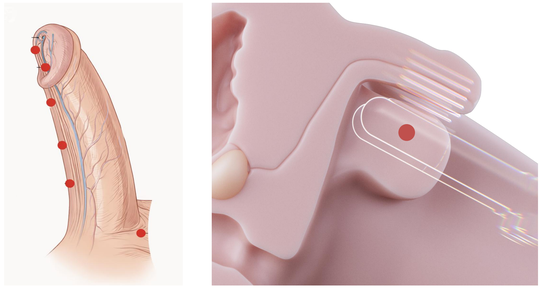
Introduction

LiESWT has emerged as an option for men with vasculogenic erectile dysfunction (ED) by promoting angiogenesis, tissue remodeling, and neurovascular recovery. Traditional treatment schemes commonly apply two sessions per week for three weeks, limited to the penile shaft. The current study introduces and evaluates a sequential multi-zonal LiESWT protocol, involving consecutive daily sessions targeting the penile root, shaft, and dorsal neurovascular bundle.

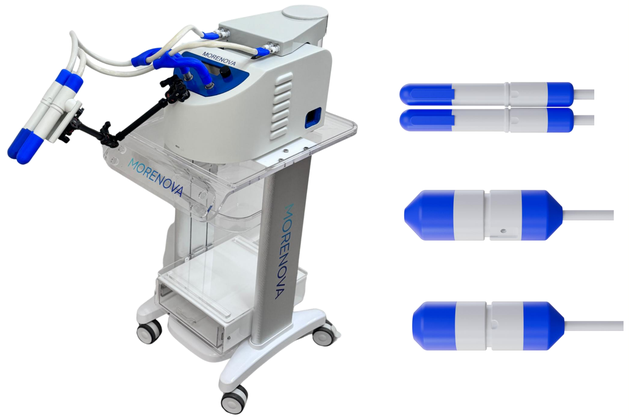


Aim

The objective was to determine whether this intensified anatomical coverage, delivered in a continuous short-course schedule, enhances both erectile function and responsiveness to phosphodiesterase type 5 inhibitors (PDE5i).

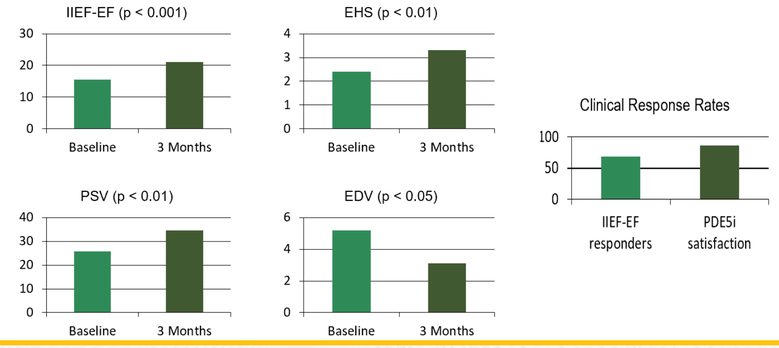
Method

- **Study design & population:** Prospective open-label study of 84 men (43–69 y, mean 56.8 ± 6.2) with mild-to-moderate vasculogenic ED, confirmed by penile color-Doppler and partial PDE5i response.
- **Treatment protocol:** Morenova® system, 6 daily sessions × 3000 shocks (2 on penile root, 2 on shaft, 2 on dorsal surface).
- **Shockwave parameters:** Linear (0.09 mJ/mm², 2.5 Hz) and focal (0.15 mJ/mm², 2.0 Hz) applicators.
- **Assessment tools:** Dynamic penile color-Doppler post-20 µg PGE_1; PSV & EDV measured; functional outcomes included IIEF-EF, EHS, PDE5i satisfaction.
- **Flow criteria & analysis:** Arterial insufficiency PSV <25 cm/s, borderline 25–30 cm/s, normal ≥30 cm/s; EDV >5 cm/s indicates veno-occlusive dysfunction; changes analyzed by paired t-tests ($p < 0.05$).



