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Author: Beck, Jacobus Johannes Hendrikus

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Chapter 6:

Sexual abuse and pelvic floor complaints: a case-control study to identify which pelvic floor complaints are related to sexual abuse using the PeLFIs (a validated pelvic floor questionnaire)

Beck JJH*, Nicolai MP*, Berzuk K, Putter H, Pelger RCM, Elzevier HW, Voorham-van der Zalm PJ. *Sexual abuse and pelvic floor complaints: a case-control study to identify which pelvic floor complaints are related to sexual abuse using the PeLFIs (a validated pelvic floor questionnaire)*. Submitted * shared first authorship

Abstract

Introduction: Sexual abuse (SA) is present in about a quarter of female patients presenting with complaints of micturition, defecation and/or sexual function. The pelvic floor plays an important role in the aetiology of these complaints.

Aim: To find out which complaints from the domains of the pelvic floor are correlated with SA.

Methods: A case-control study in which an administered validated questionnaire the Pelvic floor Inventories (PeLFIs) was used to evaluate 55 patients with pelvic floor dysfunction (PFD) and 50 controls in a tertiary referral center in Canada. Complaints of the pelvic floor of patients with and without SA were compared.

Main Outcome Measures: The survey results.

Results: Patients with pelvic floor complaints showed a significantly higher percentage of SA (22%) compared to the control group (2.1%) ($p=0.008$). In the PFD group a history of SA correlated significantly with complaints of constipation ($p<0.01$), sexual dysfunction ($p<0.01$) and urgency/frequency ($p<0.01$).

Conclusion: In a pelvic floor population, constipation and/or sexual dysfunction and/or urgency/frequency are significantly correlated with SA.

Introduction

Meta-analysis show negative effects of (childhood) sexual abuse (SA) on psychological and physical wellbeing. A meta-analysis shows that a history of SA is associated with lifetime diagnosis of multiple disorders, like seizures, gastrointestinal (GI) problems and non-specific chronic pelvic pain¹. Another meta-analysis demonstrates that SA is associated with multiple psychiatric problems, including lifetime diagnosis of anxiety disorders, depression, eating disorders, post-traumatic stress disorder (PTSD), sleep disorders and attempted suicide². Studies have shown the relationship between SA and complaints of micturition, defecation, and/or sexual functioning³⁻⁷. The pelvic floor plays an important role in the prevention of these complaints⁸⁻¹¹. If the pelvic floor is no longer capable of maintaining one of these functions, this is referred as a pelvic floor dysfunction (PFD). According to large population-based surveys, the prevalence rate of SA in western society ranges from 12 to 25% in women and from 8 to 10% in men^{6,12,13}. These estimates of the prevalence of SA in the population differ widely due to the use of varying definitions (e.g. childhood sexual abuse versus lifetime, unwanted versus forced) and methodology (e.g. interview- versus questionnaire-versus informant studies). In our university pelvic floor center, 23% of the women reported a history of SA¹⁴. We also discovered that synchronic complaints in multiple domains of the pelvic floor are correlated with SA¹⁴. The aim of this study is to find out what complaints from the domains of the pelvic floor are correlated with SA. Furthermore we wondered what percentage of a sample of patients with pelvic floor dysfunction has a history of sexual abuse.

