

EFFICACY OF ULTRASOUND-GUIDED PELVIC MUSCLE TRAINING.

Hypothesis / aims of study

Stress incontinence markedly impairs the quality of life of the affected men, who regard the need to wear incontinence pads. As a result of the desire of early social continence many different therapeutic innovations have been designed: pelvic floor training, biofeedback, electrostimulation, magnetic field stimulation and finally surgery. In this setting we wanted to find a new and easier way to train patients to restore an effective pelvic floor muscle contraction using transrectal ultrasonography as a visual aid to control the correct contraction of external striated sphincter muscle. The aim of this study is to assess if ultrasound guided external urethral sphincter contraction training is an adequate tool to obtain early continence compared to other methods present in literature

Study design, materials and methods

Between December 2008 and December 2009 we performed a total of 73 trans-rectal ultrasonographies using a Hitachi H21 with a biplane probe 7.5 MHz to assess vesico-urethral anastomosis eight days after retropubic radical prostatectomy. We introduced 120 ml of physiologic solution trans catheter and through sagittal ultrasound sections we controlled if there was any liquid leakage at the anastomosis level. If no leakage was found we proceeded to remove urinary catheter. At this point we asked patients to contract external urethral sphincter under continuing ultrasonographic view and checked if the contraction was effective or not using both transverse and longitudinal sections. We then trained Patients to repeat that movement every day at least 30 times a day. Patients continence assessment took then place at 1, 4, 7 months post-operatively and finally at one year using ICIQ short form questionnaire and daily pads count. We considered continent patients those who used less than one pad/day

Results

The 73 patients (pts) performed a correct contraction under ultrasonographic view and performed pelvic training every day at least 30 times a day for at least 1 year. 25 pts (34%) were completely continent 1 month post-operatively, 23 pts (31%) after 4 months and 20 (27%) within 1 year (between 4 months and 1 year). A total of 4 pts (5%) were incontinent (pads count > 2/die) within 1 year after surgery. In one study Authors compared behavioural therapy alone versus behavioural therapy plus biofeedback. Mean incontinence episodes decreased from 28 to 13 per week (55% reduction; 95% confidence interval [CI], 44%-66%) after behavioural therapy and from 26 to 12 (51% reduction; 95% CI, 37%-65%) after behaviour plus therapy. Both reductions were significantly greater than the reduction from 25 to 21 (24% reduction; 95% CI, 10%-39%) observed among controls ($P = .001$ for both treatment groups). However, there was no significant difference in incontinence reduction between the treatment groups ($P = .69$). Improvements were durable to 12 months in the active treatment groups: 50% reduction (95% CI, 39.8%-61.1%; 13.5 episodes per week) in the behavioural group and 59% reduction (95% CI, 45.0%-73.1%; 9.1 episodes per week) in the behaviour plus group ($P = .32$). Another group analyzed the role of pelvic floor electric stimulation plus biofeedback versus pelvic stimulation alone obtaining these results: the mean leakage weight became significantly lower ($p < 0.05$) in group 1 than in group 2 starting at 4 weeks until 6 months of followup. A significant difference ($p < 0.05$) between groups 1 and 2 in terms of percentage of continent patients was achieved from 4 weeks (63.3% group 1 and 30.0% group 2) to 6 months (96.7% group 1 and 66.7% group 2).

Interpretation of results

The initial option in the treatment of post-surgical stress incontinence is pelvic floor training, which is sometimes combined with biofeedback. Two Cochrane meta-analyses from the years 2004 and 2007 involved a tabulation of results from 6 and 10 randomized studies, respectively, and yielded the finding that continence improved more rapidly in patients who underwent pelvic floor training than in control patients. This difference, however, was no longer significant 6 to 12 months after surgery. The main role of pelvic floor training is thus to shorten the period of incontinence that normally ends in any case when the condition takes its usual, favourable spontaneous course.

With our study we demonstrated that effective pelvic floor training is obtained under ultrasonographic view with the check of the contraction of right sphincter structures. In this way a cheap, fast, repeatable method obtains the same results in terms of reaching early continence (65% pts continent at 4 months) but without expensive and time spending procedures such as pelvic floor training with biofeedback.

Concluding message

Transrectal ultrasonographic view of correct external urethral sphincter contraction after radical retropubic prostatectomy allows operators to control Patients pelvic floor contraction. In this way it is possible to train Patients to do the correct movement. We demonstrated that percentage of continent patients after one year to surgery is overlapping with other more popular, expensive and time spreading procedures for pelvic floor training.

References

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| <i>Specify source of funding or grant</i> | NONE |
| <i>Is this a clinical trial?</i> | No |
| <i>What were the subjects in the study?</i> | HUMAN |
| <i>Was this study approved by an ethics committee?</i> | No |
| <i>This study did not require ethics committee approval because</i> | Observational study, not performing not needed investigations. |
| <i>Was the Declaration of Helsinki followed?</i> | Yes |
| <i>Was informed consent obtained from the patients?</i> | Yes |