Research

Pelvic Floor Exercises for Treating Post-Micturition Dribble in Men With Erectile Dysfunction: A Randomized Controlled Trial

Grace Dorey
Mark Speakman
Roger Feneley
Annette Swinkels
Christopher Dunn
Paul Ewings

The symptom *post-micturition dribble* (PMD) is the term used when an individual describes the involuntary loss of urine immediately after he has finished passing urine, usually after leaving the toilet (Abrams et al., 2002). It is neither stress dependent nor due to bladder dysfunction (Wille, Mills, & Studer, 2000) and should be distinguished from terminal dribble which occurs at

Post-micturition dribble is an embarrassing condition which affects many men of all ages. It can be caused by a weak bulbocavernosus muscle which is unable to empty the bulbar portion of the urethra by reflex action after voiding. Results from this study show that post-micturition dribble is common in men with erectile dysfunction. Previously, bulbar urethra massage has been taught as a self-help technique. This study's findings suggest that pelvic floor muscle exercises which include a "squeeze out" pelvic floor muscle contraction after voiding urine are significantly effective for men with post-micturition dribble and are superior to bulbar urethral massage.

Purpose

The purpose of this trial was to compare the efficacy of pelvic floor muscle exercises and manometric biofeedback for post-micturition dribble (PMD) in men with erectile dysfunction.

Methods

Fifty-five men with erectile dysfunction (median age 59.2 years; range 22-78) were enrolled from a local urology clinic. Twenty-eight subjects were randomized to an intervention group and received pelvic floor muscle exercises including a strong post-void "squeeze out" pelvic floor muscle contraction, biofeedback, and suggestions for lifestyle changes. Twenty-seven control subjects were solely advised on lifestyle changes. The PMD status, anal manometry, and digital anal muscle grade were assessed at baseline, 3, and 6 months. After 3 months, the control group received the intervention with pelvic floor muscle exercises and biofeedback. Both groups were followed for an additional 3 months of home exercises. An independent assessor who was blinded to the grouping assessed the PMD status of subjects at 3 and 6 months.

Results

Thirty-six (65.5%) of the 55 subjects reported PMD at baseline. At 3 months, there was significant reduction in PMD after intervention (p=0.001) compared to the control subjects (p=0.102). In both groups combined after 3 months of pelvic floor muscle exercises and 3 months of home exercises, 27 (75%) subjects became asymptomatic of PMD, 3 (8.3%) improved, 5 (13.9%) dropped out, and 1 (2.8%) subject still reported PMD. PMD was not correlated to age, erectile function, anal manometric pressure, or digital anal muscle grade.

Conclusion

Pelvic floor muscle exercises including a post-void "squeeze out" pelvic floor muscle contraction are an effective treatment for post-micturition dribble in men with erectile dysfunction.

Grace Dorey, PhD, FCSP, *is a Professor, Faculty of Health and Social Studies, University of the West of England, Bristol, United Kingdom.*

Mark Speakman, MB, BS, FACS, MS, *is a Consultant Urologist, Taunton and Somerset NHST Hospital, Taunton, United Kingdom.*

Roger Feneley, MB, BChir (Cantab), MA (Cantab), FRCS, *is an Emeritus Urology Consultant, Faculty of Health and Social Studies, University of the West of England, Bristol, United Kingdom.*

Annette Swinkels, PhD, MCSP, *is a Senior Lecturer, Faculty of Health and Social Studies, University of the West of England, Bristol, United Kingdom.*

Christopher Dunn, PhD, BPharm (Hons), DSc, *is a Professor of Social Pharmacy, University of Oslo, Oslo, Norway.*

Paul Ewings, PhD, *is a Senior Statistician, Taunton and Somerset NHST Hospital, Taunton, United Kingdom.*

the end of micturition (Shah, 1994). Post-micturition dribble is a condition which can be a nuisance to men and cause considerable embarrassment. It is a common problem for men of all ages including young men (Furuya, Ogura, Tanaka, Masumori, & Tsukamoto, 1997), but is particularly troublesome in older men (Paterson, Pinnock, & Marshall, 1997). The prevalence of post-micturition dribble is reported to range from 11.5% to 63% for men aged 20 to 70 years of age (Furuya et al., 1997; Koskimäki, Makama, Huhtala, & Tammela, 1998).

