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EVALUATION OF THE PELVIC FLOOR FUNCTION IN WOMEN WITH OR WITHOUT GYNECOLOGICAL SURGERY

Hypothesis / aims of study

According many studies, the lesions caused by gynecological surgery can affects the pelvic floor functions. Because of the relevance and the lack of research about the subject, our aim were to determine if this type of surgery affects the pelvic floor function by the power, maintenance of the muscle contraction and the fast contractions of the pelvic floor muscles (PFM).

Study design, materials and methods

A retrospective evaluation was conducted on the medical records of 240 women attending by medical section of urogynecology and vaginal surgery between January 2007 and December 2009. All women who complained about stress urinary incontinence with or without urgency were included. Were not included patients who had any chronic degenerative disease that could affect the muscular and nervous tissue.
The women were classified into two groups: Group I: 121 patients with gynecological surgery and Group II: 119 patients with no history of gynecological surgery.
To evaluation of pelvic floor muscle (PFM) function, was considered strength, endurance and fast contraction. To evaluation of muscle strength, a score from 0-5 was given according to the previously validated Oxford Scale. Endurance was registered via PERFECT assessment scheme. Endurance was expressed as the length of time, up to 10 seconds, that a maximal voluntary contraction could be sustained. Thus, the contraction was timed until the muscle started to fatigue.
Data were analysed using the Mann–Whitney test.

Results

There were no significant differences with respect to age, parity (at least one vaginal delivery) and body mass index between groups. Baseline characteristics and clinical measurements of the different groups are shown in Table 1.

Table 1: Characteristics of the study population according to the group.

Variable	Group I (surgery)	Group II (no surgery)	p value
Age	57.5 (±11.1)	52.1 (±10.8)	0.799
BMI	27.5 (±4.5)	27.4 (±4.8)	0.585
Parity	4.0 (± 2.7)	3.4 (±2.1)	0.245

Comparing Group I versus Group II, there was significant difference in muscle strength (p= 0.033) and fast contractions (p= 0.035) in group I. Analysis of endurance (E) was not significant (p = 0735). The values are showed in table 2.

Table 2- Analysis of strength, endurance, and fast contraction of groups I and II.

Variable	Group I	Group II	P value*
Oxford	2.5 (±1.0)	3.0 (±1.1)	0.033
Endurance (E)	3.3 (±1.8)	4.0 (±3.1)	0.735
Fast (F)	5.3 (±3.5)	6.2 (±3.1)	0.035

* Mann Whitney test

Interpretation of results

The most common gynecological surgeries are hysterectomy and corrective surgery for urinary incontinence and pelvic organ prolapse. Several studies describe the surgical procedure could damage the pelvic floor and decrease their function.
In data analysis, there was no possible to obtain specific details about surgeries type, but even with general information, there was significant differences between groups in relation to PFM strength. Hove et al (1) describes that Oxford scale is used to determine the PFM function. Currently this scale is the most accepted and commonly used in scientific researches to quantify the strength of the pelvic floor. It's also presents proven reliability and validity (2). In this study we observed that patients who underwent a gynecological surgery had mean score 2.5 on this scale, so they didn't had a satisfactory contraction. The effects of the weakness of the pelvic floor muscles are widely described and among them stands out the stress incontinence, prolapse genital, and complaints about hypoactive sexual desire (2).
The endurance can be measured for a few seconds when the voluntary contraction is maintained and sustained. Some studies report that the ideal is to maintain for more than 10 seconds (3). All of patients showed low maintenance of contraction, but the Group I had less time as compared with Group II, however, was not statistically significant.
Evaluation of fast contractions is determined after 2 minutes of rest (3). Thus, the group I presented lower repetition than expected and comparing with Group II the difference was significant. It suggests that they have reduced the strength of the muscle fibers type II, responsible responding quickly to intra-abdominal pressure increases, characteristic situation in women with SUI.
We observed that the patient's profile in this study is consistent with the literature reports. The BMI of the patients evaluated characterizes overweight and maybe has been an aggravating factor of stress urinary incontinence.

Concluding message

Based on the results, it is suggested that the gynecological surgery reduces PFM strength and capacity of fast contractions, reducing the functional activity. However, more studies are necessary to confirm these evidences.

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