

ORIGINAL ARTICLE

Evaluation of Effect of Kegel Exercise for the Management of Stress Incontinence in Women of Gujrat, India

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Abstract

Background: Stress Urinary Incontinence (SUI) affects the quality of life of at least one third of women globally. This problem is more common in India, where women usually do not seek treatment for their reproductive health problems and do not vocalize their symptoms. Kegel exercise is said to be effective for the management of SUI. Hence it was tried to see the effects of this method in the population of Gujrat, India. **Methods:** A total of 60 females having Stress Incontinence were included in the study and given Kegel exercises for one month and compared with pretreatment status. **Results:** Statistically significant improvement was observed in comparison to pretreatment cases after Kegel exercise in Perineometry power. **Conclusion:** It can be concluded that Kegel exercise is effective for controlling SUI in the study population.

Key words: Kegel exercise, Perineometer power, Perineometer, Stress incontinence

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Introduction

Urinary incontinence is common problem of women which is nothing but the involuntary loss of urine. The most common type of urinary incontinence in women is Stress Urinary incontinence. Approximately 50% of American women have experienced incontinence.¹ The International Continence Society recently defined the stress urinary incontinence as the complaint of involuntary leakage of urine during effort or exertion like sneezing or coughing.² A proper balance between urethral closure and detrusor muscle activity is the most important factor in maintaining the urinary continence. Basic cause of stress urinary incontinence is the weakness of pelvic floor muscles supporting the proximal urethra. Hence, the intravesical pressure exceeds the maximal urethral pressure during exertion which results in increased intra-abdominal pressure.³ Genuine Stress Incontinence (GSI) is the term coined to denote the condition in which there is involuntary leakage of urine when, in the absence of a detrusor contraction, the intravesical pressure exceeds the maximum urethral pressure.

Essentially the detrusor activity is normal, but the urethral closure mechanism is incompetent.⁴

Stress urinary incontinence (SUI) affects the quality of life of at least one third of women. Quite a large number of them believe it to be untreatable even in western countries.^{5,6} This problem is more common in India, where women usually do not seek treatment for their reproductive health problems and do not vocalize their symptoms. There is a "culture of silence" and low consultation rate among Indian women regarding such problems.⁷

Dr. Arnold Kegel, described a pelvic floor exercise, more commonly called a Kegel exercise, consists of repeatedly contracting and relaxing the muscles that form part of the pelvic floor, now sometimes colloquially referred to as the "Kegel muscles".⁴ Dr. Arnold Kegel also invented the Perineometer which can be used to measure the improvement in strength and endurance of pelvic floor muscles. It gives an objective evaluation of the result of therapy and gives bio feedback to patients.⁸ Kegel exercise is said to be effective for the management of SUI. Hence it was tried to see the effects of this method in the population of Gujrat, India.

Materials and Methods

A total of 75 subjects were enrolled for the study out of which 15 were dropped due to their various reasons like embarrassment, inner inhibition or time constraint, for few of them, it was a negligible problem. Finally a total of 60 subjects of confirmed SUI between the age group of 20 to 65 years who volunteered and consented to participate in the study were included in this study. Included cases were non-surgical cases and non prolapsed cases. Patients suffering from neurological dysfunction, previous or present pelvic malignancy, urinary tract infection, patient had taken previous physiotherapy for stress incontinence, urinary fistula and pregnant were excluded from the study. Study was conducted in Physiotherapy department of Government Physiotherapy College, Government Spine Institute and Civil Hospital Ahmadabad, Gujrat. Study period was between the years 2008 to 2012.

All the subjects had to fill the questionnaire and kept a diary in which number of incontinence episodes over seven days was recorded. Patients were given Kegel exercises for one month. Maximum contraction of pelvic floor muscles (Power) in centimeter of water (cm of H₂O) and maximum holding capacity of pelvic floor muscles in seconds (endurance) were assessed by Perineometer before starting the treatment and after finishing treatment.

All the subjects were positioned in crook lying with neutral lumbar spine. Vaginal probe covered with condom is inserted into patient's vagina at the level of levator ani muscles. Patient was instructed to 'squeeze- strongly and 'hold' as long as possible, or they were instructed to contract the muscles as if they were trying to stop midstream urination. All subjects were instructed to relax abdomen, glutei muscles and not to hold the breath, and not to strain during contraction of the perineum. Once they understood the instructions thoroughly, patients relaxed for ten seconds. Patients instructed to contract the same muscles on command. The maximum power (cm H₂O) was recorded when patient contracts as hard as possible. Patient is allowed to rest for 10 seconds before testing for endurance. Then during the sustained contraction, endurance was recorded in seconds.⁹

Kegel exercise

Initially woman sits with knee apart and leans forward on a hard chair. It was more comfortable position and unexposed position. There was some perineal sensory stimulus feedback. Once woman had developed a sense of right muscles contraction then she proceeded to an exercise program.

