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Hypothesis/Aims of study

- Pelvic floor muscle training (PFMT) is an efficacious, low risk intervention and is being proposed as first line treatment for every type of incontinence.
- We aimed to identify clinical prognostic factors affecting the outcome of PFMT in women with primarily stress incontinence (SUI).

Study design, material and methods

- This is a retrospective study of 188 women recruited from female Urology outpatient clinics of a public teaching hospital
- All participants suffered either from SUI or mixed urinary incontinence (MUI) with a predominant stress component.
- Patients diagnosed with primarily urgency incontinence, operated for prolapse, incontinence or urethral reconstruction, were excluded.



Results

• Mean patient age was 52.2±10 years, with a median BMI 27.6kg/m². From gynecological history, the median number of deliveries was 2 (IQR=1), with 32.9% of women reporting delivery of overweight neonates. The majority (122/188, 64.9%) of patients were postmenopausal, and 37(19.7%) had a history of gynecological surgery. Additional clinical data are illustrated on the graphs below (fig. 1,2 &3, table 1)

Fig.1 Type of incontinence

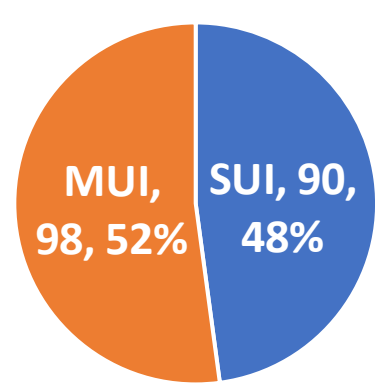


Fig.2 Medication for incontinence n=42(22.3%)

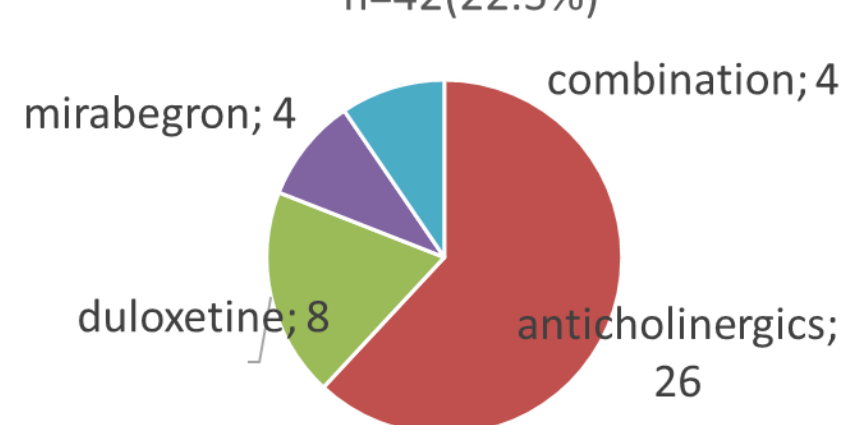
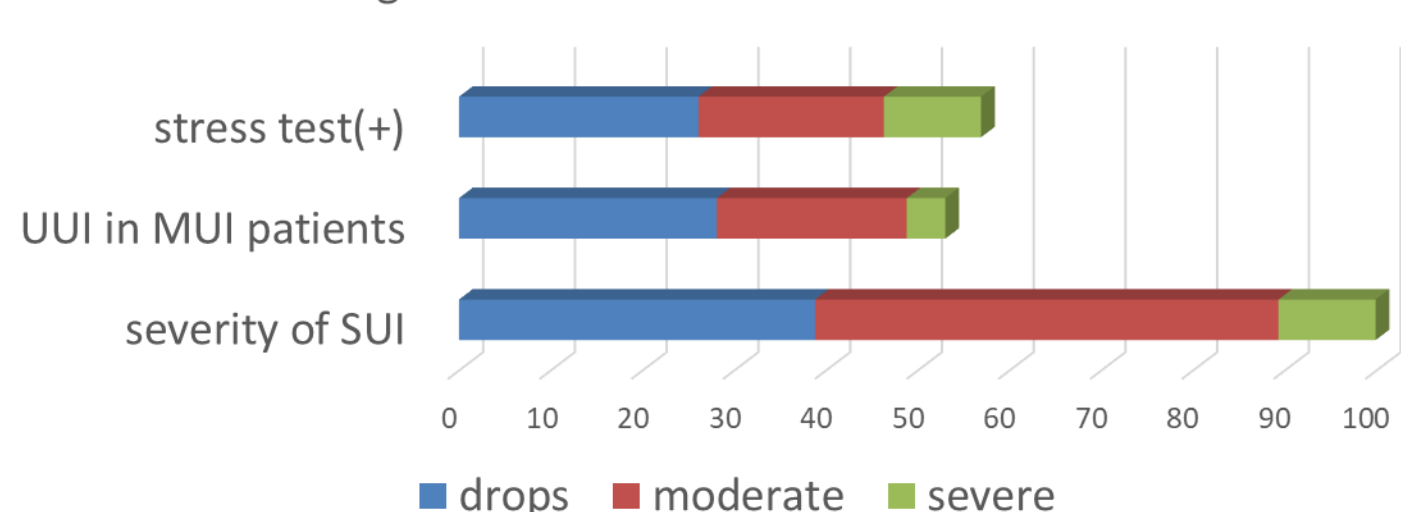