A number of causes of post-micturition dribble have been suggested. A functional cause is the failure of the bulbocavernosus muscle to evacuate urine from the bulbar portion of the urethra (Feneley, 1986). Rarer organic causes from congenital abnormalities and strictures have also been reported (Bullock, 2002). The treatment options vary and depend on the etiology of post-micturition dribble. Surgery is usually indicated for organic problems such as strictures and congenital diverticuli, while pelvic floor muscle exercises are effective for problems of a functional nature (Paterson, Pinnock, & Marshall, 1997).

Significance

Erectile dysfunction. Erectile dysfunction (ED) can severely affect the quality of life of men and their partners. It affects many men and the prevalence increases with age. A recent randomized controlled trial has shown that weak pelvic floor muscles are a cause of erectile dysfunction and that pelvic floor muscle exercises are significantly effective as a treatment for ED (Dorey, Speakman, Feneley, Dunn, & Swinkels, 2004). Results of this study showed that after 3 months, subjects in the pelvic floor muscle exercise group improved significantly in the erectile function domain of the validated International Index of Erectile Function (p=0.001) compared to a control group. The pelvic floor exercise group also showed a clinical improvement of 6.74 points in the erectile function domain of the International Index of Erectile Function. At the end of the study, an assessment by a urologist, who was blinded to the subject grouping, showed that after 6 months of pelvic floor muscle exercises, 40% of subjects attained normal erectile function, 34.5% had improved, and 25.5% failed to improve.

Pelvic floor muscle exercises. Pelvic floor muscle exercises performed regularly increase the strength and endurance of the pelvic floor muscles. For optimum muscle efficiency, exercise regimes should include strong exercises to build up muscle power and submaximal exercises to build up muscle endurance. Exercise routines now are moving much more towards using pelvic floor muscles during functional activities such as while walking, during coughing and sneezing, and after voiding urine (see Table 1). A "squeeze out" pelvic floor muscle contraction is a similar strong pelvic floor muscle contraction performed after voiding urine while still poised over the toilet. The bulbocavernosus muscle works, along with the pelvic floor muscles, to eliminate urine in the bulbar portion of the urethra.

Purpose

The purpose of this research study was to compare the efficacy of pelvic floor muscle exercises and manometric biofeedback for PMD in men with erectile dysfunction.

Methods

Approval was obtained from the local and regional research ethics committees. Men aged 20 years and over who had experienced ED for 6 months or more were referred for treatment from a consultant urologist at a regional general hospital in the United Kingdom or directly from their practitioner. Those men with urological congenital abnormalities, neurological deficits, and previous urological surgery (with the exception of a transurethral resection of prostate) were excluded from the trial.

Randomization and Recruitment

A random number system of odd or even tickets in sealed envelopes for patient selection was used to randomize patients into either the intervention or the control group. Men selected and opened their sealed envelope from a box containing 150 sealed envelopes. Those who selected tickets with even numbers were placed in the intervention group. The sample consisted of 55 men with ED who fulfilled the inclusion criteria and were enrolled into the trial in either the control or intervention groups. The flow of subjects through this randomized controlled trial with a crossover parallel arm is shown in an algorithm (see Figure 1). Twenty-eight subjects were randomized into the intervention group and 27 subjects into the control group.

Each subject underwent a full subjective assessment which included the question "Do you have an after dribble of urine after you have left the toilet?" The objective examination was conducted in the supine lying position with knees bent and feet on the examination table. An assessment was made of the puborectalis muscle strength and the length of hold of the contraction in seconds by digital anal examination graded 0 (nil) to 5 (strong). An assessment of muscle strength was performed using anal manometry, with each subject positioned in supine lying as before and with a view of the computer screen for feedback. The air-filled sheathed and lubricated anal probe with a diameter of 1 cm was inserted into the anal canal as far as the probe external position marker to a depth of 4 cm in order to approximate to the puborectalis muscle. Subjects were instructed to voluntarily tighten and lift the pelvic floor muscles as strongly as possible as if preventing the flow of urine and to hold this contraction for 10 sec-

Table 1.
Pelvic Floor Muscle Exercises for Men

1. In Standing Position
Stand with your feet apart and tighten your pelvic floor muscles as if you were trying to prevent wind escaping. If you look in a mirror, you should be able to see the base of your penis move nearer to your abdomen and your testicles rise.

