Original Article

Assessing Information on Kegel Exercises provided to Elderly Women with Urinary Incontinence

M Ozcan[1], S Kapucu[2*]

Abstract

Objective: This is an interventional study to evaluate Kegel exercise information given to elderly women with urinary incontinence.

Material & Methods: The subjects were 31 women ≥ 65 years with urinary incontinence who presented to the Geriatrics Units. The data were collected by Activities of Daily Living Scale, Instrumental Activities of Daily Living Scale, Mini-Mental State Examination and Incontinence Severity Index. The surveys were administered at the first interview and information about Kegel exercises was provided to the patients at the second interview. The severity of urinary incontinence was evaluated using the Incontinence Severity Index at the end of the first and second month. The data were analyzed and correlation analysis was performed.

Results: As a result of the study, 38.7% of the patients had moderate urinary incontinence before being provided information regarding Kegel exercise. However, the percentage decreased to 35.5% and 19.4% at the end of the first and second month, respectively after providing information regarding Kegel exercises and applying the exercises. The differences between the Incontinence Severity Index scores at the time of presentation and at the first and second month visits were significant ($p < 0.05$). In addition, 35.5% of the patients regularly performed Kegel exercises during the study.

Conclusions: Behavioural treatments are useful for women aged ≥ 65 years with urinary incontinence. These women were taught how to perform Kegel exercises by nurses.

Keywords: Elderly women, urinary incontinence, Kegel exercises, nursing.

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Introduction

Urinary incontinence (UI) is a condition that negatively affects the quality of life more frequently with age and is observed more often in women than men[1]. Studies performed in Turkey have reported that the prevalence of UI in women is 22.8%–57.1%.[2-4] Decrease in personal hygiene, skin problems, falls, depression, recurrent urinary tract infections, low self-confidence and loss of respect may be linked to UI in elderly people. These factors may lead to a lower quality of life and placement of elderly people in nursing homes which may also cause exhaustion and depression in the caregivers.[2-5]

Studies regarding the effect of Kegel exercises have reported a reduction in the grade of UI in subjects who practiced them regularly.[6,7] In a study conducted by Aslan et al. on bladder training and Kegel exercises in comparison with the control group, women living in a nursing home showed a 52% reduction in urgency, 64% in frequency and 32% in nocturia. Moreover, the authors noted that pelvic muscles had been strengthened in 56% of the participants who performed the exercises. [8]

1. Munevver Ozcan, MSN, RN, Geriatrics Unit, Adult Hospital, Hacettepe University, Ankara, Turkey, **Author for correspondence:** 2*. Sevgisun Kapucu, Assoc. Prof., Ph.D., Faculty of Nursing, Hacettepe University, Ankara, Turkey

The effect of a 12 month behavioural modification program (pelvic floor muscle exercises and bladder training) was studied by Diokno et al., who reported an initial continence rate of 30%, which improved in the treated patients in comparison with that in the control group.[9] Sampselle et al. reported that 86% of patients answered questions correctly and 68% used the proper technique for contracting the pelvic floor muscles after 2–4 weeks of Kegel exercise training, whereas 32% did not.[10] Kim et al. evaluated Kegel exercise group at 3 and 6 months in patients with UI and the results showed that the UI ratio decreased compared to that at baseline.[11]

We conducted this study because UI is not considered a problem by either elderly or by healthcare personnel, despite its high incidence in the elderly in Turkey. In addition, few studies have been performed in such patients in Turkey.

Material and Methods

This was an interventional, semi-experimental study to assess the information on Kegel exercises provided to 31 women aged ≥ 65 years with UI who presented to the geriatric clinic of a university hospital between 1 July 2010 and 30 May 2011. The participants were diagnosed with UI by a physician based on urodynamic tests and gynecological examinations. All subjects satisfied the study eligibility criteria and consented to participate in the study. A total of 40 patients were interviewed. Of these, six refused to participate, two failed to appear at the Kegel exercise information session and one quit the study due to health problems after receiving the information. The study inclusion criteria were subject's consent to participate, autonomy in daily activities, literacy status, intact cognitive function [Mini-Mental State Examination (MMSE) score ≥ 24), absence of sensory deficits and communication problems. The MMSE and a UI questionnaire were used to evaluate cognitive function; a bladder diary was used to help assess UI status and UI severity grade was evaluated by the Incontinence Severity Index (ISI).

The ISI consists of two questions and the total score was obtained by multiplying the frequency of incontinence by the volume of urine lost, with a total score of 1–12.[12,13.] The ISI score was used to provide a UI qualitative grade of mild: 1–2; moderate: 3–-6; severe: 8–9 or very severe UI:10-12. A bladder diary is an effective and inexpensive method to evaluate and manage UI because it provides objective data to assess symptoms[13]. A bladder diary also provides real-time, objective data for evaluating baseline bladder function and follow-up data on the treatment response.[15, 16] A bladder diary is also useful to help evaluate nursing and treatment efficacy. A bladder diary is typically maintained for 3–7 days by elderly patients.[16] The "Kegel Exercise Information Booklet for Patients Afflicted with Urinary Incontinence" was prepared by the investigators after a comprehensive search and study of the relevant published literature. This booklet included information on urinary tract anatomy, micturition, incontinence, situations that worsen incontinence, pelvic floor muscles, pelvic floor muscle exercises and other self-help methods for the elderly.

