

CLINICAL INVESTIGATION INTO REAL-TIME ULTRASOUND IMAGING FOR FEEDBACK ON PELVIC FLOOR EXERCISES AND ITS INFLUENCE ON SELF-EFFICACY FOR PATIENTS EXPERIENCING URINARY INCONTINENCE POST RADICAL PROSTATECTOMY

Hypothesis / aims of study

This study sought first experiences with Real-Time-Ultrasound Imaging (RTUS) applied as a feedback (FB) in men one day before radical prostatectomy (RPE) and one day after removal of the transurethral indwelling catheter and the influence of this treatment on self-efficacy beliefs over a period of 4 weeks post-surgery. Existing research indicates that general as well as specific self-efficacy (SE) are both predictive determinants for coping with stressful life-periods as well as for maintaining and adhering to exercise(1). The management of patients diagnosed with prostate cancer includes pelvic floor muscle exercise (PFME) to treat post-operative urinary incontinence (UI). Exercises should be executed over a period of up to one year post-surgery (2). Including measurement of SE into research of peri-operative management in PE patients might be a measurement to predict exercise adherence (3). Thus it is reasonable to evaluate whether treatment methods show positive influence on self-efficacy as a basis for successful management of UI post-surgery.

Study design, materials and methods

This is a pilot study with a one-group quasi-experimental clinical trial design. It is a first-phase research project and is integrated in further extended study-projects in the field. Ethical approval was obtained from the Ethic Committee at the Medical University Graz and the Ethic Committee at Queen Margaret University Edinburgh. A convenient sample of 15 patients was recruited in two hospitals. Participants received pre-surgery information as commonly applied augmented with RTUS used as a feedback method to support learning of correct PFME. General Self-efficacy (GSE) was measured using the German version of the general perceived self-efficacy scale. PFME-self-efficacy was measured with a task-specific scale (intervention-exercise self-efficacy scale, IESE). The International Consultation on Incontinence Short Form Questionnaire (ICIQ-UI-SF) was used to assess UI symptoms. Three sessions were held (T1, T2 and T3). Questionnaires were completed in all three sessions. RTUS was applied in the first session one day before surgery as well as in the second session one day after catheter removal. The follow up session was held 4 weeks post-surgery.

Results

IESE scores showed significant difference over points in time T1, T2 and T3 ($\chi^2 = 27.04$, $p < 0.001$) indicating a positive influence of RTUS on PFME-self-efficacy especially between T1 and T2 as well as T1 and T3. GSE values were high (means (SD) of 32.8 (3.98)) at T1 and stayed stable over the three measurements showing no significant differences at points in time set ($p=0.25$). There was no significant correlation between self-efficacy scores and ICIQ-UI-SF (GSE and ICIQ-UI-SF $\rho = -0.21$, $p = 0.45$; IESE and ICIQ-UI-SF $\rho = -0.46$, $p = 0.09$) at the third session (T3).

Interpretation of results

The increase of task specific SE is highly significant indicating that the use of RTUS is an effective tool to establish patients self-competence for the execution of specific PFME as well as to increase the degree of patients' awareness and meaningfulness of the exercises. Incontinence levels did not correlate with the task specific SE scores. This might be due to the short time of observation and has to be further investigated over a long-term period. The limitations of the study are the one- group design, the short observation period, lack of blinding, lack of measurements of exercise behavior, no use of objective measurements of UI.

Concluding message

Despite the limitations due to the methods and design of this study, the results suggest that RTUS FB positively affects patients' task-specific self-efficacy. This is an important finding as, according to existing literature, it can be presumed that different levels of task-specific self-efficacy scores will indicate different stages of intention building and adherence to exercise in the long-term after RPE. Therefore, measurements of self-efficacy would contribute to potential subgrouping of patients according to their self-efficacy levels which would help to tailor treatment methods related to stages of health behavioral change over the rehabilitation process.

The outcomes justify further investigating these findings. However, future studies should extend the observation period up to 12 months post-surgery and additional phase-specific self-efficacy questionnaires as well as measurements of exercise behaviour should be employed to establish more conclusive results.

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Disclosures

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