Hold the contraction as strongly as you can.

Try to avoid holding your breath, pulling in your abdomen, or tensing your buttocks.

Perform 3 maximal contractions in standing in the **morning** holding for ___ seconds.
Perform 3 maximal contractions in standing in the **evening** holding for ___ seconds.

2. In Sitting Position
Sit on a chair with your knees apart and tighten your pelvic floor muscles as if you were lifting your pelvic floor but not your buttocks off the chair.

Hold the contraction as strongly as you can.

Try to avoid holding your breath, pulling in your abdomen, or tensing your buttocks.

Perform 3 maximal contractions in sitting in the **morning** holding for ___ seconds.
Perform 3 maximal contractions in sitting in the **evening** holding for ___ seconds.

3. In Lying Position
Lie on your back with your knees bent and your knees apart. Tighten your pelvic floor and hold the contraction as strongly as you can.

Try to avoid pulling in your abdomen or tensing your buttocks.

Perform 3 maximal contractions in lying in the **morning** holding for ___ seconds.
Perform 3 maximal contractions in lying in the **evening** holding for ___ seconds.

4. While Walking
Try lifting your pelvic floor up 50% of maximum when walking.

5. After Urinating
After you have voided urine, try tightening your pelvic floor muscles **strongly** to eliminate the last few drops of urine while still poised over the toilet and avoid the embarrassing after dribble. *This pelvic floor muscle lift is termed a "squeeze out" muscle contraction.*

6. During Sexual Activity
Try tightening your pelvic floor muscles rhythmically to achieve and maintain penile rigidity during sexual activity. **Slow** thrusting movements generate higher pressures inside the penis.

7. To Delay Ejaculation
For men with premature ejaculation, try tightening your pelvic floor muscles to delay ejaculation.

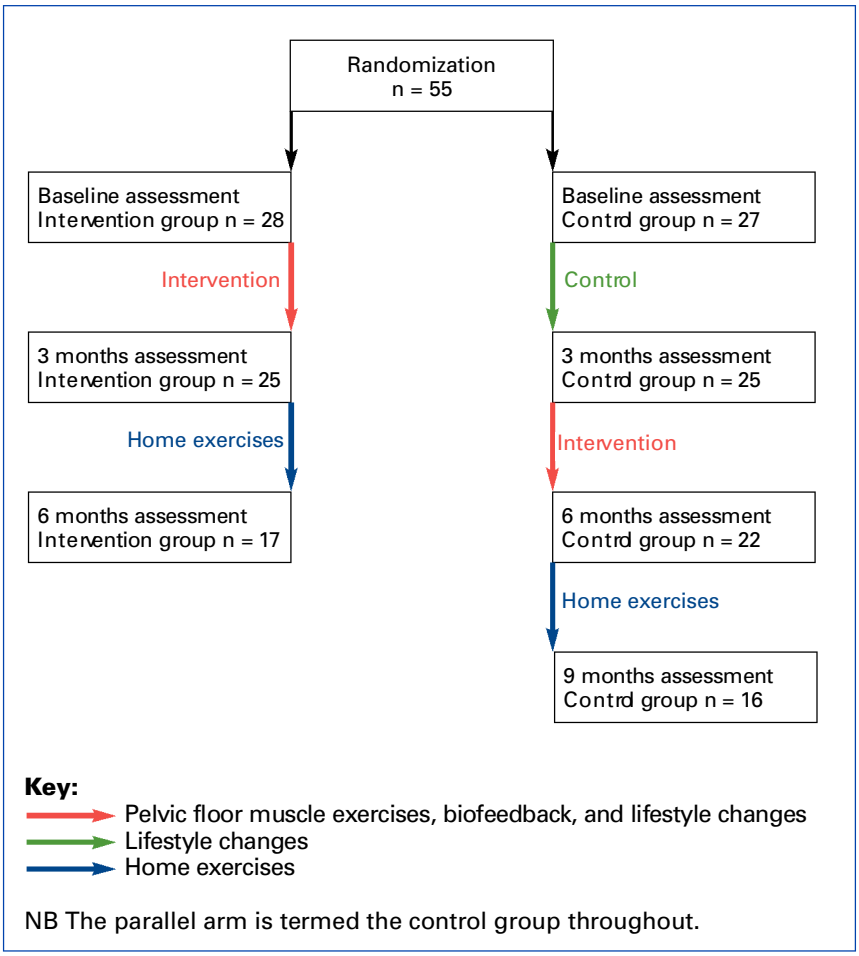
onds. The clinician observed a scrotal lift and penile retraction to ascertain that the pelvic floor muscles were contracting correctly. The maximum anal pressure reading achieved from the best of three pelvic floor muscle contractions ("maximum anal pressure") and the lowest pressure obtained while attempting to maintain a 10-second hold ("anal hold pressure") were recorded in cm H_2O. A rest of 10 seconds was given between each contraction.