OR

The patient was instructed how to use the act of urination as a home exercise. Subjects were advised to start and stop midstream flow of urine and not to repeat it frequently as it can weaken the pelvic floor muscles. The patient concentrates on the feeling of this act. When urination is complete the patient is advised to do the same movement again and hold for 2 seconds. Patient should feel for squeezing of the pelvic muscle.

Photograph- 1: Perineometer



Photograph- 2: Kegel Exercise



The subjects were asked to be in crook lying position. The patients were instructed to squeeze and let go. This should be repeated for 5 times. These are fast contraction followed by slow contraction in which they asked to attempt to draw their vagina and anus upward, and inward. Contract pelvic floor muscle and hold the contraction for 5 second and relax for 5 second repeat this for 5 times. This is done in one session. Increase this regime up to 10 sec contraction hold and 10 sec relaxation. Subjects were to breathe freely during exercises. Repeat

this four to five times (Photograph 1& 2).¹⁰ Data was analyzed using paired t test.

Results

We observed statistically significant increase in Perineometer power of post Kegel exercise treatment cases in comparison to pretreatment cases as reading in cm of water of Perineometer was increased from 21.32cms to 25.08cms. Recovery rate in mean power was 18%. Mean endurance time was increased from 4.97 seconds (pretreatment) to 7.37 seconds post treatment cases. The increase was statistically significant (Table- 1). After one month of study, 48% recovery in endurance was observed.

Table- 1: Pre and Post treatment cases (n=60)

Groups	Perineometer power in cms	Endurance time in seconds
	Mean + SD	
Pre treatment	21.32±3.96	4.97±1.18
Post treatment	25.08±4.09*	7.37±1.28*

*p <0.001

Discussion

Millions of adults suffer from urinary incontinence as it is one of the common problems of adults specifically for females. It creates tremendous psychological, economic and social problems in females which affect their overall health seriously.¹⁰ There three major types of incontinence in females namely stress, urge, and mixed with different treatment modalities including conservative or behavioral modifications, pharmacotherapy, and surgical interventions.¹¹ Among conservative management Kegel exercise has prominent and important role. Dr. Arnold Kegel, described a pelvic floor exercise, more commonly called a Kegel exercise, consists of repeatedly contracting and relaxing the muscles that form part of the pelvic floor, now sometimes colloquially referred to as the "Kegel muscles".⁴ Dr. Arnold Kegel, invented the Perineometer which can be used to measure the improvement in strength and endurance of pelvic floor muscles. It gives an objective evaluation of the result of therapy and gives bio feedback to patients.⁸

In the present study we observed significant increase in mean power of Perineometer and endurance time after one month of the study in which all the subjects went for Kegel exercise for entire one month period. Rodrigo A Castro observed that pelvic floor muscle training, electrical stimulation, and vaginal cones were equally effective for the management of stress urinary incontinence in comparison to no treatment. They opined that pelvic floor muscle exercise should be offered as the first choice of treatment stress urinary incontinence.¹² But Hay-Smith EJ et al concluded after Meta analysis of 43 randomized clinical studies, that larger clinical trials with more concise methods are needed to prove the various conservative modalities like pelvic floor muscle training, vaginal cones, and pelvic floor electrostimulation for stress urinary incontinence.¹³ Lagro-Janssen et al in 1991 conducted subjective study in which they found that 85% cure rate and improvement after pelvic floor muscle training. But they also pointed out that among all the cases only 21% cases felt completely dry after treatment.¹⁴ Rodrigo A Castro et al commented that "difficulty in analyzing such types of studies are lies in determining the true clinical picture of the subjects who improved after using pelvic floor exercises".¹² Bo et al in 1999 found that for stress urinary incontinence, pelvic floor muscle training was more effective than electrical stimulation, vaginal cones, and no treatment control.¹⁵ Cavkaytar S et al in their study which was conducted at Ankara Zekai Tahir Burak Women's Health Research and Education Hospital found improvement in 68.4% of the women in the urinary stress (SUI) and 41.2% of the women in mixed urinary incontinence (MUI) group which were statistically significant (p = 0.02). They opined that home-based Kegel exercises, with no supervision are effective in women with SUI and MUI and the improvement is better in women with SUI.¹⁶

Above studies indicates discrepancies in results of various methods. There is also different opinion as far as pelvic floor muscle exercise is concerned. We found usefulness of Kegel exercise in stress urinary incontinence in our studied population. It may be due to single concentrated and focused study on Kegel exercise.

