

Efficacy of kegel exercise on urinary incontinence among elderly females

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ABSTRACT: : Ageing affects both body and mind. Some age related changes starts as early as the 20s and increasing as the person grows older if it is unnoticed. Urinary incontinence (UI) is such one of the condition among elderly. More over in females, severity of this problem is associated with their health in early years of life. The main aim of this study is to assess the effectiveness of kegel exercise on urinary incontinence among elderly females and also type of UI was studied.

There were 61 participants selected out of 210 subjects after complete screening process. The subjects were selected by cluster random sampling technique and the intervention was provided for three months.

Results

It was noticed that the mean level of UI was reduced 2.016 from 3.276 in the post test III as well the mean level of post voiding residual urine (PVR) also was reduced to 116.934 from 133.443 in the post test III. Further, the mean differences between pre and post tests were assessed for both level of UI and PVR and it was found to be significant at $P < 0.001$.

Conclusion

In this study, it is proved that the regular and persistent practice of kegel exercise will reduce the severity of UI.

Key Words: Effectiveness, Kegel exercise, Urinary incontinence, PVR and elderly females

Introduction

Good health is essential to have enjoyable daily life in many aspects . This gets reversed as a person grows older and older because health is deteriorated due to the changes occurs in the cells. The added other risk factors like life style changes and the numerous other risk factors to which we are exposed make health problems more common in old age than in other age groups. Health is therefore one of the main concerns of older people worldwide.

The successful handling the health of the ageing population is one of the humanities greatest triumphs. The ageing of the population will have far-reaching implications for society. Direct challenges for the health system will include changing health profiles, increased demand for health service use, and rising health costs. The reduction in fertility level, reinforced by steady increased in the life expectancy has produced fundamental changes in the age structure of the ageing population. Together , Age-related illnesses that occur more frequently in people as they get older, meaning age is a significant risk factor.

The International Continence Society (ICS) recently defined urinary incontinence as “involuntary loss of urine”. It is calculated that the urine loss afflicts 50-69% of women. UI is a kind of lower urinary tract dysfunction and may happen when there are alterations in the physiologic process of urination or in the structures involved on the support or sustentation of the organs responsible for urination

One of the biggest social changes brought about by improved standards of living is population aging. By 2050, older people will outnumber children under the age of 14 years. Vast numbers of older people live in developing countries where health services are not equitably distributed. Moreover, health in old age is associated with health in earlier years of life, from womb to tomb.

The increasing number of older people will almost certainly challenge health systems. It is therefore necessary to incorporate older persons' health issues into health policies investing in age-friendly and affordable health services including preventive, curative and long-term care.

Many research projects around the world are underway to determine the effect of age on the human body, to sort out which conditions are an inevitable result of getting older and which can be prevented. Most of the non communicable diseases to which old age population is associated in mostly

either preventable or can be maintained in control to lead a healthy and quality life when it is brought to the notice of health care system. Voiding problems in old age are one of the such condition when a person practices a healthy life style.

Urinary incontinence (involuntary loss of urine) is twice as common in women as in men and affects at least 1 in 3 older women. Up to 50 percent of women experience urinary leakage during their lifetime, and 10 to 20 percent suffer from bothersome leakage. It is important to understand that leakage is not a normal part of aging and that treatments are available to reduce or eliminate the problem that is often curable and can be treated by practicing healthy life style.

Therefore the present study aimed at determining the effect of practicing regular exercise in reducing the severity of urinary incontinence in elderly females.

Objectives of the study

- To assess the effectiveness of kegel exercise on urinary incontinence among elderly females
- To associate the level of kegel exercise with selected demographic variables

Methodology

This is an quantitative one group pre test and post test quasi experimental study. A total of 61 study participants were selected after screening process as follows

All the residents were underwent two step of screening process. 1. Initially they were interviewed for the symptoms of UI by using the questionnaire .The subjects who was found to have UI had been selected for the next step of screening .2.Addominal ultra sound scanning (bladder scanning) was done to assess the PVR for the subjects who had been selected . Then the subjects who had Post residual volume above 100ml were selected for the study as study participants. The study was conducted in the selected old age homes in and around Pondicherry.

