

Pelvic Physical Therapy Distance Journal Club

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Isabella Burchett, Julia Delesdernier, Anna-Lynn Hickey, and Sarah Perkins

Article 2:

Improvement in quality of life with pelvic floor muscle training and biofeedback in patients with painful bladder syndrome/interstitial cystitis. Borrego-Jimenez PS, Flores-Fraile J, Padilla-Fernandez BY, et al. J of Clinical Medicine 2021;10:862. Doi.org/10.3390/jcm/0040862.

Introduction:

- Diagnosis of IC/BPS must be made on the basis of pain, pressure, or discomfort of the urinary bladder in the presence of 1+ additional symptoms (i.e. urinary frequency)
- Biofeedback is a great technique for perineal and sphincteric re-education, and allows patients to learn to perform perineal exercises faster and more accurately.
- Both physical and behavioral therapy is recommended in all treatment protocols besides drug treatment, making it hard to see the individual therapeutic value of pelvic floor muscle training and use of biofeedback for treating IC/BPS.

Aim/Primary Aim:

- Prove the benefits of pelvic muscle training with the use of biofeedback as an adjunct treatment along with oral or intravesical treatment for women with either BPS/IC to improve general health related quality of life. The author's intention behind the study was to dive into modalities and protocols for BPS/IC since they vary between studies and usually are combined with psychotherapeutic interventions and medical management.

Study Design/Study Format: International, multicenter, prospective randomized study

Methods:

- A prospective randomized study with 123 women diagnosed with BPS/IC.
- Inclusion Criteria - women 18 years or older with signs of cystitis on cystoscopy and inflammation on bladder biopsy (lesion type 2C/3C and formally diagnosed with BPS/IC)
- Exclusion Criteria: patients with urinary lithiasis, severe urinary incontinence, urinary infection, urological/pelvic malignancies, congenital abnormalities of the UUT/LUT, neurogenic bladder, intermittent catheterization, indwelling catheter, pregnancy, and patients unable to give informed consent.
- At Beginning: Patients given an "evolutionary diary" to write if the patient was suffering/at what time, if the patient was without symptoms, and if anything significant occurred.

Two groups (randomly allocated):

- BFP+ → 48 patients who were receiving the oral drug treatment and intravesical instillations + pelvic floor muscle training with biofeedback of pelvic floor
- BFP- → 75 patients who were receiving the oral drug treatment and intravesical instillation without additional BFB-EMG.

BFB+ Group Procedure:

- PT guided treatment session were 20 minutes long and 1x/week for 20 weeks
- Supine hook-lying and pre-gelled pediatric auto-adhesive electrodes were used.
- Protocol: Pelvic floor anatomy education and instructions to contract the PFMs for 3-5 seconds and relax for 6-8 seconds. Contractions, reflecting muscle tone, power, and duration were recorded.

Results (Quality of Life):

- 75.00% of patients in BFB+ group had successful treatment while only 58.67% of patients in the BFB- group had successful treatment.
- Women who were older, higher BMI, lower SF-36 pre-treatment, longer evolution time in years, other pathological conditions, other pharmacological treatments, active smoker, or more than two concomitant treatments were more likely to be in BFB+ group. (RR analysis with 95% CI)
- General Sample: Negative correlation between SF-36 post-treatment and the following variables: BMI (regression coefficient -0.188 , $p = 0.006$), diabetes mellitus (regression coefficient -5.142 , $p = 0.038$), other conditions (regression coefficient -1.444 , $p = 0.025$), other pharmacological treatments (regression coefficient -2.104 , $p = 0.038$)
- General Sample: Positive correlation between SF-36 post-treatment and the following variables: overactive bladder (regression coefficient 3357 , $p = 0.023$) and intravesical instillation of glycosaminoglycans (regression coefficient 2.113 , $p = 0.028$)
- BFB+ Group: Negative correlation between SF-36 post-treatment and the following variables: BMI (regression coefficient -1.013 , $p = 0.00019$), the SF-36 pre-treatment (regression coefficient -0.777 , $p = 0.003$), and evolution time/time of suffering from cystitis in years (regression coefficient -1.325 , $p = 0.000085$)
- BFB- Group: Negative correlation between the SF-36 post-treatment and the following variables: other pathological conditions (regression coefficient -1.839 , $p = 0.0003$) and other pharmacological treatments (regression coefficient -2.264 , $p = 0.057$).
- BFB- Group: Positive correlation between the SF-36 post-treatment value and overactive bladder (regression coefficient 3559 , $p = 0.007$, treatment with benzodiazepines (regression coefficient 2038 , $p = 0.062$), and intravesical instillation of glycosaminoglycans (regression coefficient 2870 , $p = 0.008$).

Discussion:

- Therapeutic treatment approach for IC/BPS is very individualized, so the protocol can change according to the patient's response.
- There is no difference between perianal surface EMG and the urethral surface EMG.
- For those with insufficient pain relief, this study revealed that the women in BFB+ group have a high rate of concomitant diseases and treatment with benzodiazepines/third-level analgesics, associated with higher depression rates and other pathological conditions.
- For women in whom the disease did not improve and who received adjunct BFB, the baseline health status was lower compared to the patients who did not receive BFB.

LIMITATIONS

- Inherent nature and variability of this disease was a limitation, despite taking into account the two main types of interstitial cystitis (C2 and C3) based on the definition of lesions in the cystoscopy of the European Society for the Study of Interstitial Cystitis.

STRENGTHS

- Extensive commitment/experience of the research team in management of the disease
- The coherence/rigor of the follow-up protocols in the follow-up protocols of all patients

Conclusion:

- Pelvic floor muscle training with biofeedback increases the likelihood of improving quality of life in patients with PBS/IC, providing significant benefit when used in conjunction with oral and intravesical combined baseline treatment. This statement holds true for patients with worse health-related quality of life conditions.

Clinical Application:

- The results support the application of PFMT with BFB as a useful tool in medical management without known side effects in patients with BPS/IC. This treatment modality has achieved good results in women with decreased health status.

List discussion questions

- When you use biofeedback with patients, if you do, what are your intentions and goals? Have you considered using biofeedback for the purpose of re-establishing a balance in the pelvic structures specifically when a patient is in the midst of a “flare up”
- Could there be a more beneficial way to use biofeedback considering patient positions and/or use of diaphragm/abdominals?
- Was the increase in SF-36 due to the improvement of PFM coordination/strength/relaxation or the patient’s autonomy and belief they have control of improving and reducing flare ups just through use of muscles? I would be curious what the PFM examinations for both groups looked like before and after.
- Overall, the article states that BFB increases the PROBABILITY of improving QOL in patients with BPS/IC, which supports the argument that treating BPS/IC requires interdisciplinary communications and approaches. What have you found within your practice that has improved the QOL for your patients with BPS/IC? Could biofeedback have a place within your practice?

Discussion points from call:

- Though the article discusses the effectiveness of biofeedback, it is not truly the biofeedback that was the primary driver of change. It could be the pelvic floor muscle training and revascularization that helped to improve SF-36 scores.
- It is important to look at treatment of IC as multidisciplinary management. Painful bladder can be considered a chronic pelvic pain condition with central nervous system processing dysfunction, so it requires psychotherapy, medication management, and pelvic floor physical therapy to manage musculoskeletal and nociplastic symptoms.
- There are several positions including figure 4 stretch, child’s pose, and happy baby, that allow the pelvic floor time to release and “relax” and could be useful when working with IC patients.