Intervention

Men in the intervention group were educated about the mechanics of the pelvic floor musculature and individually taught specific pelvic floor muscle exercises (see Table 1) enhanced with manometric biofeedback for strength and endurance. The exercise program included lifting the pelvic floor muscles 50% of maximum while walking occasionally and a postvoid "squeeze out" pelvic floor muscle contraction. These treatments were given in five 30-minute periods in consecutive weeks and included advice on lifestyle changes concerning smoking, alcohol intake, general fitness, a healthy diet, weight reduction, and saddle pressure. Each subject in the intervention group was given a list of home exercises.

Men in the control group were given advice on lifestyle changes only in five 30-minute

Figure 1.
Algorithm of Randomized Controlled Trial with Crossover Parallel Arm



periods in consecutive weeks. These men were offered the opportunity to crossover into the intervention group at 3 months and receive the intervention.

Outcome Measures

The primary outcome measure was an assessment by an assessor, who was blinded to the subject grouping, and who asked the subjects set questions and recorded the results (see Table 2). Originally, a pad test was used as an outcome measure but the amounts collected in 24 hours were so small when adjusting for sweating and evaporation that the pad test was abandoned. Secondary outcome measures were digital anal measurements and anal manometric measurements.

Data Analysis

Data were coded and entered into the statistical package SASS® for initial data analysis and comparison of the intervention and control groups. The frequencies of men with post-micturition dribble were summarized in each group. Each group was compared at 3 months and 6 months with baseline using a paired Wilcoxon test. Evidence of correlation between post-micturition dribble and age, erectile function, anal manometric pressure, and anal digital measurements were explored using Spearman's rank correlation.

Results

Pre-intervention assessments. The subjects were compared for between group differences in age, body mass index, and duration of ED at baseline prior to intervention (see Table 3). At baseline, post-micturition dribble was not correlated to age, when analyzed using Spearman's Rank correlation (r=0.129, p=0.347). Also, using the same test, no correlation was found between post-micturition dribble with the erectile function domain of the International Index of Erectile Function questionnaire, manometric pressure, and digital anal pressure at any assessment for either group.

Post-micturition dribble was self-reported by 21 (75%) subjects in the intervention group, and 15 (55.6%) in the control group at baseline, making a total of 36 (65.5%) subjects out of a sample of 55 men with ED.

Comparison of intervention group with control group. In the intervention group, 14 (66.7%) subjects at 3 months and 17 (81.0%) subjects at 6 months reported no post-micturition dribble at the blind assessment.

