Effects of Adding Concentration Therapy to Kegel Exercise to Improve Continence after Radical Prostatectomy, Randomized Control


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Objective: To compare the efficacy of pelvic floor muscle exercise with the concentration therapy versus pelvic floor muscle exercise alone after radical prostatectomy.

Material and Method: One hundred thirty five patients were randomized into the intervention group that concentration therapy was added to Kegel exercise, and control group that was Kegel exercise only, using the stratified randomization (stratified by taking the catheter off before and after discharge) and type of surgery. Incontinence was defined as a loss of urine equal or more than 2 grams in one-hour pad test, before and after the test in each sample group. Follow-up results were obtained by phone visit at 3, 4, 5, 6, 8, 10, and 12 weeks after surgery.

Results: In the intervention group, 65 of 68 cases (95.6%) had continence in three months, compared to 48 of 67 (71.6%) in the control group, with significant statistical difference (p-value <0.001). The secondary result was the regularity in practicing. It was 80% in total. In the intervention group, 66 of 68 cases (97.06%) practiced compared to 34 of 67 (50.75%) in the control group, which was significant difference between the two groups.

Conclusion: Combined concentration therapy with Kegel exercise had significantly improved continence after radical prostatectomy.

Keywords: Radical prostatectomy, Stress incontinence, Prostatectomy, Pelvic floor muscle exercise, Kegel exercise, Concentration therapy
Material and Method
The present study is randomized controlled trial in prostate cancer patients age between 17 and 80 years old who had no problem or risks with incontinence before radical prostatectomy at Siriraj Hospital and volunteered to participate with written consent. We randomized the sample group into intervention group and control group, using Stratified randomization stratified method. [By taking the catheter off before/after discharged and type of surgery.] To determine the sample size by nQuery and to compensate 10% for any loss, we needed 69 cases in each group. The intervention group had taken the pelvic floor muscle exercise with concentration therapy. The test for incontinence was done by comparing the weigh of the pad, in gram, before/after the exercise at one-hour, from the standard incontinence evaluation, which is based on the amount of urine leakage. A leakage of equal or more than 2 grams was considered incontinence. Follow-up result of doing the exercise at 3, 4, 6, 8, 10, and 12 weeks was done. The study was approved by Siriraj Research Development Fund (Managed by Routine to Research: R2R).

The definition of the parameter in the present story
1. Incontinence means having urine loss that could not be controlled after radical prostatectomy. The amount of urine loss from the pad test has to be equal or more than 2 grams in one hour.
2. The regularity of doing the exercise means practicing by following the guidelines, which are equal or more than 240 times per day, every day, from three weeks to three months after surgery.
3. Practicing pelvic floor muscle exercise (Kegel exercise) means to hold and relax the muscle tension around the anus to rehabilitate the muscle condition around the pelvic area to strengthen them.
4. Practicing pelvic floor muscle exercise (Kegel exercise) with concentration therapy means practicing the exercise while specifically concentrating on the exercise. In other words, it means concentrating while holding and relaxing the muscle tension around the anus. This is the normal form of practice. However, the patients can also use equipment such as health rehabilitation spa rock.

The result was determine in categories
Primary result: The incontinence of the patients can be measured from the urine loss equal or more than 2 grams from the pad test after drinking two glasses of water (no salt) and then starting to do the exercise.

Secondary result: The regularity of doing the pelvic muscle floor exercise is judged by following the guideline, which it is equal or more than 240 times per day, every day from three weeks to three months after surgery.

Tools used for research
The pad test was used to measure the severity of urine loss in gram unit from standard scales. The values of all the tests were used compare before and after giving standard procedure at three weeks, and every week up to three months.

Statistical analysis
Descriptive statistics are used with demographic and clinical data. Inferential statistics used were Chi-square, Fisher’s exact test and Independent t-test statistics were used in comparing the result of incontinence ratio in stress incontinence type at three months, between intervention group and control group. The data were analysis with SPSS version 18. Descriptive statistics are used with demographic and clinical data, and a p-value of less than 0.05 was considered statistically significant.

Results
Two hundred forty seven patients between May 2011 and October 2012 were included. One hundred nine cases did not meet the criteria of study and were excluded. One hundred thirty eight cases were recruited. Three cases discontinued from the study after three months. Thus, 135 cases were analyzed, which 68 cases were in the intervention group and 67 cases in the control group (Fig. 1, Table 1). In the intervention group, 65 of 68 cases (95.6%) experienced continence when compared with 48 of 67 (71.6%) in the control group, which was statistically significant (p-value <0.001). The secondary result was the regularity in practicing. In the intervention group, 66 of 68 cases (97.06%) practiced while only 34 of 67 (50.75%) practiced in the control group, which was significant different (p-value <0.001).

