

Urge suppression and modified fluid consumption in the management of female overactive bladder symptoms

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Abstract

Background: At the initial management of overactive bladder (OAB) syndrome urge suppression technique along with other behavioural modification could be a good option.

Methods: Prospective experimental study conducted between 2015 and 2019. Women complaining of OAB were enrolled. Three-day bladder diary and patient global impression of severity (PGI-S) scale were evaluated at baseline. Then, the women were asked to perform the urge suppression technique whenever urgency occurred. She stopped moving, sat down and started squeezing the pelvic floor muscle quickly and tightly about ten times without full relaxation in between squeezes. After that, she did something to distract her mind. Once urgency disappeared, she proceeded to the toilet. If urgency reappeared, she stopped moving and repeated the same thing. Only on relax mood she entered toilet. Modified fluid consumption was - total daily requirement divided into three parts and two-third of that was taken from morning to lunch. The remaining one-third was divided again in three parts and two-third of that was taken before evening. Rest few amount was taken from the evening till waking up the next morning. After 3 months, 3-day bladder diary and patient global impression of improvement (PGI-I) scale assessed the improvement.

Results: Ninety-one women ultimately completed the study. Frequency and nocturia were reduced. Seventy-six women had improvement of their urgency sensation ($P < 0.001$), whereas urgency urinary incontinence reduction was statistically not significant ($P > 0.05$). PGI-I scale showed that 51.6% felt that either they were very much better or much better.

Conclusion: Urge suppression and modified fluid consumption is good adjunct in female OAB management.

Keywords: Fluid intake, nocturia, urge suppression, urgency, urgency incontinence

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INTRODUCTION

Overactive bladder (OAB) syndrome is the condition when there is increase urinary frequency, urgency, nocturia with or without urgency urinary incontinence. This is a bothersome condition affecting many women. To get rid of this ailment,

lifestyle modification and physiotherapy are the first line of management. Urge suppression technique is one kind of physiotherapy which tried to train the bladder to be under the control of someone's own personal command instead of bladder commands someone. Broader behavioral urge

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suppression strategy is effective for incontinence as well as urgency, frequency, and nocturia.^[1] Bladder training with urge suppression for women with urgency or mixed UI is a viable treatment option.^[2] When urinary urgency comes, urge suppression technique is usually done by concentrating on squeezing the pelvic floor muscles quickly and tightly several times. Pelvic floor muscles are not fully relaxed in between these very quick squeezes. This way of squeezing pelvic floor muscles signals the bladder to relax. After bladder relaxation, calmly go to the toilet. For better control over the situation, some kind of distraction of mind may be beneficial.^[3,4]

METHODS

This was a prospective experimental study which was conducted at the gynecology Out patient's department (OPD) of the College of Medicine and JNM Hospital, WBUHS, Kalyani from 2015 to 2019. All women attending gynecology OPD with the complaint of OAB were subjected to urine for culture and sensitivity. After ruling out the infection component, if still OAB complaint persisted, they were included in the study. Women with other pelvic pathology, neurogenic disorder, cancer, diabetes mellitus, previous history of OAB medication, etc., were excluded from the study. Only the initial 3 months, this study was done when pharmacotherapy was not started. After 3 months, medication was started. Those who consented for these modalities of treatment were enrolled for the study. This study was in accordance with the conformation of the Institutional Ethics Committee.

All participants were assessed at baseline by 3-day bladder diary, patient global impression of severity (PGI-S) scale.^[5] She was then told to do the following things – whenever there was a sudden desire of passing of urine, instead of rushing to the toilet she tried to hold the urine. She stopped moving, better sat down, and started squeezing the pelvic floor muscle quickly and tightly about ten times without full relaxation in between squeezes. After that, we asked her to take her mind away from this event by either singing, recitation, monologs, counting backward from 100 to 1, deep and relaxed breathing, visualization (imagine you were in a dry desert), if someone was nearby then start gossiping with him/her, etc. When the urge was no more then she proceeded towards the toilet. Before reaching the toilet, if urgency returned, she halted herself from entering the toilet and repeated the same procedures. Once the urgency went off she proceeded towards the toilet. Once she achieved that, then she tried to increase the interval between urgency desire and urination. She was encouraged that initially, she might be able to postpone the urination in terms of few minutes, but her continuous effort would help her to increase the interval.