In the control group, following intervention, 9 (60.0%) subjects at 6 months and 10 (67.0%) subjects at 9 months reported no post-micturition dribble at the blind assessment. For both groups combined, after intervention and home exercises, post-micturition dribble was reported at the blind assessment by only 4 (11.1%) subjects. The results of a Wilcoxon Signed Ranks Test comparing each group with baseline showed significant improvement in both groups after intervention (see Table 4). There was no significant improvement in the control group after 3 months of lifestyle changes.

Results of both groups after the intervention. In both groups combined, after 3 months of pelvic floor muscle exercises and 3 months of home exercises, 27 (75%) subjects reported no post-micturition dribble (see Table 5 and Figure 2). Five (13.9%) subjects had dropped out.

The number needed to treat (NNT) was calculated from the blind assessment outcomes of the randomized controlled trial at 3

months by comparing the percentage of subjects who were cured of post-micturition dribble in the intervention group (66.7%) with those who were cured in the control group (6.7%) (see Table 4). At 3 months, the NNT to produce one additional subject cured of post-micturition dribble was calculated to be two. In the same time frame, the percentage of subjects who were *cured or improved* in the intervention group (85.7%) was compared with the percentage of subjects who were cured or improved in the control group (6.7%) (see Table 3). At 3 months, the NNT to produce one additional subject *cured or improved* of post-micturition dribble was also calculated to be 2.

Discussion

A key finding in this study was the large percentage of men with ED who also experienced post-micturition dribble (65.5%). This incidence was greater in men with ED than in other studies in which the incidence of ED is unknown. Other studies have reported an incidence of 11.5% to 26.9% (Furuya et al., 1997), 33.7% (Malmsten, Milsom, Molander, & Norlen, 1997), and 63% (Koskimäki et al., 1998). However, Koskimäki and colleagues (1998) reported that the answers may have included two types of dribbling: terminal and post-micturition. Malmsten and colleagues (1997) only reported "dribbling," which may also have included both types. The incidence reported by Furuya

Table 2.
End of ED/PMD Study/Exit Questionnaire

Questions to be asked and recorded by the assessor.

Name of Patient _____ **Date**_____

1. How is your erectile function now?
Worse [0]
Same [1]
Some improvement in rigidity but not fully rigid [2]
Some improvement in duration but not fully rigid [3]
Cured [4]

2. Did you suffer from post-micturition dribble before the trial? If so, is it now:
Worse [0]
Same [1]
Less amount of leakage [2]
Less amount of leakage and less often [3]
Cured [4]

3. Did you suffer from urinary leakage before the trial? If so, is it now:
Worse [0]
Same [1]
Less amount of leakage [2]
Less amount of leakage and less often [3]
Cured [4]