Results

All 84 patients completed the treatment protocol and 3-month follow-up. The mean IIEF-EF score increased from 15.6 ± 3.2 to 21.1 ± 3.7 ($p < 0.001$), while the EHS improved from 2.4 ± 0.6 to 3.3 ± 0.7 ($p < 0.01$). Doppler evaluation demonstrated a rise in PSV from 25.8 ± 5.7 cm/s to 34.6 ± 6.1 cm/s ($p < 0.01$) and a reduction in EDV from 5.2 ± 1.8 cm/s to 3.1 ± 1.5 cm/s ($p < 0.05$). A clinically meaningful improvement (≥4-point IIEF-EF gain) was observed in 68% of subjects. Reassessment of PDE5i response revealed a significant increase in overall satisfaction in 86% of patients. No adverse effects, pain, or discontinuation were reported throughout the protocol.



Conclusion

Multi-zonal LiESWT protocol, incorporating focused treatment at the penile root, shaft, and dorsal neurovascular bundle, achieved significant improvements in erectile function, rigidity, and penile hemodynamics in men with vasculogenic ED. The integration of daily treatment and anatomically targeted energy delivery resulted in enhanced functional recovery and improved PDE5i response. The procedure demonstrated excellent safety, tolerability, and clinical efficiency, supporting its role as an effective alternative to conventional spaced regimens.

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Low-intensity shockwave therapy + multimodal treatment in Peyronie's disease with erectile dysfunction

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Introduction

Peyronie's disease (PD) is a localized fibrotic disorder of the tunica albuginea often associated with penile curvature and erectile dysfunction (ED). The coexistence of cavernosal fibrosis and impaired penile hemodynamics significantly affects sexual function and quality of life. Conventional conservative therapies remain only partially effective. Low-intensity extracorporeal shockwave therapy (LiESWT) has shown potential as a non-invasive modality promoting neovascularization, antifibrotic activity, and endothelial repair.

Aim

To evaluate a **sequential LiESWT protocol** (linear + focal) integrated with **multimodal pharmacologic therapy** in men with **stable PD and ED**.

Method

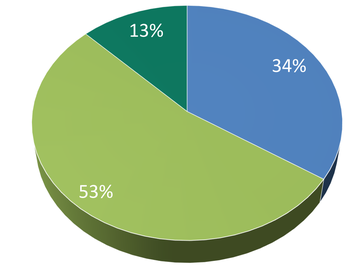
A prospective open-label study was conducted on **32 men** aged 43–64 years (mean 51 ± 6.3) with stable-phase PD and curvature below 30°, all presenting with mild-to-moderate ED. 69% were responsive to phosphodiesterase type 5 inhibitors (PDE5i).

Treatment was performed using the Morenova® shockwave system over 12 consecutive daily sessions, alternating between linear and focal applicators. The linear applicator was applied during six sessions delivering 3000 shocks/session at 0.09 mJ/mm² and 2.5 Hz to the penile root and shaft. The focal applicator was used during alternate sessions targeting the fibrotic plaque (3000 shocks/session, 0.15 mJ/mm², 2 Hz). Each patient received adjunctive therapy for three months: tadalafil 5 mg daily, L-arginine with Pycnogenol, and potassium para-aminobenzoate (POTABA). Patients with biochemical hypogonadism used testosterone gel 40.4 mg daily. Clinical evaluations were performed at baseline, 3, and 6 months.

Morenova® shockwave system

Results

All patients completed the protocol without adverse events. Erectile function improved in 91% of cases, with mean IIEF-EF increasing from 15.9 ± 3.3 to 22.8 ± 3.7 ($p < 0.001$) and EHS from 2.4 ± 0.5 to 3.5 ± 0.6 ($p < 0.01$). At 6 months, 36% of patients demonstrated measurable curvature reduction (8–12°), while 56% reported subjective plaque softening and better penile elasticity. Thirty-eight percent discontinued PDE5i therapy due to restored spontaneous erections. A mild subjective increase in curvature occurred in 13% without pain recurrence or functional decline. Plaque consistency decreased in most cases, and men receiving testosterone supplementation showed greater adherence and functional improvement.