Discussion
From the present study data, the pelvic muscle floor exercise has effectiveness for the rehabilitation of incontinence (13,19,20). From the research work Evaluation of Early Pelvic Floor Physiotherapy on the Duration and Degree of Urinary Incontinence After Radical Retropubic Prostatectomy in a Non-Teaching Hospital (EB Cornel, R de Wit, JA Witjes, 2005), the
result confirmed that doing the pelvic muscle floor exercise has effectiveness for the rehabilitation of incontinence. In searching past result from Siriraj Hospital in Thailand, more than 90% or patients were able to hold their urination well within six months. Some patients could even hold their urine at two weeks or one month. However, 2 to 3% of patients were still having incontinence two years later. We found that the result of doing pelvic floor muscle exercise with concentration therapy had helped the rehabilitation of stress incontinence in the radical prostatectomy patients. Our result clearly show that the rehabilitation significantly improve continence. In addition, the regularity of pelvic floor exercise have better outcome of continence. The intervention group practiced pelvic floor muscle exercise (Kegel exercise) with concentration therapy, which means practiced the

Fig. 1 Trial profile (CONSORT 2010).

Table 1. Data in intervention group and control group

<table>
<thead>
<tr>
<th>Basic data</th>
<th>Intervention (n = 68)</th>
<th>Control (n = 67)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years), mean (SD)</td>
<td>61.71 (4.92)</td>
<td>62.70 (5.22)</td>
</tr>
<tr>
<td>(Min, max)</td>
<td>(51, 70)</td>
<td>(49, 70)</td>
</tr>
<tr>
<td>Length of stay at the hospital (day), mean (SD)</td>
<td>7.49 (2.13)</td>
<td>8.09 (3.57)</td>
</tr>
<tr>
<td>Grading of incontinence before test (gram)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 1 urine loss 1-10 g</td>
<td>26 38.2%</td>
<td>27 40.3%</td>
</tr>
<tr>
<td>Grade 2 urine loss &gt;10-50 g</td>
<td>28 41.2%</td>
<td>22 32.8%</td>
</tr>
<tr>
<td>Grade 3 urine loss &gt;50 g</td>
<td>14 20.6%</td>
<td>18 26.9%</td>
</tr>
<tr>
<td>Type of operation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open radical prostatectomy</td>
<td>4 5.9%</td>
<td>4 6.0%</td>
</tr>
<tr>
<td>Laparoscopic radical prostatectomy</td>
<td>14 20.6%</td>
<td>12 17.9%</td>
</tr>
<tr>
<td>Robotic assisted laparoscopic radical prostatectomy</td>
<td>50 73.5%</td>
<td>51 76.1%</td>
</tr>
<tr>
<td>Blood transfusion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did not receive</td>
<td>67 98.5%</td>
<td>64 95.5%</td>
</tr>
<tr>
<td>Received</td>
<td>1 1.5%</td>
<td>3 4.3%</td>
</tr>
<tr>
<td>Off cath before going home or not</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>41 60.3%</td>
<td>42 62.7%</td>
</tr>
<tr>
<td>No</td>
<td>27 39.7%</td>
<td>25 37.3%</td>
</tr>
<tr>
<td>Time of retained cath (day), median (min, max)</td>
<td>8 (6, 41)</td>
<td>8 (6, 23)</td>
</tr>
</tbody>
</table>

Table 2. The average value and the standard deviation in reduced urine loss (before-after) and the amount percentage of the result Pad test the test result that had the amount of urine loss 0 gram in each sample group

<table>
<thead>
<tr>
<th></th>
<th>Intervention (n = 68)</th>
<th>Control (n = 67)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>% urine loss reduced, mean (SD)</td>
<td>97.79 (7.09)</td>
<td>85.18 (20.22)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Pad test</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continenence (urine loss &lt; 2 g)</td>
<td>65 95.6%</td>
<td>48 71.6%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Incontinence (urine loss ≥ 2 g)</td>
<td>3 4.4%</td>
<td>19 28.4%</td>
<td></td>
</tr>
<tr>
<td>Urine loss after doing exercise</td>
<td></td>
<td></td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Urine loss 0 g</td>
<td>51 75.0%</td>
<td>6 9.0%</td>
<td></td>
</tr>
<tr>
<td>Non-urine loss 0 g</td>
<td>17 25.0%</td>
<td>61 91.0%</td>
<td></td>
</tr>
</tbody>
</table>
Exercise by concentrating on the exercise and eliminating other subjects or issues. This can be a normal form of practice. However, patients can also use equipment such as health rehabilitation spa rock. The intervention therapy stimulate patient to keep regular pelvic floor exercise. Practicing the pelvic muscle floor exercise with concentration therapy is the best method when it is accompanied with equipment. The “Health Rehabilitation Active Cycle Spa Rock” was the best research work to form guideline for nursing patient in the health rehabilitation. The concept of developing native knowledge and cultural roots and adapting local resources, mixing them with belief is a good solution. We have brought them into use and got good result, reducing the severe effect, and promoting good quality of live. Therefore, nurses can bring this guideline of intervention to patients after the operation.

