Introduction

Human sexual function is complex and influence by many factors. Sexual function has been shown to deteriorate in women with pelvic floor disorders (PFD), including UI, FI, and POP, which affects ~25% of all women. Strong pelvic floor muscles (PFM) are associated with better sexual function. Previous studies (see ref. # 3-4) have shown that women with stronger PFM report higher score in Orgasm and Arousal domains on sexual function questionnaires such as the Pelvic Organ Prolapse/Incontinence Sexual Questionnaire, IUGA revised (PISQ-IR) and the Female Sexual Function Index (FSFI) as used in this study. Physiotherapy (ref. #7 Zahariou 2008) has been shown to improve voluntary contractions of the PFM and this was associated with improved sexual function. PFD impacts sexual function due to possible embarrassment, negative self-perceived body image, fear of UI or FI during sex, and pain.

Aims of the Study

1) Investigate the relationship between PFM parameters and sexual function in women with PFD
2) Assess PFM strength, tone, and US parameters in sexually active (SA) and non-sexually active (NSA) women
3) Find associations with sexual function scores

Study Design/Methods (approved by Local Ethics Committee)

Inclusion criteria: women referred to a university based clinic with complaints of PFD, all gave informed consent

Exclusion criteria: not mentioned

- Not mentioned as an exclusion criteria, but mentioned later (bottom of page 2004) that a few women in each group had previous PFMT (6 in SA and 2 in NSA groups)

Clinical evaluation: all women in the study examined by the same examiner who was blinded to results of the questionnaires

- POP-Q and cough stress test
- Digital palpation of the PFM intravaginally at the LA muscles, IUGA/ICS terminology used
  - PFM tone: normal, overactive, underactive, non functioning
    - Dichotomized into normal and hypactive (underactive, non functioning)
  - PFM strength: Oxford grading of no contraction, flicker, weak, moderate, good, strong
    - Dichotomized into no contraction/flicker, weak, moderate, strong (good, strong)
    - Reliability and intra-tester reliability was confirmed with Kappa values of 0.69 and 0.78 (0.61-0.80 is considered substantial agreement)
- 2D transperineal US (Philips HD7), frequency of 4-8 MHz placed at the vaginal introitus at the level of the external urethral meatus in the mid sagittal plane
  - Patients in supine, hips/knees semi-flexed, slightly abducted
  - “Comfortable” (not further defined) bladder filling
  - See page 2002 for definitions and formulas

- Validated sexual function questionnaires:
- PISQ-IR
  - Part 1: for NSA women
    - Scales include condition specific, partner-related, global quality, condition impact; 12 items
  - Part 2: for SA women
    - Scales include arousal, orgasm, partner-related, condition specific, global quality, condition impact, desire; 21 items
  - Higher scores = better sexual function
  - Means scores were used
  - Single score for SA women was calculated
  - SA and NSA patient characteristics were compared
    - PFM strength and tone, POP-Q stage, US parameters, GH diameter change with PFM contraction

- FSFI
  - Domains include desire, arousal, lubrication, orgasm, satisfaction, pain; 19 items
  - Total score is obtained by adding domain scores (possible scores range from 2-36)
  - Higher score = better sexual function
  - Cut-off score of 26.55 for differentiating those with (scores below 26.55) and without (scores above 26.55) sexual dysfunction (Wiegel 2005)

**Statistical analysis performed using IBM SPSS Statistics 24.0**

**Results**

- Study participants: N = 350 (138 with POP, 82 with UI, 130 with both)
  - 173 (49.4%) were SA, all heterosexual
  - 177 (50.6%) were NSA, older (65.9 vs 56.2), less educated (higher educ. 36 vs 62), more often postmenopausal (165 vs 120), higher POP stage (POP-Q 4 33 vs 13) compared to SA women (Table 1 pg 2004)
    - 87/177 (49.15%) had a partner and 28/87 (32.2%) reported PFD as reason for NSA, 55/87 (63.2%) noted partner issues (disease or bad relationship) (not reported are the 4/87?)
  - See Table 1 page 2004

