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ORIGINAL RESEARCH

Sexual function and stress urinary incontinence in women submitted to total hysterectomy with bilateral oophorectomy

Função sexual e incontinência urinária por esforço em mulheres submetidas à histerectomia total com ooforectomia bilateral

Función sexual e incontinencia urinaria de esfuerzo en mujeres sometidas a histerectomía total con ooforectomía bilateral

Soany de Jesus Valente Cruz[1], Valéria Costa dos Santos[2], Erica Feio Carneiro Nunes[3], Cibele Nazaré Câmara Rodrigues[4]

ABSTRACT | The objective of this article was to evaluate the sexual function index of women submitted to total hysterectomy with bilateral oophorectomy (THBO), the prevalence of urinary incontinence (SUI) and its association with the performance of this surgical procedure in a reference hospital in Belém, Pará. One hundred sixty-two women with active sexual life were included in two groups: those who have undergone THBO for more than 12 months (n=68), and those who have not (n=94). The Female Sexual Function Index (FSFI) questionnaire was used to evaluate sexual function along with a questionnaire developed by the researchers to collect social, economic and clinical data, including information on the presence of SUI. The significance level was defined as p<0.05. There was a significant difference in the sexual function index between THBO group and the control group, with an FSFI overall score of 23.56 and 28.68, respectively (p=0.0001). Desire, arousal, lubrication (p<0.0001), orgasm (p=0.04), satisfaction (p=0.0006) and pain (p=0.015) domains had lower scores in hysterectomized women. The prevalence of SUI symptoms in THBO group was 35.3%, and a significant association was observed between the presence of SUI and hysterectomy (p=0.02). Women who undergo THBO have a higher risk of sexual dysfunction, and this surgical procedure is associated with the development of SUI.

Keywords | Hysterectomy; Ovariectomy; Urinary Incontinence; Sexuality; Critical Care; Respiration, Artificial; Pulmonary Ventilation.

RESUMO | O objetivo deste artigo é avaliar o índice de função sexual de mulheres submetidas à histerectomia total com ooforectomia bilateral (HT-OB), a prevalência de incontinência urinária por esforço (IUE) e sua associação com a realização desse procedimento cirúrgico em um hospital de referência em Belém (PA). Foram incluídas 162 mulheres, com vida sexual ativa, alocadas em dois grupos: aquelas que realizaram HT-OB em período superior a 12 meses (n=68), e aquelas que não realizaram (n=94). Utilizou-se o questionário female sexual function index (FSFI) para avaliação da função sexual, e um questionário desenvolvido pelos pesquisadores para coletar dados sociais, econômicos e clínicos, incluindo informações quanto à presença de IUE. O valor de significância foi definido como p<0,05. Houve diferença significativa no índice de função sexual entre o grupo HT-OB e o grupo-controle, com escore geral do FSFI de 23,56 e 28,68, respectivamente (p=0,0001). Os domínios desejo, excitação, lubrificação (p<0,0001), orgasmo (p=0,04), satisfação (p=0,0006) e dor (p=0,015) apresentaram escores inferiores em mulheres histerectomizadas. A prevalência de sintomas de IUE no grupo HT-OB foi de 35,3%, sendo observada associação significativa entre a presença desses sintomas e a realização da histerectomia (p=0,02). Mulheres que realizam HT-OB têm maior risco de disfunção sexual, e este procedimento cirúrgico é associado ao desenvolvimento de IUE.

Descritores | Histerectomia; Ovariectomia; Incontinência Urinária; Sexualidade; Cuidados Críticos; Respiração Artificial; Ventilação Pulmonar.