Conclusion

Pelvic floor muscle exercise with concentration therapy can help rehabilitate urinary incontinence. This gives good results in patients group that are older than 70 years old after radical prostatectomy.

What is already known on this topic?

Doing pelvic muscle floor exercise with adding concentration therapy is a method to rehabilitate efficiently for incontinence condition in post radical prostatectomy. It is a method that patients can practice regularly.

What this study adds?

The purpose of this study was to find methods to rehabilitate the incontinence condition by using the knowledge of doing pelvic muscle floor exercise (Kegel exercise) and developing pelvic muscle floor exercise by using equipment such as the Rehabilitation Health Spa Rock. Using the concept of mixing pelvic muscle floor exercise with concentration therapy helps doing the exercise regularly. Therefore, it gives good result in rehabilitating incontinence for patients after radical prostatectomy.

What are the implications for public health practice?

Practicing this new method in doing pelvic muscle floor exercise together with concentration therapy, to rehabilitate incontinence condition, proved to be successful and should be used as a way to treat patients after radical prostatectomy.

Potential conflicts of interest

None.

References

7. Tumor Registry Siriraj Cancer Center with Urology Surgery Division. The project to give knowledge to public issue 9. Things to know about prostate cancer. Bangkok: The Faculty of Medicine Siriraj Hospital; 2007.

ผลการศึกษา

การศึกษานี้มีเป้าหมายเพื่อทดสอบผลการฝึกบริหารกล้ามเนื้อเชิงกรานร่วมกับสมาธิบําบัดกับการฝึกบริหารกล้ามเนื้อเชิงกรานเพียงอยางเดียว

วัตถุประสงค์: ศึกษาเปรียบเทียบผลการฝึกบริหารกล้ามเนื้อเชิงกรานร่วมกับสมาธิบําบัดกับการฝึกบริหารกล้ามเนื้อเชิงกรานเพียงอยางเดียว

วัสดุและวิธีการ: ผูปวยทั้งหมด 135 ราย ทำให้กลุมตัวอยางแบงเปนกลุมทดลองและกลุมควบคุม ดวยวิธีการแบบมีชั้นภูมิ โดยการถอดสายสวนปสสาวะ ก่อนและหลังจําหนาย และชนิดของการผาตัด โดยกลุมทดลองไดรับการฝึกบริหารกล้ามเนื้อเชิงกรานร่วมกับสมาธิบําบัด ศึกษาผลลัพธการฟนฟูภาวะกลั้นปสสาวะไมอยูจากการเปรียบเทียบผล pad test ใน 1 ชั่วโมง วัดน้าหนักเปนกรัม ก่อนและหลังทดลองจากเกณฑประเมินภาวะกลั้นปสสาวะไมอยูมีจำนวนปสสาวะมากกวาหรือเทากับ 2 ชั่วโมง และคิดตามผลการนับเปนระยะทุกสัปดาหที่ 3, 4, 6, 8, 10, 12 หลังผาตัด

ผลการศึกษา: กลุมทดลองสามารถกลั้นปสสาวะได 65 ราย จาก 68 ราย (รอยละ 95.6) เมื่อเปรียบเทียบกับกลุมควบคุมสามารถกลั้นปสสาวะได 48 ราย จาก 67 ราย (รอยละ 71.6) พบวาความแตกตางกันอยางมีนัยสําคัญทางสถิติ (p-value <0.001) และผลความแตกตางกันพบวากลุมทดลองมีความแตกตางกันในผลการศึกษาดีกวา เพื่อเปรียบเทียบกับกลุมควบคุมที่มีผลการศึกษาดีกวา 34 ราย จาก 67 ราย (รอยละ 50.75) ซึ่งเมื่อเปรียบเทียบกับกลุมควบคุมพบวามีความแตกตางกันอยางมีนัยสําคัญทางสถิติ

สรุป: การศึกษาไดเรียบรอยาร่วมกับสมาธิบําบัดสามารถทุกปสสาวะไมอยูหลังผาตัดไดผลดีกวาการบริหารกล้ามเนื้อเชิงกรานเพียงอยางเดียว