Patients were informed about the study by the principal investigator and their consent was obtained prior to administering the questionnaires. Data were collected during one-on-one direct interviews between the investigator and the patient. The data collection form and the MMSE were filled out at the first patient interview. The selected study patients were given a 3 day bladder diary and instructions. They were requested to bring the diary to the second interview when they were to receive information about Kegel exercises. The appointment for the second interview was scheduled in collaboration with the patient 2–7 days after the first interview. The patients were provided information about Kegel exercises using a slide presentation prepared by the investigator at the second patient interview. The proposed exercises were explained with figures and individualized to the patient. The patients were handed the Kegel Exercise Information Booklet for Patients Afflicted with Urinary Incontinence at the end of the information session. The patients were instructed to perform 10 repetitions of their exercises three times daily (morning, noon and evening) for a total of 30 repetitions and to change their position (sitting, standing or lying) at every session. The patient information session lasted 30–45 min on average. The second 3 day bladder diary was to be filled out at the end of 2 months and was given to the patients on the day of their Kegel exercise information session. Patients received phone calls weekly during the first month and every 2 weeks during the second month and were given information on the exercises to be performed. Patients who did not perform the exercises regularly were called to obtain information on their exercise performance and UI status and provided counselling. The ISI scores were evaluated at the end of the first and second months based on the phone conversations with the patients. The 3 day bladder diary was collected at a physical interview.

SPSS 15.0 software (SPSS Inc., Chicago, IL, USA) was used for data evaluation. Descriptive statistics including mean, standard deviation and median were calculated Categorical data were compared using the chi-square test. Two group comparisons of non-normal data were performed with the Mann–Whitney U-test and comparisons across several groups were made using the Kruskal-Wallis H test. Friedman's two-way analysis of variance was used to compare more than two measurements in the same group. Wilcoxon's two sample test was used to compare paired differences in the numerical data. Correlations between two variables were assessed using Spearman's correlation analysis. A p-value of <0.05 was considered statistically significant.

Ethics Committee Approval

The study plan was submitted to the Hacettepe University Scientific Investigation Assessment Committee to determine that it conformed to the ethical requirements. Both oral and written informed consent was obtained from the patients prior to the study.

Results

Mean patient age was 71.1 ± 5.02 years; 45.2% were 65–69 years, 64.5% were married 38.7% had finished primary school and 58.1% lived with their husband (Table 1). The mean body mass index was 30.32 ± 4.9 kg/m^2; 19.4% of the patients reported constipation, a majority abstained from both tobacco and alcohol use and 58.1% used caffeine. Approximately 48% of patients had been pregnant three or four times and 96.6% of the deliveries were natural. A total of 93.5% had children: 45.2% had three to four children and 41.9% had one to two children. A prolapsed bladder was diagnosed in 16.1% and uterine prolapse was diagnosed in 3.2%. The most frequent concomitant diseases were hypertension (83.9%), hyperlipidaemia (58.1%), osteoporosis (41.9%), gastroesophageal reflux (38.7%), diabetes (32.3%) and depression (32.3%). Antihypertensives were being taken by 80.6% of the patients; 25.8% received bisphosphonates for osteoporosis and 22.6% were on oral antidiabetic agent (Table 1). Only 25.8% of patients were using an anticholinergic drug for UI. Approximately 45% of the patients were urinating every 1–2 h at night and 64.5% voided one to three times during the night. Approximately 55% exhibited mixed type UI, 25.8% had urge incontinence and 19.4% had stress incontinence. UI was present for 1–5 years in 51% of these patients and 38.7% had been afflicted for >5 years; UI was experienced several times per week, but not daily by 45.2% whereas it was present every day and/or night in 38.7% of patients. A significant volume of urine was leaked in 41.9% of patients. It was described as spotting in 32.3% and consisted of a few drops in another 25.8%. The protective supplies used by these patients were diapers and/or pads in 87.1% of cases; frequency of use was described as one to three units daily in 75% of the patients.

Table 1. Study of patients profile (n=31)

Age (μ±SS=71.13±5.018) years	n	%
65-69	14	45.2
70-74	7	22.6
75-79	8	25.8
80-85	2	6.4
Marital Status		
Married	20	64.5
Single	11	35.5
Status of Education		
Literate	3	9.7
Elementary school	12	38.7
Junior high school	7	22.6
High school	5	16.1
University	4	12.9
Living Status		
Alone	9	29
With husband	18	58.1
With relatives*	4	12.9
Use of drugs		
Antihypertensive	25	80.6
Antidiabetic	7	22.6
Drugs for Osteoporosis	21	67.7
Drugs for Incontinence	8	25.8

* 1 person was living with her brother and 3 were living with their children.