Results and discussion

Urinary continence is the result of the urinary bladder and urethra working in perfect coordination. Continence is the result of 2 opposing forces such as intravesical and intraurethral pressure. Anything that affects the process at any point can lead to a dysfunction resulting in urinary incontinence (UI).

The investigators administered three months of kegel exercise continuously for the subjects under the supervision of investigators. The subjects were periodically assessed for the level of UI as well for PVR (post residual volume)at end of every month for three months consecutively.

The collected data were analyzed basically by using Mean and ANOVA tests. Further, data were analyzed by using mean differences between the tests and the significance was assessed by ANNOVA repeated contrast measures. The chi square test was also used to assess the association between level of UI and demographic variables.

From the total of 210 subjects, 149 subjects did not meet inclusion criteria. The final number of participants were around 61. Of those, the majority (39)of the subjects were having stress UI and only 22 subjects had Urge UI. Finally none of the subjects were found to have Mixed UI. The results of this study revealed by an another study done by Kaya (2015) which concludes as with women, the UI prevalence is very common with various level and type of UI Mixed and urge UI are common in.

The level of UI before and after the interventions was shown in Table (1).Most of the subjects (34,22) had moderate and mild level of UI in the pre test respectively. But after the interventions, It was found that there was a reduction in the severity of UI among subjects. At the end of three months, the maximum no of subjects had mild UI whereas none of the subjects had mild urinary incontinence in the pre test and surprisingly one subject had been relieved from the problem of UI. Along with, PVR (post residual volume) was also noted before and after interventions(Table 2). In the pre test, all the subjects had PVR between the ranges of 120ml to 140ml and none of the subjects had below the range of 120ml but, whereas in the post test, almost all the subjects had PVR below 120ml . Surprisingly, none of the subjects had PVR above 130ml.

Table - 1
Level of Urinary Incontinence before and after the Intervention

(N = 61)

| Level of urinary incontinence | Pretest | | Posttest I | | Posttest II | | Posttest III | |
|-------------------------------|---------|-----|------------|------|-------------|------|--------------|------|
| | No. | % | No. | % | No. | % | No. | % |
| Normal | 0 | - | 0 | - | 0 | - | 1 | 1.6 |
| Mild | 5 | 8.2 | 13 | 21.3 | 46 | 75.4 | 58 | 95.1 |

| | | | | | | | | |
|----------|----|------|----|------|----|------|---|-----|
| Moderate | 34 | 55.7 | 42 | 68.9 | 15 | 24.6 | 2 | 3.3 |
| Severe | 22 | 36.1 | 6 | 9.8 | 0 | - | - | - |

Table - 2
Distribution of PVR (Post Voiding Residual Urine) before and after the Intervention (N = 61)

| PVR (Post voiding residual urine in ml) | Pretest | | Posttest I | | Posttest II | | Posttest III | |
|---|---------|-------|------------|-------|-------------|-------|--------------|-------|
| | No. | % | No. | % | No. | % | No. | % |
| < 100 | 0 | - | 0 | - | 0 | - | 0 | - |
| 100.1 - 110 | 0 | - | 0 | - | 0 | - | 12 | 19.67 |
| 110.1 - 120 | 0 | - | 12 | 19.67 | 31 | 50.82 | 38 | 62.30 |
| 120.1 - 130 | 28 | 45.90 | 39 | 63.93 | 27 | 44.26 | 11 | 18.03 |
| 130.1 - 140 | 28 | 45.90 | 10 | 16.39 | 3 | 4.92 | 0 | - |
| >140 | 5 | 8.20 | 0 | - | 0 | - | 0 | - |

Further, the effectiveness of intervention was assessed by the using the mean value and ANOVA test for both the level of UI and PVR.