4. Do you want to continue with your current treatment?
No [1]
Undecided [2]
Yes [3]

5. Tell me how you feel compared to how you were 3 months ago when you entered the study.

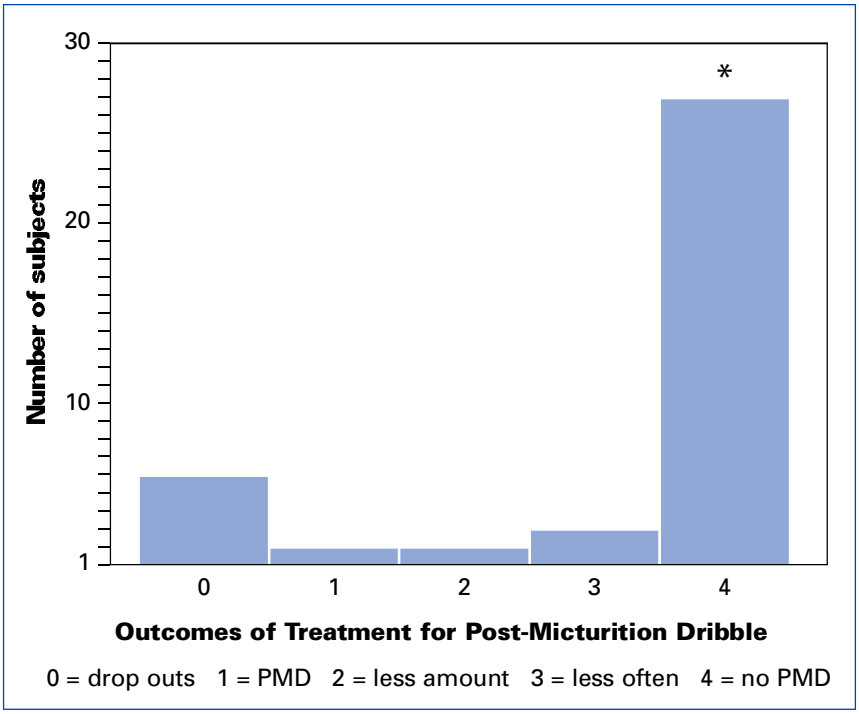
_____

_____

Table 3.
Description of Subjects at Baseline

Description	Intervention Group	Control Group	Test	*P*
Number of subjects	28	27	–	–
Mean age (SD)	53.9 years (13.0)	59.2 years (8.62)	t-test	0.082
Median age	57.5 years	61.0 years	–	–
Age range	22-78 years	41-72 years	–	–
Mean body mass index (SD)	26.9 (4.1)	28.8 (3.41)	t-test	0.069
Body mass index range	21-42	22-38	–	–
Mean months with ED	76.6	68.1	U test	0.427
Months with ED range	6-360	6-360	–	–

Figure 2.
Bar Chart of Post-Micturition Dribble Treatment Outcomes after Pelvic Floor Muscle Exercises and Home Exercises for Both Groups Combined



* Denotes significance (p=0.001)

and colleagues (1997) may be more realistic, especially as their questionnaire was post-micturition dribble specific. The exact prevalence of post-micturition dribble remains unknown but it appears to be more prevalent in men with ED. There may be many factors preventing men from acknowledging the problem such as embarrassment, a wish to be independent, a belief that it is a normal part of the aging process, and lack of knowledge of the effectiveness of available conservative treatment.

In the current study, post-micturition dribble was not correlated to age at baseline (r=0.129, p=0.347), which confirmed the findings of Koskimäki et al. (1998), who found that the prevalence of PMD was not increased with age in Finnish men. Conversely, Furuya et al. (1997) and Malmsten et al. (1997) found the prevalence of PMD to increase with age. However, the age range was different in all the studies, and the threshold of "dribbling" varied, which com-

Table 4.
Frequencies of Subjects with Post-Micturition Dribble from the Blind Assessment

Sample	Group	PMD N (%)	Dropouts N (%)	Less Amount N (%)	Less Often N (%)	No PMD N (%)	Wilcoxon Test
Baseline	Intervention	21 (100%)	N/A	N/A	N/A	N/A	N/A
3 months	Intervention	2 (9.5%)	1 (4.8%)	2 (9.5%)	2 (9.5%)	14 (66.7%)	<0.001*
6 months	Intervention	0	2 (9.5%)	1 (4.8%)	1 (4.8%)	17 (81.0%)	<0.001*
Baseline	Control	15 (100%)	N/A	N/A	N/A	N/A	N/A
3 months	Control	10 (66.7%)	1 (6.7%)	1 (6.7%)	2 (13.3%)	1 (6.7%)	0.102
6 months	Control	2 (13.3%)	1 (6.7%)	0	3 (20.0%)	9 (60.0%)	0.001*
9 months	Control	1 (6.7%)	3 (20.0%)	0	1 (6.7%)	10 (67.0%)	0.002*

*Asymptotic significance (2-tailed) based on Wilcoxon Signed Ranks Test

Table 5.
Number of Subjects from Both Groups with Post-Micturition Dribble after 3 Months Intervention and 3 Months of Home Exercises

PMD at Baseline N (100%)	Drop Outs N (%)	PMD N (%)	Improved N (%)	Cured N (%)
36 (100%)	5 (13.9%)	1 (2.8%)	3 (8.3%)	27 (75.0%)

promised comparison and may have influenced the results.

