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**Introduction:** Pelvic floor symptoms are a common problem following childbirth. These are frequently associated to vulvovaginal atrophy. In an attempt to provide clinicians and women a better non-pharmacologic tool to treat symptoms related to vulvovaginal atrophy, in recent years, microablative fractional CO2 laser has been proposed and employed with interesting results.

The aim of our study was to analyze the effect of fractional CO2 laser on pelvic symptoms in women with previous perineal trauma associated with vaginal delivery.

**Methods:** This is a retrospective study including all women who were evaluated for pelvic pain or symptoms of vulvovaginal atrophy with a vaginal delivery at the Istituto per la Sicurezza Sociale of the Republic of San Marino between 2013 and 2018. Women with previous perineal surgery were excluded. Symptoms intensity was assessed using the Visual Analogue Scale (VAS).

Symptom scores were compared between the study groups using Mann Whitney test. In order to account for the individualized efficacy following treatment each of the groups was compared separately, where every woman was her own control, using Wilcoxon signed-rank test. All analysis with two-sided p-value of <0.05 were considered significant.

**Results:** During the study period of all evaluated patients, 27 met the inclusion criteria and were divided in the two groups: 1) women who received an episiotomy during labor (n=11); and 2) women who experienced spontaneous lacerations during their vaginal delivery (n=16). Among women who received an episiotomy, each treatment and the post-treatment control had a constant and significant improvement in the intensity of dyspareunia (p<0.05). Likewise, similar improvement was noted with regard to pain at the introitus (p<0.05). Dryness showed an improvement after the first (5.5 vs. 4, p=0.04) and second treatment (4 vs. 2, p=0.04), however, following a third treatment no significant additional change was noted.

Among women who experienced spontaneous perineal lacerations during delivery, a significant improvement in dyspareunia was noted after all treatments (p<0.05). The positive effect on dryness was evidenced only after the first treatment (p=0.02). Of interest, dyspareunia, pain at the introitus, and dryness showed a significant improvement comparing their referred intensity before first treatment and after last treatment.

**Table 1.** Evaluation of treatment efficacy in women undergoing Episiotomy

Symptoms	Before first treatment	After first treatment	p-value
Dispareunia	8 (7-10)	6 (4.5-8)	0.01
Introitus	7.5 (5.25-9.25)	6.5 (3.5-7.25)	0.03
Dryness	5.5 (3.5-8.75)	4 (2-7.75)	0.04
Pruritus	5.5 (3-5.5)	1 (0-1)	0.18
Burning	4.5 (1.75-8.75)	1.5 (0.25-8)	0.18
Heat	-	-	n/a
Symptoms	Before second treatment	After second treatment	p-value
Dispareunia	6 (4.5-8)	4 (2.5-5.5)	<0.01
Introitus	6.5 (3.5-7.25)	3 (1.5-5.25)	<0.01
Dryness	4 (2.5-7.75)	2 (0-6.5)	0.04
Pruritus	1 (0-1)	0 (0-0)	0.32
Burning	1.5 (0.25-8)	0 (0-5.25)	0.11
Heat	-	-	n/a
Symptoms	Before third treatment	After third treatment	p-value
Dispareunia	4 (2.5-5.5)	1 (0-3.5)	0.01
Introitus	3 (1.5-5.25)	1 (0-2.5)	0.01
Dryness	2 (0-6.5)	2 (0-4.5)	0.18
Pruritus	0 (0-0)	0 (0-0)	1.00
Burning	0 (0-5.25)	0 (0-0)	0.32
Heat	-	-	n/a
Symptoms	Before first treatment	After last treatment	p-value
Dispareunia	8 (7-10)	1 (0-3.5)	<0.01
Introitus	7.5 (5.25-9.25)	1 (0-2.5)	<0.01
Dryness	5.5 (3.5-8.75)	2 (0-4.5)	0.02
Pruritus	5.5 (3-5.5)	0 (0-0)	0.180
Burning	4.5 (1.75-8.75)	0 (0-0)	0.07
Heat	-	-	n/a

Data is presented as median and interquartile range

**CONCLUSIONS**

CO2 laser can be considered a non-pharmacologic option in the treatment of pelvic floor symptoms in women who experienced perineal lacerations during delivery.