Long-term effect of treatment of female incontinence in general practice

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SUMMARY

Background. *Urinary incontinence in women can be treated successfully by the general practitioner. However, little is known about the long-term effects of conservative treatment.*

Aim. *To evaluate the long-term effect of treatment of female incontinence by the general practitioner (pelvic floor exercises, and bladder training) in female urinary incontinence.*

Method. *A total of 88 women, aged between 20 and 65, who had participated in a controlled trial between 1987 and 1990, were contacted to participate in a five-year follow-up study. Stress incontinence and urge incontinence were treated by means of pelvic floor exercises and bladder training respectively, while a mixed incontinence was treated by bladder training followed by pelvic floor exercises. The outcome measures were a constructed scale for the severity of the incontinence, a seven-day bladder chart, and a questionnaire concerning patients' opinions. All patients were evaluated by an independent researcher.*

Results. *Compared with the one-year follow-up, the number of continent women remained the same, but a significantly greater number of patients worsened. Forty per cent of the women stayed in the same category of severity, while 45% moved into the contiguous categories. The weekly frequency of wet episodes increased significantly, with a mean increase of 2.65 episodes. Women with mixed incontinence were especially prone to relapse in the long-term. Compliance with the exercises had a positive influence on the outcomes, with 67% of the women expressing satisfaction with the results.*

Conclusions. *Despite a decline in the effect of conservative treatment in the long-term, the majority of the women are satisfied with their treatment. Patient compliance is the key to long-term success.*

Keywords: urinary incontinence; long-term outcomes; general practice.

Introduction

URINARY incontinence in women is a common condition that impacts greatly on the quality of life. Women seeking help will usually present their symptoms to the general practitioner (GP). It is therefore important to have a simple and inexpensive treatment available in general practice, which can be administered by any GP. Although only a few studies are available concerning treatment of urinary incontinence in general practice, the outcomes are clearly evident.[1-4] First, most of the women suffering from urinary incontinence reported that treatment with pelvic floor exercises or bladder training had cured or improved their condition. Secondly, treatment with pelvic floor exercises and bladder training in general practice was feasible and easily achieved. Conservative treatment has, therefore, been the treatment of choice in the case of female incontience in general practice. However, little is known about the long-term effects of conservative treatment, as the follow-up period in the majority of these studies does not exceed one year.[2-10] The few studies evaluating long-term effects mainly involved outpatients, and usually consisted of only those patients with stress incontinence treated by pelvic floor exercises.[11-16] A study concerning the follow-up results of a training course for a nurse in the management of stress and urge incontinence in primary care showed that this approach was very effective in the longer term.[4]

Measuring the long-term effect of pelvic floor exercises and bladder training is important because these exercises demand both time and energy from the patient; they will, therefore, make the effort in the belief that the treatment will be successful in the long term. Nevertheless, if incontinence recurs after the training, it may mean that conservative treatment delayed surgery rather than avoided it.

Method

Between 1 July 1987 and 1 January 1990, 13 GPs selected female patients, aged 20–65 years and presenting with urinary incontinence for the study, which was approved by the Medical Ethics Committee of the University of Nijmegen. Incontinence was defined as the involuntary loss of urine twice or more times per month. Patients were excluded if they had previously undergone an operation for incontinence, or if their incontinence had an underlying neurological cause or was only temporary. All patients received treatment by the GP researcher (TLJ). The study design has been described in detail elsewhere.[2]

The follow-up study consisted of a comparison of the continence status of all women after five years, compared with their pre-treatment status and their status at the end of the one-year intervention study. Of the 106 women remaining at the one-year follow-up, 101 women were contacted by letter and invited by telephone to participate in a five-year follow-up study. (Three women had died, and for two of the women no address was available.)

The following data, recorded at time of intake, were used as variables in the long-term outcome:

- The type of incontinence, diagnosed by urodynamics according to the criteria of the International Continence Society.[17]
- An objective assessment of the severity of the incontinence, measured using four indices: frequency of urine loss, amount of urine loss, use of protective pads or garments, and restrictions in daily activities owing to incontinence.
- Incontinence was divided into three categories: mild, moderate, or severe, on the basis of the total score attained. The patients also recorded the frequency of wet episodes on a seven-day bladder chart.
- The patients' psychological characteristics, measured by the health locus of control,[18] a general health questionnaire (VOEG),[19] and a scale for measuring anxiety.[20]

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Interventions

The treatment for stress incontinence consisted of pelvic floor exercises. Urge incontinence was treated with bladder training, while a mixed incontinence was treated with bladder training followed by pelvic floor exercises.

The instructions for pelvic floor exercises described how to contract the correct muscles. The patient was asked, during a gynaecological examination, to imagine that she was attempting to hold back the flow of urine and to continue the contraction for six seconds. Special attention was paid to ensure that there was no improper contraction of the abdominal, gluteal, or adductor muscles. The patients received written instructions for the exercises and a schedule for 5–10 daily sessions of 10 exercises, each to be done during their usual daily activities.