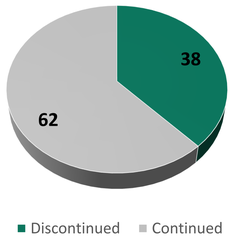
PDE5i discontinuation rate (Yes vs No)

Scructural Changes

- **36% curvature reduction (8-12°)**
- 56% plaque softening
- Improved penile elasticity

Medication impact

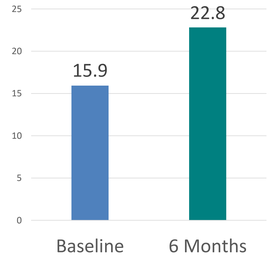
- **38% discontinued PDE5i**
- Greater response with testosterone supplementation



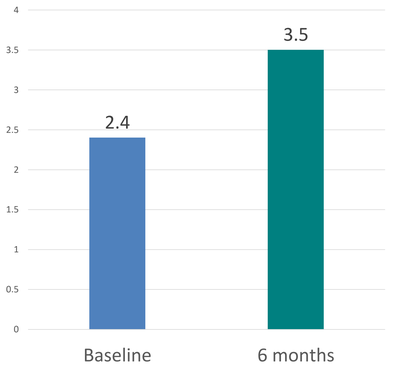
PDE5i discontinuation rate (Yes vs No)

Erectile Function

- **91% improved**
- IIEF-EF: **15.9 → 22.8 ($p < 0.001$)**
- EHS: **2.4 → 3.5 ($p < 0.01$)**



IIEF-EF Baseline vs 6 Months



EHS Baseline vs 6 Months

Safety

- No adverse effects
- 13% mild curvature increase
- No pain recurrence

Conclusion

Sequential LiESWT alternating linear and focal applicators, integrated with multimodal medical therapy, produced significant structural and functional benefits in stable PD with ED. Combining shockwave-induced vascular regeneration with antifibrotic and hormonal modulation enhanced erectile performance, plaque remodeling, and satisfaction. The observation that over one-third of participants discontinued PDE5i due to spontaneous erectile recovery highlights the restorative potential of this approach. The method proved safe, well tolerated, and clinically effective, warranting further evaluation in larger controlled trials.

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Micro-dose intracavernosal alprostadil priming enhances LiESWT outcomes in vasculogenic erectile dysfunction

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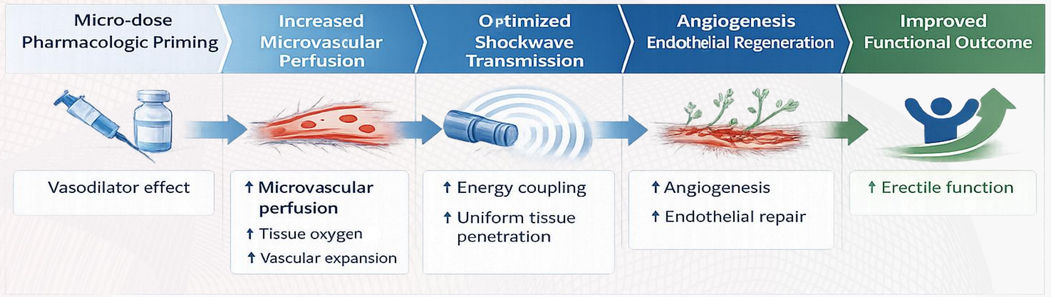
Introduction

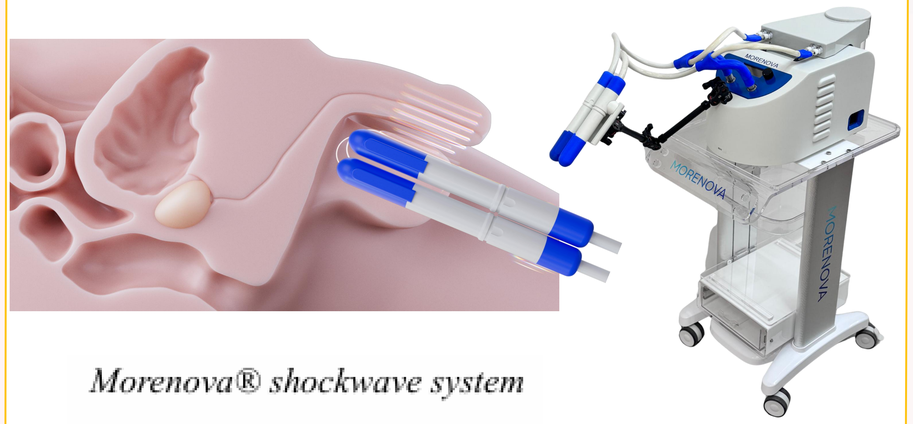
Low-intensity extracorporeal shock wave therapy (LiESWT) enhances erectile function through the mechanism of vascular regeneration; however, the effective transmission of energy is contingent upon sufficient cavernosal perfusion. This study examines whether micro-dose intracavernosal administration of alprostadil can induce controlled tumescence and subsequently augment the clinical and hemodynamic efficacy of LiESWT in the treatment of vasculogenic erectile dysfunction.



