

DOES THE INVOLVEMENT OF PELVIC FLOOR MUSCLES DIFFER IN PRIMARY AND SECONDARY PROVOKED VESTIBULODYNIA?

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Context

- Recognized as the leading cause of vulvodynia, provoked vestibulodynia (PVD) is defined as pain at the entry of the vagina experienced mainly during sexual intercourse.
- Primary PVD (PVD1) affects women from their first sexual intercourse, or tampon insertion, while secondary PVD (PVD2) appears after a period of pain-free sexual intercourse.
- There is growing evidence that these two subgroups are distinct entities presenting different pathophysiological pathways in terms of genetic, inflammation and vulvar sensitivity characteristics [1].
- Despite that pelvic floor muscle (PFM) alterations were found to be involved in PVD, no study has yet evaluated whether the PFM morphometry or function differ between women with PVD1 and PVD2.

Aim of the study

To investigate and compare PFM morphometry and function in women with PVD1 and PVD2.

Results

- There were no significant differences in sociodemographic characteristics between women with PVD1 and PVD2. However, mean duration of symptoms was significantly different between PVD1 (5.9 ± 3.7 years) and PVD2 (3.1 ± 2.8 years) (p<0.001).
- PFM morphometry and function were not statistically different between women with PVD1 and PVD2 (p≥0.144 adjusted for duration of symptoms; p≥0.118 unadjusted t-tests).

Table 1. PFM morphometry in women with PVD1 and PVD2

| Parameters | PVD1° (n=75) (Mean ± SD) | PVD2° (n=137) (Mean ± SD) | p Value |
|---|-----------------------------|------------------------------|---------|
| At rest | | | |
| Bladder neck y (cm) | 2.65 ± 0.39 | 2.70 ± 0.45 | 0.646 |
| Bladder neck x (cm) | -0.34 ± 0.39 | -0.44 ± 0.48 | 0.379 |
| Levator plate angle (°) | 28.24 ± 8.82 | 30.12 ± 10.60 | 0.327 |
| Anorectal angle (°) | 119.41 ± 12.48 | 117.87 ± 11.25 | 0.504 |
| Levator hiatus area (cm ²) | 10.46 ± 2.06 | 10.72 ± 2.33 | 0.811 |
| Changes from baseline during contraction | | | |
| Cranioventral displacement of the bladder neck (cm) | 0.52 ± 0.32 | 0.51 ± 0.31 | 0.673 |
| Levator plate angle excursion (°) | 8.72 ± 7.25 | 9.28 ± 7.55 | 0.597 |
| Anorectal angle excursion (°) | 4.07 ± 13.30 | 2.79 ± 15.72 | 0.498 |
| Levator hiatus area narrowing (%) | 18.41 ± 14.99 | 17.50 ± 13.22 | 0.642 |

P-values are derived from linear regressions adjusted for duration of symptoms.

Table 2. PFM function in women with PVD1 and PVD2

| Conditions | Parameters | PVD1° (n=75) (Mean ± SD) | PVD2° (n=137) (Mean ± SD) | p Value |
|-----------------------------|---|-----------------------------|------------------------------|---------|
| Tone | Passive forces at minimal vaginal aperture (N) | 1.33 ± 0.84 | 1.42 ± 0.84 | 0.239 |
| Strength | Maximal force (N) | 3.15 ± 1.93 | 3.33 ± 2.12 | 0.343 |
| Speed of contraction | Number of contractions achieved in 15s (count) | 7.77 ± 2.78 | 8.49 ± 3.34 | 0.144 |
| Endurance | Normalized area under the force curve (%*s) during a 90-s sustained contraction | 1879.06 ± 895.96 | 1891.48 ± 1283.12 | 0.985 |

P-values are derived from linear regressions adjusted for duration of symptoms.

Materials and methods

Participants

A total of 212 women with PVD (PVD1=75 and PVD2=137) participated in the study after completing a gynecological exam to confirm their diagnosis.

PFM Assessment

PFM morphometry was evaluated at rest and during maximal contraction using 3D/4D transperineal ultrasound following a reliable and validated methodology [2] (Figures 1 and 2).

Fig 1. Sagittal plane

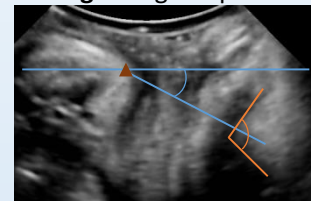
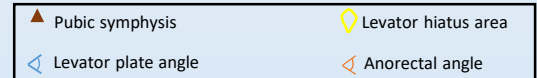
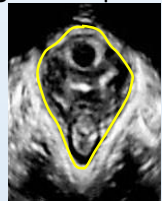


Fig 2. Axial plane



A dynamometric speculum was used to assess the PFM function (tone, strength, speed of contraction, endurance) following a reliable and validated methodology [3].

Statistical analyses

- A priori sample size calculation on all parameters showed that the maximal sample required was 194 women to detect the minimal detectable difference (based on reliability studies).
- Student t-tests were used to compare PFM morphometry and function in women with PVD1 and PVD2 followed by linear regression analyses adjusting for duration of symptoms.

Concluding message

- Our findings revealed non-significant differences in PFM morphometry and function between women with PVD1 and PVD2.
- These results support that the implication of the PFM alterations in PVD is not affected by the onset of the symptoms and thus, similar physiotherapy modalities can be offered to both subgroups.

References

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