Methods

A case-control study was chosen to compare patients with PFD with controls. Participants were consecutively selected for inclusion at an Incontinence and Pelvic Pain Clinic (IPPC). At the IPPC, all women eligible for pelvic floor physiotherapy were considered for the patient group, regardless of the domain in which they experienced symptoms. Before inclusion, patients with pathology other than complaints related to PFD were excluded. Healthy volunteers, without a treatment-wish for the above mentioned pelvic floor-related symptoms and without medication for PFD were considered eligible for inclusion in the control group. These volunteers, visiting the practice for other reasons, were recruited through written advertisement and by word of mouth. The women in the patient group were informed about the study by a pelvic floor physiotherapist and were asked to participate. This study was carried out using the Pelvic Floor Inventories Leiden (PeLFIs) for women, a 149-item questionnaire which has been validated in Dutch and English^{15,16}. It is an administered questionnaire, used to obtain accurate information about the different domains of the pelvic floor. The questions are relating to the domains of: general health, prolapse, lower urinary tract symptoms (LUTS), defecation, obstetric information, pelvic floor pain and sexual function. One question in the sexual function-domain is about SA. During the validation of the PeLFIs in English, it was distributed to 55 women with complaints of prolapse, bladder, bowel dysfunction, sexual function and/or pelvic floor pain and to 49 healthy volunteers in Canada. All participants provided

written informed consent. Approval of this study was obtained by the University of Manitoba, Canada. Data analysis was performed using SPSS release 18 (SPSS Inc., Chicago, IL, USA). Frequencies were used to estimate the prevalence of sexual abuse and to examine the types of abuse. Means of numerical demographic values were compared with the independent T-test. Bivariate associations between the groups and the type of answers were calculated using the Pearson chi-square procedure. We assessed correlation with all types of abuse and the different domains of the pelvic floor, using Pearson's correlations. Two-sided p values <0.05 were considered statistically significant.

Results

A total of 105 women completed the PeLFIs of whom 55 were patients known with complaints due to a PFD and 50 controls. The mean age of patients was 54.3 (SD 15.32) this was perfectly comparable with the control group, which had a mean age of 54.0 (SD 15.33). The body mass index (BMI) did not differ significantly between the case and control group. In the patient group the use of medication was statistically higher than in the control group 80.0% and 63.3% respectively ($p=0.05$), yet there were no significant difference in the use of anti-depressants between the two groups (Table 1). The prevalence of abuse (sexual, physical or mental) in the patient group is 25.5%, which is significantly higher than the 2.0% prevalence in the control group ($p=0.002$). Equally, the patient group showed a significantly higher percentage of SA compared to the control group, 22% versus 2.1% ($p=0.008$). Because it was possible to mark multiple answers, the majority of the abuse victims (64.3%, $n=9$) reported to have experienced more than one type of abuse. Two patients even noted to have experienced all the types of abuse mentioned in the questionnaire. The reported types of abuse are listed in Table 2. Of the patients that reported to have experienced a form of abuse, 53.3% stated to have received help to deal with it. In fact 85.7% of them confirmed to have been able to deal with their experience(s). However, 50% of the patients with an abuse history stated that they would like to receive help to deal with their past. Because we hypothesized that sexual abuse would have more impact on PFD than physical- or mental abuse, we analyzed the correlation with the different domains of the pelvic floor for all the types of abuse separately. The domain constipation correlated significantly with SA in all its forms (mean $r=0.28$, $p<0.01$), there was no correlation between constipation and physical violence or mental cruelty. In the same way, the domain about sexual dysfunction correlated with SA ($r=0.32$, $p<0.01$), and not with physical- or mental abuse (Table 3). Within the domain obstructive micturition (urgency/frequency), the questions 'do you feel urge to urinate when you hear water running?' and 'do you feel the urge to urinate when you are in the shower' correlated significantly with a history of SA ($p=0.008$ and $p=0.005$ respectively).

Table 1: Demographics

n(%)	Patient n=55 (± SD)	Control n=50 (± SD)	Significance 2-tailed
Age (mean)	54.3 (±15.32)	54.0 (±15.33)	0.936
BMI (mean)	26.4 (±4.95)	24.6 (± 2.86)	0.167
Use of medication (not specified)	44 (81.5)	31 (64.6)	0.054
Antidepressants	0	1 (4)	0.213