Fluid intake modification was advised. The total amount of daily requirements of fluid was divided into 3 parts and two-third of this was taken from waking up in the morning to lunch. Remaining one-third was divided again in three parts and $\frac{2}{3}$ rd of that was taken after the lunch, but before the sunset. Rest few amount was taken after sunset to till the next sunrise. Sweet and sweet drinks were also taken before sunset. Apart from these, other routine lifestyle modification advises were given.

The patient was called for follow-up after 1 week to know whether she was doing the things correctly or not. Those who could not do it correctly was advised again and called after another week. When they could do it properly from that time, we counted 3 months when the final assessment was done. The woman was asked to fill-up 3-day bladder diary before coming for final assessment. During assessment, improvement was also assessed by patient global impression of improvement (PGI-I) scale.^[5] Statistical analyses were performed by the Chi-square test and Fisher exact test.

RESULTS

A total of 105 women were recruited, of which 91 completed the study and 14 lost to follow-up. The age of the women ranged from 35 to 66 years. Parity was most of them were Para 2 and 3. Menopause was attained by 61 women [Table 1]. Twenty-three women were unable to do the exercise correctly initially. After 1 more week, they could do it properly, and accordingly, their 3 months were counted. Surprisingly the 14 dropout patients belonged to that group.

Day time frequency of >20 times in 36.3% of patients was reduced to 22%. Nocturia of ≥ 4 times was reduced from 29.7% to 9.9%, though normalization level (0–1 time) could be achieved by 7 women (7.7%), which was statistically not significant ($P > 0.05$) [Table 2].

At baseline, all women had urgency. After 3 months, no improvement was observed in 15 women, rest of them had improvement, which was statistically significant ($P < 0.001$). However regarding the ability to hold the urine for 2 h or more was 3.3%, which was statistically not significant

Table 1: Age and parity distribution

Age groups	Number (%)	Parity	Number (%)
>40	2 (2.2)	0	0
41-45	7 (7.7)	1	14 (15.4)
46-50	12 (13.2)	2	39 (42.8)
51-55	17 (18.7)	3	28 (30.8)
56-60	32 (35.1)	4	5 (5.5)
61-65	20 (22)	5	3 (3.3)
>65	1 (1.1)	>5	2 (2.2)
Total	91		91

($P > 0.05$). At baseline, 48 women had urgency urinary incontinence. After 3 months, 11 women did not have any more urgency urinary incontinence, apparently good result, but this improvement is statistically not significant ($P > 0.05$) [Table 3].

The patient impression over their disease severity at baseline revealed that only 19.8% thought that it was a trivial problem. After following the instructions for 3 months, 51.6% felt that either they were very much better or much better [Table 4].

DISCUSSION

Bladder retraining and pelvic floor muscle training (PFMT) are the first-line management for the patient of urgency urinary incontinence without cognitive impairment.^[6] Urge suppression technique, delayed voiding are kind of bladder training. The goals of this training is—(1) Normalizing urinary frequency, (2) Gaining control over urgency, (3) Bladder capacity increment, (4) Increase voiding interval, (5) Decrease incontinence episode frequency, (6) Bringing woman’s confidence on her bladder.^[4]

Possible mechanism by which bladder training works:^[7]

1. Improvement of supra-pontine cortical inhibition on detrusor
2. Improvement of cortical facilitation of closure of urethra during the storage phase
3. Improved central modulation of sensory afferent impulses.

This intervention focuses less on voiding habits rather more on altering the physiologic responses of the urinary bladder and pelvic floor muscles.^[8] Strong pelvic floor contraction inhibits the unwanted detrusor contraction.^[9] The pelvic

floor muscle contractions prevent internal urethral sphincter relaxation, which causes reflex detrusor relaxation, an action presumably mediated through the “voluntary urinary inhibition reflex.” Ultimately detrusor pressure decreases, urethral pressure increases and micturition reflex gets suppressed.^[10] A well-timed, volitional anal sphincter contraction (reflecting pelvic floor muscles), is able to suppress fully developed detrusor contractions, prevent the occurrence of further contractions, hence suppress urgency.^[11]

Urge suppression technique along with other behavioral modifications e.g., total daily fluid intake, avoidance of bladder irritants, treatment of constipation, weight loss, timed voiding etc., should be prescribed initially and oral medications can be started following this or in conjunction with this.^[12] Multicomponent behavioral therapy by not to rush to the toilet during urgency, pelvic floor muscle contractions, delayed voiding schedule along with bladder diary can help reduce OAB syndrome.^[13] Urge suppression technique, fluid management and PFMT re-education by specialist physiotherapist can cause sufficient improvement of urgency urinary incontinence in 85% of women with OAB.^[14] Our study also found that urinary urgency and urgency urinary incontinence was reduced after 3 months of urge suppression technique practice. PGI-I scale showed that 51.6% of women were happy about their improvement (felt very much better or much better).