Pharmacologic microvascular priming enhances tissue perfusion, improving shockwave energy delivery and promoting vascular regeneration.

Methods

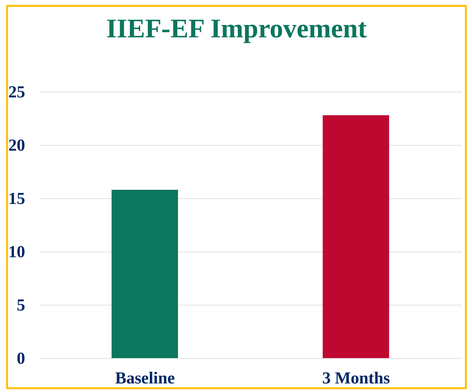
Prospective single-arm study including 34 men aged 48–65 years with mild-to-moderate vasculogenic erectile dysfunction confirmed by penile color-Doppler ultrasound. Patients underwent six consecutive daily LiESWT sessions (3000 shocks/session, energy flux density 0.09 mJ/mm², frequency 2.5 Hz) using the Morenova® system. Before each session, **intracavernosal alprostadil 4 µg** was administered to achieve controlled partial tumescence (≈40–50% rigidity). Outcomes were assessed at baseline and 3 months and included IIEF-EF, Erection Hardness Score (EHS), and penile Doppler parameters (PSV, EDV). Statistical analysis was performed using paired t-test ($p < 0.05$).

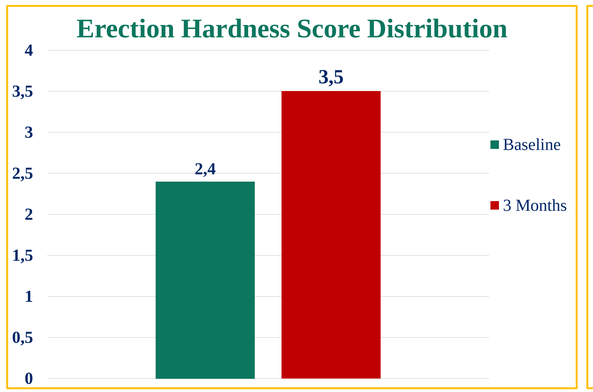


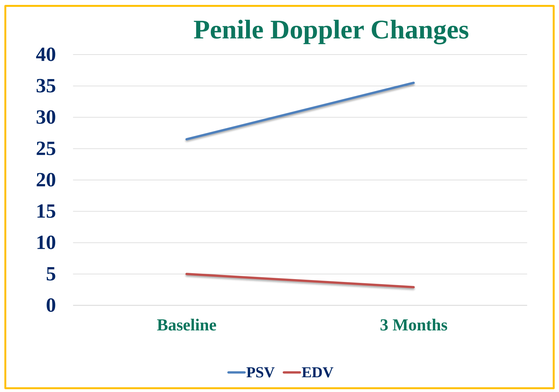
Morenova® shockwave system

Results

Parameter	Baseline	3 months	p
IIEF-EF	15.8 ± 3.0	22.8 ± 3.6	<0.001
EHS	2.4 ± 0.5	3.5 ± 0.6	<0.01
PSV (cm/s)	26.5 ± 5.3	35.5 ± 5.9	<0.01
EDV (cm/s)	5.0 ± 1.6	2.9 ± 1.4	<0.01







Conclusions

- Micro-dose intracavernosal alprostadil priming is safe and well tolerated
- Induces controlled tumescence and improves cavernosal perfusion
- Enhances functional outcomes (IIEF-EF, EHS)
- Improves penile hemodynamics (↑ PSV, ↓ EDV)
- May optimize energy delivery and increase the effectiveness of LiESWT