Conclusion

In patients suffering from stress urinary incontinence, leakages are the most important factor affecting the quality of life adversely. Kegel exercise is associated with increase in strength and endurance in pelvic floor muscles. Increase in endurance translates in to better holding capacity and less or no episode of leakage. Hence Kegel exercise is better management for urinary incontinence. Moreover, motivation for exercise and education program is also very important factors for success of such techniques because by education programs patients can better understand their problem and get the Kegel exercise treatments.

Conflict of Interest: None declared

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References

1. Melville JL, Katon W, Delany Newton K. Urinary incontinence in US Women. *Arch Intern Med.* 2005;165:537-542. [[PubMed](#)]
2. Dutchman M, Wustler M. Stress urinary incontinence in women: Diagnosis and medical management. *International Urogynaecology Journal.* 2002;9(4):210-3.
3. Deborah HT Chou, Cara Adams, R Edward Varner, Betty Denton. Pelvic floor muscle exercises in treatment of Anatomical Urinary Stress Incontinence. *Phys Ther.* 1988;68:652-655. [[PubMed](#)]
4. Margaret Polden & J Mantle. *Physiotherapy in Obstetrics & Gynaecology*, 1st Edn. 1990, New Delhi. Chapter 11, Published by J.P. Brothers, Pg. 349.
5. Newman DK. Stress urinary incontinence in women. *Am J Nursing.* 2003;1:46-55. [[PubMed](#)]
6. Norton PA, MacDonald LD, Sedgwick PM, Stanton SL. Distress and delay associated with urinary incontinence, frequency and urgency in women. *British Medical Journal* 1988;297:1187-9. [[PubMed](#)]
7. Baranitharan R, Mahalakshmi V. Prevalence of type of urinary incontinence and their association with types of delivery. *Indian Journal of Physiotherapy and Occupational Therapy.* 2009;3(4):28-36.
8. Kumari S, Singh AJ, Jain V. Treatment seeking behavior for urinary incontinence among north Indian women. *Indian J Med Sci.* 2008;62:352-6. [[PubMed](#)]
9. Choarelli PE and Kafe DRO. Physiotherapy for the pelyic floor. *Aust J Physiother.* 1981;27(4):103-108. [[PubMed](#)]
10. Abrams P, Cardozo L, Fall M, Griffiths D, Rosier P, Ulmsten U, et al. The standardisation of terminology of lower urinary tract function: report from the Standardisation Sub-Committee of the International Continence Society. *Neurourol Urodyn.* 2002;21:167-78. [[PubMed](#)]
11. Deng DY. Urinary incontinence in women. *Med Clin North Am.* 2011;95(1):101-9. [[PubMed](#)]
12. Castro RA, Arruda RM, Zanetti MR, Santos PD, Sartori MG, Girão MJ. Single-blind, randomized, controlled trial of pelvic floor muscle training, electrical stimulation, vaginal cones, and no active treatment in the management of stress urinary incontinence. *Clinics (Sao Paulo).* 2008;63(4):465-72. [[PubMed](#)]
13. Hay-Smith EJ, Bø Berghmans LC, Hendriks HJ, de Bie RA, van Waalwijk van Doorn ES. Pelvic floor muscle training for urinary incontinence in women. *Cochrane Database Syst Rev.* 2007;(1):CD001407. [[PubMed](#)]
14. Lagro-Janssen TL, Debruyne FM, Smits AJ, van Weel C. Controlled trial of pelvic floor exercises in the treatment of urinary stress incontinence in general practice. *Br J Gen Pract.* 1991;41:445-49. [[PubMed](#)]
15. Bo K, Talseth T, Holme I. Single blind, randomise controlled trial of the pelvic floor exercises, electrical stimulation, vaginal cones and no treatment in management of genuine stress incontinence in women. *Br Med J.* 1999;318:487-93. [[PubMed](#)]
16. Cavkaytar S, Kokanali MK, Topcu HO, Aksakal OS, Doğanay M. Effect of home-based Kegel exercises on quality of life in women with stress and mixed urinary incontinence. *J Obstet Gynaecol.* 2014;29:1-4. [[PubMed](#)]