In the current study, all men who suffered from PMD reported just a few drops of leakage. This amount of leakage was considerably less than the leakage reported by Paterson et al. (1997), which was unsurprising, as Paterson's trial was designed to treat only men with post-micturition dribble. In the current study, pad weighing was abandoned as the leakage was limited to two grams in 24 hours and was too small to calculate when controlling for sweating and evaporation. A pilot study in the trial by Paterson et al. (1997) indicated that for small volumes, added moisture through sweating was a significant proportion of the pad weight gain. They found that it was essential to double-bag the pads after use. Paterson et al. (1997) weighed pads after 4 hours use and found most patients experienced losses of <15 g at the beginning of the study with some men having losses of >20 g. This study failed to report the amount of leakage following each void. There was no information concerning the number of voids in 4 hours although the trial did show that men with larger initial losses tended to make greater improvement. However, if the initial loss had been too small, it may not have been possible to detect a treatment effect. In this small group of 14 men in the Paterson study, the mean data may have been skewed because the group contained a few men with large initial losses who improved dramatically. Also the number of visits to the therapist was not stated, or more importantly, the number of men who reported no post-micturition dribble.

In the current study, some subjects in both groups improved after 3 months intervention while others improved after 3 months of following home exercises (see Table 4). There was a high success rate in relieving post-micturition dribble using pelvic floor muscle exercises (75%) (see Figure 2). This confirmed the findings in the level II evidence trial by Paterson et al. (1997), who showed, in 43 men who completed the program, that pelvic floor exercises were almost twice as likely to have reduced urine loss (4.7 g) than the urethral milking group (2.9 g). Urethral milking is also termed *bulbar urethral massage*. These results were not statistically significant, but treatment by either method was more effective than counselling alone (p=0.001).

In the current study, the low NNT indicated that pelvic floor muscle exercises that included a post void "squeeze out" pelvic floor muscle contraction over a 3-month period were a very effective treatment for alleviating and improving post-micturition dribble in men with ED. This improvement may have been due to strengthening the pelvic floor musculature or it may have been due to the functional "squeeze out" muscle contraction performed after voiding which replaced the reduced or absent bulbocavernosus reflex.

Vereecken and Verduyn (1970) observed a contraction of the bulbocavernosus muscle on cystometry which tended to expel the last drops of urine from the urethra. Wille et al. (2000) postulated that the bulbocavernosus and ischiocavernosus muscles may be involved in clearing the urethra at the end of normal voiding. Also, Shafik and El-Sibai (2000) found that urethral distension caused a bulbocavernosus contraction which was probably mediated through the urethrocavernosus reflex. While this reflex is important for ejaculation, it may also play a part in eliminating urine following micturition.

Pelvic floor muscle regimes vary considerably. In the current study, pelvic floor muscle exercises were taught in lying, sitting, and standing positions, with a 50% lift while walking occasionally and a post-void "squeeze out" pelvic floor muscle contraction (see Table 1). Subjects were instructed to tighten and lift as if interrupting the flow of urine and observe a penile retraction and scrotal lift. Paterson et al. (1997) and Porru et al. (2001) used a similar regime but included no 50% lift in walking for muscle endurance and no functional post-void muscle contraction. In the study by Porru et al. (2001), subjects practiced a total of 45 exercises, while the number of exercise sessions was not stated in the trial by Paterson et al. (1997). In the current study, subjects performed 18 exercises a day with emphasis placed on producing maximum strength for each contraction rather than on the number of contractions. This was in line with the principles of muscle strengthening (DiNubile, 1991). It may be that the voluntary "squeeze out" muscle contraction helped to evacuate urine from the bulbar urethra, and replaced or maybe developed the reflex post-void milking mechanism identified by Wille et al. (2000) and termed the *urethrocavernosus reflex* by Shafik and El-Sibai (2000). It was hypothesized that the urinary sphincter contracted with the pelvic floor muscles but this action has not been confirmed.

Manometric biofeedback was used in the current study to motivate subjects and enhance performance. No findings were found in the literature, which used anal manometry in the treatment of post-micturition dribble. It was impossible to know whether this method of biofeedback had enhanced the results.