[1]Universidade Federal do Pará (UFPA) – Belém (PA), Brazil. E-mail: soany.cruz@hotmail.com. Orcid: 0000-0003-2625-8133
[2]Universidade Federal do Pará (UFPA) – Belém (PA), Brazil. E-mail: val_cnds@hotmail.com. Orcid: 0000-0002-4397-1734
[3]Universidade Federal do Pará (UFPA) – Belém (PA), Brazil. E-mail: ericarneiro@hotmail.com. Orcid: 0000-0002-1274-4686
[4]Universidade Federal do Pará (UFPA) – Belém (PA), Brazil. E-mail: cibelecamara@hotmail.com. Orcid: 0000-0002-2429-9970

Corresponding address: Soany de Jesus Valente Cruz – Rua Dr. Marcelo, 271, Sacramenta – Belém (PA), Brazil – Zip Code: 66123-310 – E-mail: soany.cruz@hotmail.com –
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RESUMEN | El presente artículo tuvo el objetivo de evaluar el índice de función sexual de mujeres sometidas a histerectomía total con ooforectomía bilateral (HT-OB), la prevalencia de incontinencia urinaria de esfuerzo (IUE) y su asociación con la realización de este procedimiento quirúrgico en un hospital de referencia en Belém (Brasil). Se incluyeron a 162 mujeres con vida sexual activa, que fueron divididas en dos grupos: las que se sometieron a HT-OB durante el período superior a 12 meses (n=68) y las que no lo había hecho (n=94). Se les aplicaron el cuestionario female sexual function index (FSFI), para evaluar la función sexual, y un cuestionario desarrollado por investigadores para recopilar datos sociales, económicos y clínicos, con informaciones en cuanto a la presencia de IUE. El valor de significación fue de p<0,05. Hubo una diferencia significativa en el índice de función sexual entre el grupo HT-OB y el grupo control, con un puntaje general de FSFI de 23,56 y 28,68, respectivamente (p=0,0001). Los dominios deseo, excitación, lubricación (p<0,0001), orgasmo (p=0,04), satisfacción (p=0,0006) y dolor (p=0,015) tuvieron puntajes más bajos en mujeres histerectomizadas. La prevalencia de síntomas de IUE fue del 35,3% en el grupo HT-OB, además se observó una asociación significativa entre la presencia de estos síntomas y la realización de la histerectomía (p=0,02). Las mujeres que se someten a HT-OB tienen un mayor riesgo de disfunción sexual, y este procedimiento quirúrgico está asociado al desarrollo de IUE.
Palabras clave | Histerectomía; Ovariectiomia; Incontinencia Urinaria; Sexualidad; Cuidados Críticos; Respiración Artificial; Ventilación Pulmonar.

INTRODUCTION

Hysterectomy is the second most performed surgery among women of reproductive age, being surpassed only by surgical delivery (cesarean section). It is defined as the removal of the uterus, with the joint removal of the cervix (total hysterectomy) or with its preservation (subtotal hysterectomy)[1,2], and its main indication is for the treatment of benign diseases. In Brazil, about 300 thousand women receive recommendation on having hysterectomy each year. In 2017, there was performance of 122 hysterectomies per 100 thousand women over the age of 20 years, and it is estimated that between 20% and 30% of women will undergo this procedure until the sixth decade of life[3,4].

Bilateral oophorectomy is often performed along with hysterectomy (THBO) as a prophylactic procedure to reduce the risk of developing ovarian and breast cancers[5], leading to surgical menopause, with reduction of serum levels of estrogen and androgen. The role of estrogen includes assisting in the maintenance of urogenital tissue, reducing vulvovaginal atrophy, reducing the rates of vaginal and urinary infections, and assisting in the manufacture of lubrication for the sexual act[6]; therefore, it is important for female sexual function.

Female sexual function is an important indicator of quality of life, and it is influenced by a variety of physical, psychological and social factors[7]. Any change in the psychosomatic process of sexual response can lead to the development of sexual dysfunction (SD)[8,9]. SD is characterized by psychophysiological disorders and changes in the sexual response cycle, including disorders of sexual desire, arousal, orgasm and pain[10,11], and it is related to THBO[12].

In addition, occurrence of dysfunctions in the urinary tract and its relation with hysterectomy and hypoestrogenism has also been studied. Some studies report that hysterectomy is associated with the subtype of stress urinary incontinence (SUI)[13], and others indicate that this surgery can cause remission of SUI[14]. Nevertheless, there are a few studies on the subject in less developed areas of Brazil, including in Belém (PA).