The instructions for bladder training emphasized that voiding should take place at fixed times rather than on desire. The patients were therefore given a diary to record voidings and any episode of incontinence. The time interval between voidings then had to be increased by 15 minutes. The ultimate aim was to reach a maximum voiding frequency of seven times a day, at an ordinary fluid intake level.

Oestrogen, anticholinergic drugs, or physiotherapy were not included in the treatment.

Outcome measures

The outcome of treatment after five years was assessed in the same way as the short-term outcome.[2] The objective measures of severity and frequency of incontinence using the seven-day bladder chart were repeated. A questionnaire was used to ascertain the current status of incontinence, compared with the situation before treatment (dry/improved, remained unchanged, deteriorated). The patients were asked whether they were satisfied with the condition or wanted other treatment options, and also if they had received any therapies other than those required in the study. Patients with stress incontinence were asked how many exercises they performed. Good compliance was defined as training at least once a day, or 'when needed' in times of relapse. All women were evaluated by a research assistant who was not involved in the initial treatment.

Statistical analysis

The mean differences in wet episodes on the seven-day bladder chart at the five-year follow-up (compared with the 12-month measuring point) were analysed using the Student's *t*-test. Analysis of these data revealed two patients with exceptional changes in urine loss: an increase on the bladder chart of 64 and 157 episodes respectively. We removed these patients from this part of the analysis and have described them separately.

Wilcoxon signed rank tests were used to analyse the outcome measurement of severity of incontinence. The relationship between successful outcomes of pelvic floor exercises on the one hand and the patients characteristics, good compliance, and severity on the other hand, was investigated using logistic regression analysis for which odds ratios were calculated. The patients were considered successful if the number of leakage episodes in their diaries decreased by more than 50%. Results are given as means with 95% confidence intervals, and significance was accepted at the 5% level.

Results

Of the 101 patients who originally participated, seven had been treated with surgery during the five-year period before follow-up, and one patient became pregnant at the follow-up. Five patients refused to take part in the follow-up, mainly because of lack of interest: 'I have more important things to do'.

In all, 88 patients were included in the study (Table 1). Fourteen per cent had received additional therapy (2% oestrogens, 2% anticholinergics, and 10% physiotherapy) at any time during the study. Three patients did not properly complete the seven-day bladder chart.

Therapy outcomes in terms of severity are shown in Table 2. Compared with the one-year follow-up, the number of continent women (25%) after five years remained the same, but the number of patients who had worsened increased ($P = 0.02$; Wilcoxon signed rank test). Forty per cent of the women remained in the same category of severity and 45% moved into the contiguous categories, either for the better (18) or for the worse (22). Fifteen percent of the patients had moved by two or three categories, however, more patients had deteriorated (10) than improved (2). Patients who were dry at the 12-month follow-up were most at risk of their condition deteriorating.

The weekly frequency of wet episodes, as recorded in the seven-day charts, significantly increased between one- and five-year follow-up, with a mean difference of 2.65 ($P = 0.009$; Student *t*-test) [Table 3]). At five-year follow-up, the results of treatment were, clearly, dependent on the type of incontinence. In particular, the initial improvement achieved using pelvic floor exercises and bladder training in the case of mixed incontinence was at risk of being lost in the long-term. Moreover, the differences in the case of stress incontinence were not significant.

We identified two patients with a large increase in wet episodes. One patient, suffering from urge incontinence, was mildly mentally disabled (mentioned on the intake form), and the other, with a mixed incontinence, was one of TLJ's regular patients. At the time of follow-up she was suffering from depression.

Compared to their condition before treatment, 69% of the women reported improvement/dryness, whereas 22% reported no change. Nine per cent of the women, especially those with urge

Table 1. Characteristics of the study population at time of intake, who were involved in the five-year follow-up study (n = 88).

Characteristic	
Mean age in years	50.6 (SD = 10.4)
Mean parity	2.1 (SD = 1.3)
Number with other diseases	34 (39%)
Number using medication	44 (50%)
Type of incontinence	
Genuine stress	56 (64%)
Mixed incontinence	14 (16%)
Urge incontinence	18 (21%)
Severity of incontinence[a]	
Mild	5 (6%)
Moderate	55 (62%)
Severe	28 (32%)
Mean number of incontinence episodes[b] (n = 85)	20.3 (CI = 17.3-23.3)
Mean score (n = 82):	
Anxiety scale	2.1 (SD = 0.6)
VOEG scale	6.8 (SD = 4.8)
Health locus of control	
Internal	3.0 (SD = 0.7)
External	3.0 (SD = 0.8)

[a]Objective assessment before treatment. [b]Recorded on seven-day chart before treatment.

Table 2. Changes in effectiveness of treatment after 12 months and after five years, measured as an objective assessment of severity.

12 months	Five years				
	Dry	Mild	Moderate	Severe	Total
Dry	13	2	5	3	23
Mild	7	8	10	2	27
Moderate	2	9	14	10	35
Severe	0	0	2	1	3
Total	22	19	31	16	88

Table 3. Mean differences in effect of treatment between 12 months and five years, measured as the weekly frequency of wet episodes.

