Effectiveness of Transperineal Pelvic Floor Electrical Stimulation System in Improving Female Stress Urinary Incontinence: A Pilot Study.

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BACKGROUND

- **Gold standard treatment of SUI = mid urethral sling surgery (TOT, TVT …)**
- **Non-surgical/ conservative treatment options: behavior modification, medication, physical therapies**
- **Electrical stimulation has been proved to be an effective treatment option in managing SUI in many studies.**
- **Electrical stimulation → facilitate pelvic floor muscle contraction → pelvic muscle hypertrophy → strengthening of the muscle contraction and increase urethral pressure.**

OBJECTIVES

-The present study aims to evaluate the effectiveness of the Transperineal Pelvic Floor Electrical Stimulation (TPFES) system as a treatment option for females with SUI.

MATERIALS & METHODS

Group 1 ***Sham*** **(n =12)**

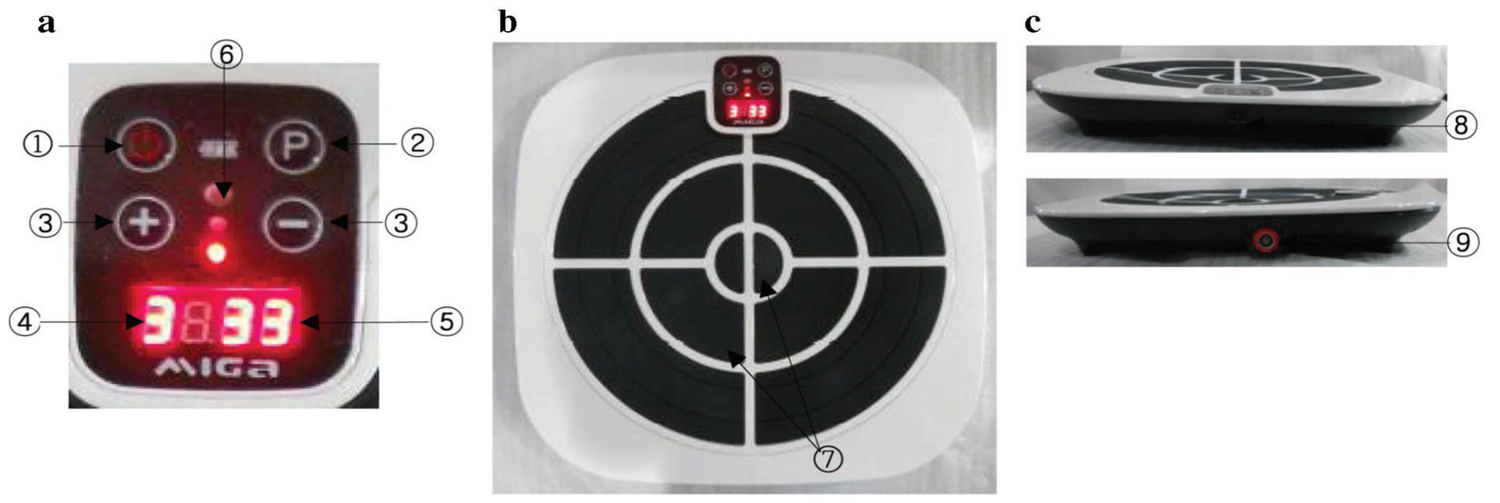
Group 2 ***TPFES*** **(n=22)**

- **ICIQ-UI**
- **OABSS**
- **Qmax**
- **PVR**

At 4, 8, and 12 weeks

- **A total of 34 females who were diagnosed with SUI according to the urodynamic study were included in the study.**
- **Group 1 (sham model): 12 patients / Group 2 (TPFES): 22 patients**
- **The patients were educated to use TPFES or the sham model daily for 12 weeks.**
- **The patients were asked to visit the institute at 4, 8, and 12 weeks from the initiation of the study and to complete ICIQ-UI and OABSS.**
- **Qmax and PVR were also obtained at every visit.**
- **To evaluate the effectiveness of TPFES, repeated-measures ANOVA was performed using the obtained data.**

RESULTS



① on/off switch, ② program selection button, ③ electrical current output intensity control button (+ : increase, −: decrease), ④ display: selected program, ⑤ display: activation time and electrical current output intensity; b) top view (⑦ electrode: perineal contact region); c) lateral view (⑧ charge connector, ⑨ extra connector for other use)

Figure. Transperineal Pelvic Floor Electrical Stimulation (TPFES) system

Table 1. Change of the mean values regarding the micturition parameters according to the duration of sham and TPFES treatment in females with SUI.

	Group	Before TPFES (Baseline)	After TPFES (weeks) 4	8	12	p value Intra-group	Inter-group
Mean Qmax (mL/s)	1	18.62 ± 8.04	35.08 ± 26.17	28.72 ± 14.31	27.64 ± 16.93	0.157	0.264
	2	26.61 ± 10.48	27.03 ± 14.39	25.09 ± 13.31	28.25 ± 9.07	0.937	
Mean PVR (mL)	1	46.60 ± 50.53	35.40 ± 21.24	76.60 ± 82.99	83.40 ± 69.63	0.276	0.142
	2	7.88 ± 22.27	21.63 ± 22.64	12.13 ± 15.30	18.00 ± 12.48	0.363	
Mean ICIQ-UI total score	1	13.20 ± 4.60	10.00 ± 6.67	12.60 ± 6.43	11.60 ± 5.32	0.331	**0.023**
	2	13.44 ± 2.96	10.56 ± 5.10	8.44 ± 2.70	6.89 ± 3.02	**<0.001**	
Mean OABSS total score	1	7.00 ± 3.32	7.00 ± 3.81	7.00 ± 4.18	6.40 ± 3.78	0.889	0.550
	2	6.00 ± 2.83	4.56 ± 1.88	5.00 ± 3.24	3.67 ± 2.65	**0.049**	

Table 2. The difference regarding the mean ICIQ-UI total score between each visit in the TPFES group.

	Mean difference	p value
Baseline vs 4 weeks	3.00 ± 0.81	0.016
Baseline vs 8 weeks	3.43 ± 0.92	0.015
Baseline vs 12 weeks	4.79 ± 0.81	<0.001
4 weeks vs 8 weeks	0.43 ± 1.35	0.999
4 weeks vs 12 weeks	1.79 ± 1.19	0.938
8 weeks vs 12 weeks	1.36 ± 0.59	0.231

- **The 4 weeks of TPFES treatment improved SUI significantly, and further improvement was presented after continuing the treatment for 12 weeks.**
- **Such results imply that a consistent and long-term treatment with TPFES can be an effective treatment option for SUI.**

CONCLUSION

The consistent and long-term use of the TPFES system can be a non-surgical treatment option that effectively improves SUI.