Table 1. Evidence from bladder diaries and UDS

Bladder diaries (n=83)	Median (IQR)	UDS (n=51)	Median (IQR)
Urinations daily	9(2)	Mean cystometric capacity(ml)	402 (265)
Episodes of incontinence	3 (3)	Qmax (ml/s)	21 (13)
Number of pads	3(3)	PVR (ml)	0 (40)
Fluids consumed daily(ml)	1615(600)	Detrusor overactivity	33.3%
Voided volume (max-min)(ml)	480-100 (260-60)	Urodynamic SUI	60.8%
		Urodynamic UUI	15.7%

Fig 3. Initial evaluation of incontinence



Effect of PFMT on incontinence.

- At 3 months the number of pads was reduced to 1(IQR=1) after PFMT (p<0,001) for the total sample. Stress test was negative in 88.8%, while 10.1% of patients had a small leak and 1.1% more severe incontinence.
- 10% of the **SUI patients** were cured and only a strong correlation with negative or mildly positive stress test (p=0,014, x2 test Linear-by-Linear) was revealed that was lost in binary regression.
- 11.2% of the **MUI subgroups** were cured from SUI while 35 (35.7%) of those with MUI reported being free of urgency incontinence. Again, **only lower severity of stress test (p=0.009, x²-test) related to complete relief of symptoms.**

50% improvement in number of pads

- 107 (56.9%) patients (60% in those exclusively with SUI and 54.1% in MUI) reported >50% improvement.
- **Improvement in endurance in patients with MUI related independently with >50% reduction in pad numbers (OR=3.794, p=0.019), signifying that increase in endurance during pelvic floor evaluation for 1 sec results in 133% possible reduction of pad numbers by at least 50%.**

Secondary outcomes.

- Accompanying storage symptoms and the parameters of pelvic floor evaluation improved significantly apart from muscle strength (p=0.157, Wilcoxon signed rank test) (table 3).

Table 3. Secondary outcomes

	Initial evaluation	After 3 months PFMT	P value
frequency	61.2%	31.4%	<0.001
nocturia	67%	43.6%	<0.001
Constipation	67	48	<0.001
Evaluation of pelvic floor			
Endurance(s)	4(IQR=4)	6(IQR=2)	<0.001
Repetitions	5 (IQR=1)	6(IQR=2)	<0.001
Fast contractions	6(IQR=2)	8(IQR=3)	<0.001

Interpretation of results

- As in previous studies, PFMT significantly improved incontinence in both SUI and MUI patients. Interestingly, **PFMT improved more significantly the urgency component rather than the SUI component in the MUI subpopulation**, at least in terms of complete cure.
- The concomitant use of medication did not appear to significantly improve the outcome of PFMT in MUI patients.
- Not unexpectedly, patients with negative or mildly positive stress test were more likely to achieve complete cure or significant improvement with PFMT.
- The lack of prospective design is the main limitation of the study.

Conclusions

- Pelvic floor muscle training significantly improved incontinence in both SUI and MUI patient populations.
- **Lower severity or negative stress test upon initial evaluation was the single predictive factor for successful outcome of PFMT in both patient populations, and in terms of both the SUI and UUI components.**
- **Improvement in endurance in patients with MUI related independently with >50% reduction in pad numbers.**
- **PFMT also improved frequency, nocturia and constipation.**

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