In the current study, outcomes were self-reported to the blind assessor who completed the End of ED/PMD Study/Exit Questionnaire at the 3-month, 6-month, and 9-month assessments (see Table 2). Categories for the self-reported outcomes at the blind assessment were "Worse," "Same," "Less amount of leakage," "Less amount of leakage and less often," and "Cured." After 3 months of intervention and 3 months of home exercises, all the subjects reported to the clinician that they experienced no post-micturition dribble (for example, cured), even though

four subjects reported some after-dribble to the blind assessor. These subjects could "squeeze out" a little more urine after voiding and experienced no PMD at this stage. It is possible that they misled the blind assessor by reporting the urine loss which occurred during the "squeeze out" muscle contraction as "after-dribble." No other research investigation has included a specific post-void "squeeze out" muscle contraction along with pelvic floor muscle exercises.

Data from the current findings indicated that post-micturition dribble was a common complaint in men suffering from ED and that pelvic floor muscle exercises provide a method of effective treatment. Pelvic floor muscle exercises could be used to prevent or reverse muscle weakness caused by disuse and may help to restore functional use of these muscles.

The bulbocavernosus muscle is active in post-void elimination of urine, penile rigidity, and ejaculation of semen (Dorey, 2003). Bulbocavernosus muscle dysfunction may cause a loss of the post-void milking reflex, an inability to produce an increase in intracavernous pressure, and a loss of ejaculation force. Bulbocavernosus muscle dysfunction may explain the association between erectile dysfunction and post-micturition dribble. It may explain the reason for the increased prevalence of post-micturition dribble among men with ED. Pelvic floor muscle exercises may help to improve and prevent both post-micturition dribble and ED in men with no neurologic impairment.

Strengths and Weaknesses

This was the first randomized controlled trial using pelvic floor muscle exercises to treat post-micturition dribble in men with ED. It was the first time that a strong "squeeze out" pelvic floor muscle contraction has been used. The study was limited by the small number of subjects and the lack of validated objective outcomes measures. Further trials could be multi-centered and involve a larger sample size.

Implications

The results of this randomized controlled crossover parallel arm trial contributes to the existing body of knowledge. Evidence has shown that pelvic floor muscle exercises are significantly effective for post-micturition dribble in men with ED. These exercises may also be effective for post-micturition dribble in potent men. To obtain a benefit, pelvic floor muscle exercises should be properly taught, include a "squeeze out" pelvic floor muscle contraction, and practiced for up to 6 months. A maintenance program may then be implemented for life.

The results of this research may change practice in a number of ways. Continence Nurse Specialists and Specialist Continence Physiotherapists could teach this regime of pelvic floor exercises in preference to bulbar urethral massage to men with post-micturition dribble. Men with ED could receive pelvic floor exercises as a first-line treatment or in conjunction with oral medication or other treatment for erectile dysfunction. Some of these changes will be instigated by professionals and some will be patient driven. Urology assessments by all medical practitioners, including nurses and physiotherapists, could include a single question: "Do you have any dribble of urine after you have left the toilet?", which would present an opportunity to offer pelvic floor muscle exercises.

Conclusion

Post-micturition dribble is a common condition. The overall prevalence remains unknown, but it is associated with erectile dysfunction. Post-micturition dribble was present in 65.5% of subjects with ED at baseline, which was greater than in other studies for men with a similar age range. Post-micturition dribble was not correlated with age, which was in line with one study but disagreed with two other studies.

Of the 36 subjects who completed 3 months of pelvic floor muscle exercises and 3 months of home exercises, 27 (75%) who experienced PMD at baseline were cured, 3 (8.3%) improved, 5 (13.9%) dropped out, and 1 subject (2.8%) still experienced leakage.

Pelvic floor muscle exercises including a "squeeze out" pelvic floor muscle contraction are effective for treating post-micturition dribble in men with erectile difficulties. The cure rate using this method of treatment in 36 men was 75% (p=0.001) although clinically it was 100%. The bulbocavernosus muscle is active in post-void elimination of urine, penile rigidity, and ejaculation of semen. Bulbocavernosus muscle dysfunction may explain the association between erectile dysfunction and post-micturition dribble.

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