Table 2: Prevalence different types of abuse

	Patient n=55 n (%)	Control n=50 n (%)
Do you have negative experiences in the past involving abuse or mistreatment?	14 (25.5)	1 (2)
Type of abuse	Patient n= 50 n (%)	Control n=47 n (%)
Incest	6 (12)	0
Rape	5 (10)	0
Sexual intimidation	6 (12)	1 (2,1)
Marital rape	2 (4)	0
Sexual harassment	5 (10)	1 (2,1)
Sexual abuse (total)	11 (22.0)	1 (2,1)
Physical violence	5 (10)	0

Table 3: Correlation of PFD domains and sexual abuse

Domains	Spearman's rho	Significance (two-tailed)
Prolaps	-0.006	0.958
Micturition	0.167	0.118
Urinary incontinence	0.262*	0.013
Obstructive micturition	-0.044	0.682
Defecation	0.070	0.512
Fecal incontinence	0.179	0.093
Constipation	0.194	0.068
Pelvic floor pain	0.054	0.614
Sexual dysfunction	0.312*	0.003

* correlation is statistically significant

Discussion

This study is the first case-control study to evaluate SA and SA-related complaints in a Canadian population with patients referred to a tertiary clinic to be treated for their complaints related to pelvic floor dysfunction. The prevalence of SA in the case group was 22% versus 2% in the control group ($p < 0.05$). In a Dutch outpatient population of female patients referred for academic pelvic floor physiotherapy, the prevalence of SA was 23%¹⁴. So the prevalence in this Canadian PFD group is comparable to another PFD population. In urology practice SA was seen in 13% of the female patients¹⁷. In the gynaecology practice, SA is seen in 15-20% of the patients. In patients with functional gastroenterological complaints these numbers are even higher with 30-56%¹⁸⁻²². Equally important are the sexual dysfunctions, which are associated with SA experience in 21 up to 95% of the patients²³⁻²⁵. Chronic pelvic pain is highly correlated to SA as well (up to 55%)²⁶. We made use of a validated questionnaire (PeLFIs) which has been proven to be a reliable instrument in obtaining information about abuse²⁷. Confounding is a limitation in all case-control studies. As with all case-control studies we measured a retrospective exposure (SA), although the exposure is random in the cases. Use of medications can be a confounder. Several medications can have an influence on symptoms of the bladder, bowel or pain perception. It is possibly that because controls with medication of symptoms of the pelvic floor were excluded, the PFD group significantly used more medications ($p = 0.05$). Age and BMI are comparable, and the controls are acquired in the same population as the cases (patients visiting IPCC for other

reasons). So these are no confounders. Because of the extremely low prevalence of SA in the control group (2%), we assume a selection-bias. It is possible that controls with SA avoid a voluntarily inquiry about complaints related to SA, or were excluded because of the use of pelvic floor symptom related medication. The numbers used in both groups were sufficient to reach statistical power. However, correlations between 0.25 and 0.50 indicate that the strength of the correlation is weak to moderate, even though the existence of the correlation has proven to be statistically significant. The pelvic floor comprises several layers, including the pelvic diaphragm (levator ani and coccygeus muscles) and the urogenital diaphragm. Each diaphragm has its own 3D shape and position with regard to the internal pelvic organs. The urogenital diaphragm consists of a deep layer, the perineal membrane, and a superficial layer, consisting of the bulbospongiosus muscle and the ischiocavernosus muscle. The levator ani muscle is made up of the iliococcygeus, pubococcygeus, and puborectalis muscles. Together with the urethral and anal sphincters, these muscles play an important role in preventing complaints of micturition, defecation, sexual dysfunction, prolapse and/or pelvic floor pain. The development of one of these complaints is referred to PFD^{11,28-32}. When explaining urological symptoms correlated to SA, it has been hypothesized that patients with PFD have voiding difficulties due to a higher tone at rest of the pelvic floor^{11,33,34}. Many of them have episodes of obstructive urinating complaints. As in benign prostatic hyperplasia (BPH), long-lasting bladder outlet obstruction (BOO) can lead to overactive bladder symptoms³⁵. Overactive bladder (OAB, urgency syndrome) is defined as: urinary urgency, usually accompanied by frequency and nocturia, with or without urgency urinary incontinence, in the absence of urinary tract infection (UTI) or other obvious pathology³³. Obstruction-induced changes in the bladder are of two basic types. First, the changes that lead to detrusor instability or decreased compliance are clinically associated with symptoms of frequency and urgency. Second, the changes associated with decreased detrusor contractility are associated with further deterioration in the force of the urinary stream, hesitancy, intermittency, increased residual urine, and (in a minority of cases) detrusor failure³⁶. Pelvic floor physiotherapy can be used to treat pelvic floor related BOO and OAB symptoms³⁷. In this study cases with SA have significantly more complaints of urgency and frequency. When confronted with a patient reporting a SA history, while dealing with PFD and OAB, a purely symptomatic treatment of the complaints may not be sufficient to help the patient. In a randomised trial in anxious, depressed and phobic patients psychotherapy reduced complaints of OAB (urgency, incontinence and nocturia) significantly better than bladder drill or pharmacotherapy³⁸. This suggests that psychopathology itself has an influence on the bladder or pelvic floor or both. This suggestion is proven in sexual-abuse-related gastro-intestinales complaints. Douglas Drossman, an expert in sexual-abuse-related gastro-intestinales complaints, wrote an extended review explaining the influence of SA and post-traumatic stress disorder on GI-related complaints. In summary: although abuse history may be present across all diagnostic categories, more severe abuse seems to occur in patients with functional GI disorders. The pathophysiological