The ISI score distribution revealed moderate UI in 38.7% of patients before being given information about Kegel exercises, 35.5% at 1 month thereafter and 19.3% at 2 months. Similarly, the severe UI observed in 32.2% of patients before starting the exercises dropped to 3.2% after 1 month (Table 2). The 1- and 2-month ISI score results were significantly lower than those before the information session ($p< 0.05$). About 36% of

patients indicated that they performed the Kegel exercises regularly every day; 22.6% practiced them two to three times per week, 12.9% practiced them four to five times per week and 6.5% exercised only once weekly. At the end of the second month, 22.6% of the patients had stopped performing the Kegel exercises (Table 3).

Table 2. Patients' Incontinence Severity Index Scores (n=31)

Incontinence Severity Index	Index score before training		1st month		2nd month	
	n	%	n	%	n	%
Slight (1-2)	2	6.5	16	51.6	21	67.7
Moderate (3-6)	12	38.7	11	35.5	6	19.3
Severe (8-9)	10	32.2	1	3.2	2	6.5
Very severe (12)	7	22.6	3	9.7	2	6.5
Total	31	100.0	31	100.0	31	100.0

Table 3. Status of implementation of the patients Kegel exercise

Kegel exercise application status	n	%
Everyday/Night	11	35.5
2-3 times per week	7	22.6
4-5 times per week	2	12.9
1 time per week	4	6.5
Never	7	22.6
Total	31	100.0

The number of patients filling their bladder diaries as required were 17 (54.8%) before the information session and nine (29%) by the end of the two month period. The urge to urinate was recorded 9.36 times on average before the information session compared to 3.5 after; however, mean fluid intake, urination, and UI remained similar. The baseline ISI scores were significantly different between the groups with regard to age, education status and the presence of hypertension and osteoporosis at 1 and 2 months ($p< 0.001$). The mean ISI score of patients who performed Kegel exercises every day was 8 before the information session, and 1 after 2 months.

Discussion

UI affects a large number of elderly people and its prevalence increases with age. UI is more frequent in women than men[17, 18]. UI was only diurnal in 51.6% of our patients. Studies show nocturnal only UI in 29.5% of women aged ≥ 65 years with both nocturnal and diurnal UI in 27.3%.[19] The finding of diurnal UI in approximately half of our patients is consistent with the results reported by Du Moulin et al.[20] The relatively high proportion of patients with diurnal UI in our study may be related to the restricted fluid intake by our patients before going to bed to minimize nocturnal diuresis. We found that 64.5% of our patients needed to urinate one to three times in the night. Aydogmus et al. reported nocturia in 50% of female patients with UI.[19] Such a condition may interfere with rest and sleep of elderly patients. The bladder diary data obtained in our study showed no differences in fluid intake, the frequency of urination or UI between baseline and later evaluations. However, a definite reduction in the urge to urinate was reported. While these observations show a benefit to subjects who performed the Kegel exercises, the lack of properly completed bladder diaries and the small number of patients who completed them restricts the reliability of the results.

The volume of fluid leaked due to UI was determined in 41.9% of the patients. Locher et al. reported moderate volume of urine leaked in 24 of the 40 elderly women in their study, whereas over 50% of the patients in a study by Du Moulin et al. showed large volume loss.[20,21] This result of our study was consistent with the literature. The finding that nearly half of our patients lost a significant volume of urine may be related to a delay in requesting for medical assistance, as the women did not consider UI to be a problem.

The evaluation of UI severity based on the ISI showed a reduction in severity after 2 months. This result is possibly due to successful practice of Kegel exercises after the information session and in patients who made the lifestyle changes explained above, even if they did not perform the exercises regularly ($p<0.05$).

Several studies indicate that Kegel exercise training reduces the severity and frequency of UI.[9,11,22] Behavioural methods and drug treatment were applied in a study by Tannenbaum et al.[23]. By the end of that study, treatment was successful in 30% of patients and another 30% experienced some improvement. In our study, one-third of the patients performed their exercises daily. Similarly, 22% of the female subjects in the study reported by

Moen et al. performed Kegel exercises daily.[24] The proportion of patients performing Kegel exercises two to three times weekly were 82% at 3 months after receiving the training and 68% at one year later with bladder education and Kegel exercise compliance in a study of women aged 55–80 years by Sampselle et al.[10] Subak et al. showed that one-third of women in their study did their exercises once or more weekly.[25] We found lower compliance to perform regular Kegel exercises. This may have been related to discontinuation in the absence of good short term results and subsequent lack of belief in the benefits of exercises. Regular exercise has not become a habit among elderly Turkish subjects which could be the reason for the unsatisfactory Kegel exercise results.

Declaration of interest: The authors have nothing to declare.

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