To reduce the nocturia, fluid intake modification includes less consumption of fluid after 6 pm or 3–4 h before night sleep. The fluid consumption is been shifted to the morning and afternoon.^[15] However, the daily amount of fluid consumption at 30 ml/kg/day is not compromised.^[3,16] Our advice regarding fluid intake had

Table 2: Day time urinary frequency and nocturia

Day time frequency	At baseline (%)	After 3 months (%)	Nocturia	At baseline (%)	After 3 months (%)
>20	33 (36.3)	20 (22)	>5	2 (2.2)	0
15-20	41 (45)	27 (29.7)	4-5	25 (27.5)	9 (9.9)
10-14	17 (18.7)	39 (42.8)	2-3	64 (70.3)	75 (82.4)
8-9	0	4 (4.4)	0-1	0	7 (7.7)
≤7	0	1 (1.1)	Total	91	91
Total	91	91			

Table 3: Urgency improvement time and urgency urinary incontinence

Urgency improvement time (approximate)	After 3 months (%)	Urgency urinary incontinence/day	At baseline (%)	After 3 months (%)
No improvement	15 (16.5)	>5	6 (12.5)	0
30 min	28 (30.7)	4-5	13 (27.1)	5 (10.4)
45 min	23 (25.3)	2-3	29 (60.4)	14 (29.2)
1 h	14 (15.4)	1	0	18 (37.5)
1½ h	8 (8.8)	0	0	11 (22.9)
≥2 h	3 (3.3)	Total	48	48
Total	91			

Table 4: Patient Global Impression of Severity of disease and Improvement

PGI-S scale (%)	At baseline	PGI-I scale	After 3 months (%)
Normal	0	Very much better	9 (9.9)
Mild	18 (19.8)	Much better	38 (41.7)
Moderate	49 (53.8)	A little better	29 (31.8)
Severe	24 (26.4)	No change	15 (16.5)
Total	91	A little worse	-
		Much worse	-
		Very much worse	-
		Total	91

PGI-S: Patient Global Impression of Severity, PGI-I: Patient Global Impression of Improvement

reduced nocturia (≥ 4 times) from 29.7% to 9.9%, though normalization level (0–1 time) was achieved by 7.7%, which was statistically not significant ($P > 0.05$). Urgency suppression technique also helps to reduce nocturia. Whenever woman feels the nocturia, she will practice fast pelvic floor contractions and other urgency suppression behaviors. Once the nocturia feeling goes away she will go back to sleep again. But if the urgency returns within a minute or 2, then she will go to toilet so that her total night-sleep does not get disturbed.^[17]

It would be better to do the urge suppression technique exercises under the supervision of physiotherapist. In Cochrane review 2011, it was found that women with urinary incontinence receiving regular (e.g., weekly) supervision had more improvement than women performing PFMT with little or no supervision.^[18] Subsequently, in the abridged Cochrane systematic review, the things looked for were differences in training supervision (amount, individual vs. group), in approach (one vs. another, the effect of an additional component) and the exercise training (type of contraction, frequency of training). It was again found that reasonably frequent contact with health professionals during supervised pelvic floor exercises yields a better result.^[19] A hand out of urge suppression strategy can be given to the ailing women for better performance.^[20]

Different behavioral therapy is prescribed for the management of OAB. Initially, pelvic floor muscle exercises were considered to be relevant for the improvement of stress urinary incontinence. However, more and more understanding of the neuromuscular physiology of the pelvic floor is propagating us to implement PFMT also as first-line therapy in OAB and in this regard, urge suppression technique is gaining its popularity day by day. Its user friendliness for both – for patient easy to understand and for doctor/physiotherapist easy to instruct; has made its use wider. Sufferer could see their improvement by themselves in the form of the ability to halt their urgency

and increase the interval between urination – so it is also acting as biofeedback.

Limitation

Physical exercise is better learned under the supervision of physiotherapist. However, due to the nonavailability of qualified pelvic floor physiotherapists the authors had instructed the procedure to the participating women. Also, not having the control group is another limitation of the study. We wish to conduct future study with control group.

CONCLUSION

Significant improvement of urgency symptoms and good improvement of nocturia, though not significant, implies that urge suppression and fluid modification could be a very good adjunct therapy for female OAB along with pharmacotherapy.

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Conflicts of interest

There are no conflicts of interest.

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