The mean level of UI before the interventions was 3.279 and after the interventions, at the end of 3 months, the mean value had been reduced to 2.016 (fig 1) and again this had been verified by ANNOVA test which is again showed that there is a significance at P value at less than 0.001. Further, it was assessed by mean difference between the pre and post tests and the significant "p" value inferred that though the mean difference of level of UI on the four assessments were not similar, the difference in the mean level of UI between the assessments showed statistically significant different at "p" value at P< 0.001 in reducing the level of UI by ANNOVA repeated contrast measure (table 3). In the same way, The study of Sjostrom et al (2015) proved that pelvic floor muscle exercise gives significant and clinically relevant improvement in the symptoms of UI as well in the severity of UI.

Fig - 1

Mean Level of Urinary Incontinence before and after the intervention

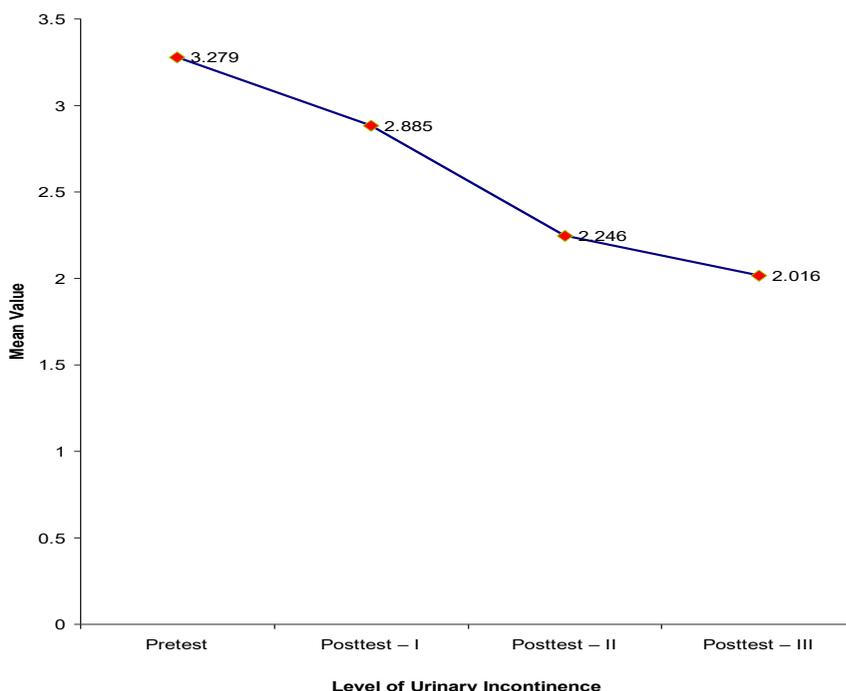


Table - 3
Comparison of level of urinary incontinence between pretest and posttests

(N = 61)

| Comparison between different assessments | | Mean difference | ANOVA repeated contrast test 'F' value | 'p' value |
|--|-----------------|-----------------|--|-----------------|
| Assessment - I | Assessment - II | | | |
| Pretest | Posttest - I | 0.394 | 34.218 | 0.001*** (S) |
| Posttest - I | Posttest - II | 0.639 | 82.81 | 0.001*** (S) |
| Posttest - II | Posttest - III | 0.230 | 17.87 | 0.001*** (S) |