<table>
<thead>
<tr>
<th>Results</th>
<th>SA women</th>
<th>NSA women</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PFM tone</td>
<td>Lower rates of hypoactive PFM (30.1%)</td>
<td>Higher rates of hypoactive PFM (40.7%)</td>
<td>Multivariate logistic regression showed hypoactive PFM was not a predictor of being NSA</td>
</tr>
<tr>
<td>PFM strength</td>
<td>No signif difference weak vs strong</td>
<td>No signif difference weak vs strong</td>
<td>No signif difference pre vs post meno</td>
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<tr>
<td>GH change from rest to contraction</td>
<td>No signif difference GH at rest and contract did not correlate with PRO’s in SA wm</td>
<td>No signif difference</td>
<td>No signif difference pre vs post meno</td>
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<tr>
<td>GH mean shortening</td>
<td>No signif difference</td>
<td>No signif difference</td>
<td></td>
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<tr>
<td>GH proportional change (Table 5)</td>
<td>82% in weak to normal range</td>
<td>72.3% in weak to normal range</td>
<td></td>
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<tr>
<td>BN-symphysial distance at rest</td>
<td>Longer</td>
<td>Shorter</td>
<td>Multivariate logistic regression showed no significance</td>
</tr>
<tr>
<td>BN-symphysial distance at contract</td>
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</tr>
<tr>
<td>BN elevation</td>
<td></td>
<td></td>
<td>8.6% of women depressed the BN on contraction</td>
</tr>
</tbody>
</table>

- **FSFI** (Table 3 pg 2006 and Table 4 pg 2007)
  - 36.5% of SA wm scored >26.55
  - Wm with hypoactive PFM tone scored lower in desire domain
  - BN total mobility correlated with desire, arousal, orgasm, satisfaction and total score
  - > BN mobility correlated with lower sexual function
- **PISQ-IR** (Table 3 pg 2006, and Table 4 pg 2007)
  - Conditions specific domain- wm with weak PFM scored higher (better sexual function)
  - Global quality domain- wm with hypoactive PFM tone scored lower
  - BN at rest correlated with condition specific and condition impact domains
  - BN at contract correlated with condition specific domain
  - BM total mobility correlated with condition specific, global quality, and summary score
  - > BN mobility correlated with lower sexual function

**Discussion**
- Only 16.3% of women with PFD (both SA and NSA) in this study had good or strong PFM (similar to 19.5% in deFreita 2018, also a cross sectional study)
- 38.7% had proportional change of GH within the normal range (71 in SA and 62 in NSA groups) and only 3.8% in strong range (5 in SA and 8 in NSA groups) (Table 5)
- 30.1% of SA group had hypoactive PFM (underactive, non-functioning)
  - Of these, PISQ-IR global quality and FSFI desire domain indicated lower sexual function
- PFM strength and tone in these women did not show significant differences in sexual function
  - And in PISQ-IR condition specific, weak PFM scored higher than strong PFM (effect size was weak)
  - Better PFM function has previously been assoc with better arousal and orgasm (Lowenstein 2010) but this study did not show the same relationship
  - Many other biopsychosocial factors may be more important for sexual function than PFM function
- POP-Q > 2 did not differ btw groups (91.3% in SA and 88.7% in NSA groups)
- In SA women, FSFI total score of 22.96 was signfi below cut-off of 26.55 (not shown in Table)
- GH at rest and contract did not correlate with PRO’s in SA wm
- > BN mobility did correlate with lower sexual function on both PRO’s

**Study Strengths:** one investigator, blinded to PRO results at PE, intratester reliability tested, use of validated PRO’s plus PE that included subjective (palpation) and objective (US) measures
**Study Weaknesses:** observational study; a large # of wm had POP-Q ≥3 (88 SA, 91 NSA) and the authors felt this affected the data.

**Clinical Application**
- Study suggests it is important to pay attention to the role PFM in sexual function
  - Good sexual health is important to QOL and general well-being

**Questions to consider:**
- Do you regularly discuss sexual function with your patients regardless of menopausal status?
- Do your patients generally want to discuss sexual function? Is there a discrepancy in comfortability regarding this discussion in different age groups?
- Have you seen an improvement in sexual function with PFMT?
- Do you work closely with sex therapists and counselors in a multi-disciplinary fashion?

**Related Articles**