features that explain this association relate to stress-mediated brain-gut dysfunction and can range from altered stress-induced mucosal immune function to impaired ability of the central nervous system to downregulate incoming visceral or somatic afferent signals³⁹. In this context one can assume that in this group of patients pelvic floor physiotherapy will not alter complaints constipation, but successful effect of pelvic floor physiotherapy with biofeedback included in patients with SA and constipation is reported⁴⁰. This in contrast to surgery of the colon, which in patients with a history of SA and slow-transit constipation, seems to be less successful⁴¹. Drossman postulates a biopsychosocial treatment approach to better treat GI related complaints after PTSD and/or SA. The relation between sexual dysfunction after SA is best analysed is the Boston Area Community Health (BACH) Survey. It's a community-based epidemiologic study of urologic and sexual symptoms and risk factors in a racially/ ethnically diverse random sample of women aged 30–79 (n=3,205 women). Although abuse history was not significantly associated with likelihood of sexual activity. In this large sample, SA was significantly and positively associated with sexual dysfunction after adjusting for covariates (including depression). Analyses of the six FSD domains showed that the relationships were strongest for pain and satisfaction⁴². In a sample of 150 women with dyspareunia Leclerc and co-workers found a significant relation with SA and dyspareunia and a relation with SA and sexual dysfunction⁷. These are good explanations why in our PFD sample sexual dysfunction is significantly correlated with SA. In a large meta analysis, SA is correlated to pelvic pain with an odds ratio of 2.75 (95% CI 1.73-4.30)¹. In our results this correlation was not reproduced. The above mentioned confounding or bias can be an explanation for the lack of correlation. With this study we confirm that sexual abuse is an important factor in the development of various complaints related to PFD. We are convinced that inquiring about sexual abuse should be routine in the history taken by health care providers, especially when patients present with complaints related to PFD and before physical examination is performed or treatment starts. When a history of sexual abuse is confirmed, more targeted therapies may have to be used. A combination of pelvic floor physiotherapy and psychological treatment may be necessary in addition to better treat PFD after SA. A randomised clinical trial in patients with PFD and SA comparing pelvic floor physiotherapy alone versus pelvic floor physiotherapy with psychological treatment should be performed to further explore this topic.

Conclusion

Based on our case-control study we conclude that female patients with complaints of pelvic floor dysfunction report significantly more often a history of SA compared to controls. In our sample, SA was significantly correlated with constipation, sexual dysfunction and urgency/frequency.

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