	Type of incontinence			
	Stress	Urge	Mixed	Total
Number of patients	54	16	13	83
Frequency	2.06	0.75	7.46[a]	2.65
Confidence interval	(-0.28–4.39)	(-1.93–3.43)	(-0.49–15.42)	(0.67–4.62)[b]

[a] P = 0.06; [b] P <0.01 (Student's t-test).

incontinence, stated that their condition was getting worse. A majority of the women (67%) were satisfied with their condition at the five-year follow-up and did not want further treatment. A few women (13%), who admitted poor compliance with their exercise schedule, were not satisfied with the outcome of therapy. They did not opt for an operation, but they did express a willingness to adhere to their exercise schedule in future. One in five women who were unsatisfied required surgical intervention. Most of these women (65%) suffered from urge incontinence or mixed incontinence.

Patients with stress incontinence were asked about their adherence to the pelvic floor exercises. At the five-year follow-up assessment, only 39% of the women reported that they were training at least once a day or training 'when needed'. The rest were training only once a week (15%), once a month (3%), and 43% were not training at all.

Table 4 shows that, in the case of stress incontinence, compliance with the exercise schedule was the only important factor influencing therapy outcome.

Discussion

The first conclusion that can be drawn from the results of the present study is that there is a significant increase in incontinence at the five-year follow-up, compared with one year after treatment. Nevertheless, 85% of the patients remain in a relatively stable condition compared with five years before. The second conclusion, therefore, is that a majority of the patients remain the same or become slightly worse or better. About one in eight women became much worse, particularly those suffering from mixed incontinence relapse in the long-term. When analysing the results for stress incontinence separately, we found that the effectiveness of pelvic floor exercises was more sustained in women treated by the GP, with less than 7% referred for an operation. These successful results in the longer term correspond to other studies.[4,10,11,13,16] Hahn *et al*,[12] on the contrary, found that 25% of the women had been operated upon, and only 55% of the remaining 152 patients were cured or had improved. Holley *et al*[15] also reported disappointing results.

Instead of the intensive training conducted by experienced physiotherapists in the other studies, our outcomes were obtained with the participation of GPs alone. Perhaps careful and expert instruction using vaginal examination contributed to the success.[2] In any case, the time needed for instruction never exceeded half an hour. Only a minority of the women reported that they were training as recommended. This corroborates the findings in the literature.[4,10,12,13,16] Nevertheless, there exists a correlation between compliance and improvement or maintenance of benefit. O'Brien *et al*[4] concluded that performing pelvic floor exercises for one year or more was strongly associated with a successful outcome, compared with doing exercises for less than one year, whereas, in the study of Bø *et al*,[13] women exercising three times a week or more had significantly less leakage than those exercising less frequently. Our findings also support the idea that compliance has a positive influence on treatment. This surprising observation leads us to conclude that significant improvements in the long-term can be achieved with a lower frequency of pelvic floor exercising than is usually recommended in the literature.[21] We must, however, be cautious in interpreting this, as a retrospective assessment of compliance may not be valid and 'exercise' could be defined in different ways by different patients. In addition, those patients making rapid progress and those making little progress will practice their exercises less often than average, creating an apparent bias.

According to the patients' own opinions, nearly 70% were satisfied with the treatment. These results are comparable with the findings of Bø and Talseth who, in a study of 20 women with stress incontinence, reported a deterioration of leakage after five years of doing pelvic floor exercises, but that, at the same time, 70% of the women reported their continence as satisfactory.[13] Women suffering from urge and mixed incontinence in particular were the least satisfied with their results, and requested an operation. Unfortunately, surgical treatment is usually restricted to cases of stress incontinence. Since the objective assessment is at variance with the subjective measurements, we will stress the view that both assessments have to be recommended in measuring the effectiveness of treatment of urinary incontinence.

In conclusion, the results of our study show a decline in the effect of conservative treatment in the long-term. Nearly two-thirds of the women (56) were stable or improved after five years, with a quarter becoming slightly worse (22) and 10 women becoming much worse. Women with stress incontinence maintain better results if they comply with the exercise schedule. Patient compliance to the therapy, which in our study meant

Table 4. The relationship between patient characteristics and severity of incontinence (at intake), degree of compliance, and treatment success of stress incontinence after five years, using logistic regression analysis.

	P value	Odds ratio	Confidence interval
Age	0.74	0.98	(0.89–1.08)
Parity	0.22	1.58	(0.75–3.29)
Anxiety scale	0.47	1.69	(0.40–7.05)
VOEG	0.14	1.15	(0.95–1.40)
Health locus of control			
Internal	0.42	1.96	(0.37–10.25)
External	0.20	0.39	(0.09–1.67)
Severity of incontinence			
Moderate versus dry	0.72	1.74	(0.07–38.16)
Severe versus dry	0.06	0.02	(0.01–1.26)
Therapy compliance	0.04	8.69	(1.09–68.75)

training at least once a day or when needed, is the key to long-term success. Further studies are needed to analyse how better adherence to the therapy can be achieved and the role of the GP in the task. Lastly, the majority of patients were satisfied with the results, and did not request further treatment.

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