

EFFECTIVENESS OF ADDING NONINVASIVE VAGUS NERVE STIMULATION PROTOCOLS TO PELVIC BIOFEEDBACK THERAPY FOR PELVIC FLOOR DYSFUNCTIONS

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Hypothesis & Aim of the Study

*The **vagus nerve** links our autonomic nervous system to our emotions and it is a neurobiological evidence for the mind-body connection.

*The **pelvic floor** is one of the most fascinating connection with the vagus nerve.

***Stress inhibits the vagus nerve**

*Many pelvic floor dysfunction-related symptoms and diseases;

constipation,

incontinence,

chronic pelvic pain,

sexual dysfunctions,

irritable bowel syndrome)

may be related to **low (inhibited) vagal nerve tonus** due to different type stressors.

*Therefore vagus nerve stimulation may be an additional holistic approach therapy for conventional pelvic biofeedback therapies mainly due to its relaxing and anti-inflammatory properties during stress.

*The **MYMOP2*** has been shown to be validated and highly sensitive/responsive outcome measure .

***Aimed** to observe the effects of vagus nerve stimulation protocols added to pelvic biofeedback therapy by using MYMOP2 tool on patients with pelvic floor disorders.

Study Design, Materials and Methods

Group A included the patients (n:76) with anorectal disorders dysfunctions who admitted to our pelvic floor unit between September 2022-March 2023, treated with **biofeedback therapy and vagus nerve stimulation protocols** (table 1).

Group B included the patients (n:35) with similar symptoms to group A but admitted to our unit during the first months of 2019 who were selected for the Turkish validation study for MYMOP2 (reference2) tool, treated with **biofeedback treatment but without any vagus nerve stimulation protocols**.

In both group A and B, all patients symptoms were assessed via MYMOP2 tools (with Turkish validated forms) at initial (before treatment) and follow-up (after two months) periods.

Then the results of MYMOP2 evaluation scores of group A and B are statistically compared.

BIOFEEDBACK AND VAGAL STIMULATION PROTOCOLS

Table 1

Biofeedback protocol;

Dietary recommendations including fiber and liquid

Diaphragmatic breathing-with no standard duration

Abdominal massage

Toilet and defecation training (Squatty potty and proper relaxation and push techniques – bracing)

Pelvic floor and core exercises (Relaxation and strengthening exercises-with or without EMG support)

Vagus nerve stimulation protocol;

Physical stimulations:

*Gargling in the morning 30-60 minutes

*Singing-chanting-murmuring-no standard duration

*Washing face with cold water-morning and evening

*Laughing or smiling-no standard duration but watching comedy films

*Socialising as much as possible

*Diaphragmatic breathing-deeply and slowly -3 times a day, 6 breaths/minute, 5 minutes

*Exhaling longer than inhaling-no standard duration

Psychological stimulation

*Gratitude-every hour possible-thinking for a good thing for gratitude

*Meditation- no standard duration but at least 15-20 minutes/day, recommendation only with some applications

*Exposing to things that are beautiful, such as a sunset, spending time in nature, looking at pretty pictures, or playing with your pets, listening to calm music

Results

According to MYMOP2 assesment, a minimum clinically important change in score after intervention should be between 0.5-1.0 which means 'no change' with the intervention, and greater than 1.0 means clinically significant improvement/change.

Clinically significant MYMOP2 score ratio of Group A are found to be statistically clinically significant than Group B (90.58 % vs 57.1%, p-value is lower than 0.05 chi-square test).

Interpretation of Results

Adding **vagus nerve** stimulation protocols may **increase the success rate of the biofeedback treatment** including pelvic floor exercises.

Weakness of the study : Apart from the vagal protocols given to group A , **same biofeedback** therapy modality were given to both groups but with **different pelvic physiotherapists** which can be a bias factor in evaluating the positive effectiveness of vagal protocols.

Noninvasive vagus nerve stimulation protocols could be a
complimentary therapy (not a substitute)
to other treatment options (like biofeedback therapy) for pelvic floor
dysfunctions.

Thank you for your interest.