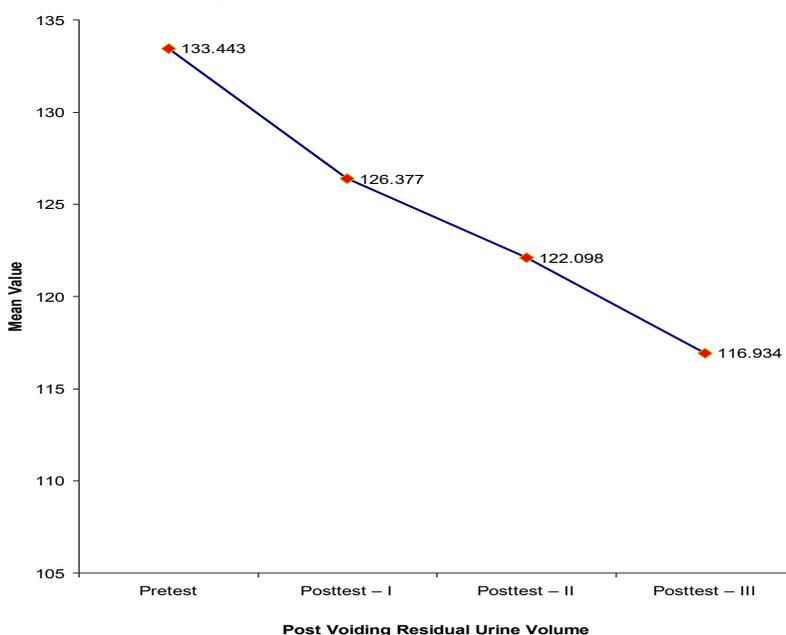
Likewise , the mean PVR was also assessed before and after the intervention and it was shown that there was reduction in the PVR mean value from 133.443 to 116.934 and was further analyzed by using ANNOVA test which is again showed that there was a significance at $P < 0.001$ (fig 2). Mean differences between the pre test and post tests were assessed and it was also shown there was a reduction. Further, it was analyzed by ANNOVA repeated contrast test which is again showed there was significance at P value less than 0.001(table 4).

Table - 4
Comparison of Post Voiding Residual Urine Between Pretests and Posttests

(N = 61)

| Comparison between different assessments | | Mean difference | ANOVA repeated contrast test 'F' value | 'p' value |
|--|-----------------|-----------------|--|-----------------|
| Assessment - I | Assessment - II | | | |
| Pretest | Posttest - I | 7.066 | 219.153 | 0.001*** (S) |
| Posttest - I | Posttest - I | 4.279 | 312.721 | 0.001*** (S) |
| Posttest - II | Posttest - III | 5.164 | 189.012 | 0.001*** (S) |

Fig - 2
Mean Post Voiding Residual Urine before and after the intervention



Conclusion

Urinary incontinence has a large economic and functional impact and will become an even larger issue in the health care system as the population continues to age. Behavioral therapy was an empowerment mechanism for incontinent women in improving their quality of life. Thus, it is suggested that the health care providers pay more attention to this issue and train women regarding the prevention of urinary incontinence.

Behavioral intervention is now more frequently adopted due to its potential benefits with few risks and no side effects. The most recognized behavioral interventions for urinary incontinence are kegel's exercise or Pelvic Floor Muscle (PFM) exercise and bladder retraining. Both exercises are known to be effective in treating stress and urge incontinence. Investigators indicated that urinary incontinence is significantly improved by behavioral interventions.

References

1. Kaya, S., Akbayrak, T., Gursen, C. and Beksac, S. (2015). Short-term effect of adding pelvic floor muscle training to bladder training for female urinary incontinence: a randomized controlled trial. *International Uro Gynecology Journal*. 26(2):285-93.
2. Sjöström, M., Umefjord, G., Stenlund, H., Carlbring, P., Andersson, G., and Samuelsson, E. (2015). Internet-based treatment of stress urinary incontinence: 1- and 2-year results of a randomized controlled trial with a focus on pelvic floor muscle training. *BJU International*, 116(6), 955–964.
3. The Hindu (2006) Online edition of India's national news paper, Jan 05 Chennai
4. Third international continence consultation on incontinence organized by ICS. June 26-29. Monaco
5. Saunders, et al. (2009). *Research methodology*. 5th edition. Pearson Professional Ltd. London
6. Kashanian, M., Ali, S.S. and Nazemi, S. (2011). Evaluation of the effect of pelvic floor muscle training and associated pelvic floor muscle training by a resistance device on the urinary incontinence in women; a randomized control trial. *European journal of Obstetrics Gynaecology Reproductive Biology*. 159(1).218-23
7. Sampselle CM, Hines S (1999) Spontaneous pushing during birth. Relationship to perineal outcomes. J Nurse Midwifery 44: 36-39.
8. Burgio KL (2004) Behavioral treatment options for urinary incontinence. Gastroenterology 126: S82-S89.