The objective of this article is to evaluate the sexual function index of women submitted to total hysterectomy with bilateral oophorectomy, the prevalence of urinary incontinence and its relation with the performance of this surgical procedure.

METHODOLOGY

This is a quantitative cross-sectional study, and the participants were women attended at the Fundação Santa Casa de Misericórdia do Pará, in Belém, through a convenience sample, from 2015 to 2016. All participants signed an informed consent form.

Inclusion criteria were: heterosexual and literate women of reproductive age, in a stable relationship, with active sex life, and who had undergone or not THBO for more than 12 months. Exclusion criteria were: women with sexual inactivity; women who underwent perineum reconstruction surgery; users of drugs that can lead to SD; carriers of morbidities that interfere with sexual function, and women with sexually dysfunctional partners. The

participants were divided into two groups: THBOG, consisting of women who had undergone THBO, and control group (CG), consisting of women who had not undergone the procedure.

Social, economic and clinical data were collected through a self-administered questionnaire developed by the researchers. To evaluate the sexual function index, the female sexual function index (FSFI)[15] questionnaire was used, a short questionnaire with 19 self-administered, specific and multidimensional questions, which assess sexual desire, arousal, vaginal lubrication, orgasm, satisfaction, and pain. The FSFI was translated and validated for use in the Portuguese language[16]. Currently, a cutoff of ≤26.55 is accepted to indicate risk of SD in women aged between 18 and 74 years[15]. To assess the presence of SUI, the following question was used: "Over the last month, have you leaked urine when coughing, sneezing or making any effort?" in which the participant should mark "yes" or "no".

The participants were approached individually, clarified on the research content and invited to participate. Then, they were taken to a room with complete privacy and tranquility to independently and individually answer the questionnaires, which had been delivered in envelopes. After questionnaire completion, the volunteers put them back in the envelopes, which were sealed and returned to the researchers, who remained in the room for any doubts, but did not interfere in questionnaire completion.

The data obtained were described as mean ± standard deviation or absolute frequency. Database and tables were built using Microsoft Excel 2013. Statistical analysis of the data was performed via SPSS 13.0 software. To verify the variables that affect female sexual function, the analysis of covariance (ANCOVA) was applied, considering the following: age (18-29/30-39/40-49/>50), hormone replacement therapy (yes or no), SUI (yes or no), and THBO (yes or no). Wilcoxon-Mann-Whitney test was used to compare the groups, and Chi-square test was used to verify the possible relation between the performance of THBO and the presence of SUI. The significance value was defined as $p<0.05$.

RESULTS

A total of 162 volunteers participated in this study; 68 (42%) participated in THBOG, with average age of 40.33 (±10.37) years, and CG was composed of 94 (58%) women, with average age of 33.7 (±9.81) years. Table 1 presents the participants' characterization.

Table 1. Sample characterization (n=162)

Variables	THBOG n= 68	CG n= 94	P-value
Age (MN±SD)	42.33±10.37	33.7±9.81	<0.01
Schooling (%)			0.03
Basic Education	22.41	1.8	
High School	50	52.2	
Higher Education	27.57	46.7	
Socioeconomic status (%)			0.042
10 to 20 MW	3.7	8.5	
4 to 10 MW	12.9	31	
2 to 4 MW	27.7	33.8	
Up to 2 MW	55.5	26.7	
Number of children (MN±SD)	2.5±0.7	2.3±0.5	0.93

THBOG: total hysterectomy with bilateral oophorectomy group; CG: Control group; MN: mean; SD: standard deviation; MW: minimum wage.

It was observed that among the variables analyzed (age, THBO, HRT, and SUI), only the performance of THBO significantly influenced female sexual function, reducing the FSFI total score by 5.12 points (p=0.0001). While CG presented score of 28.68, in THBOG the score was 23.56, a value below the FSFI cutoff point.

Furthermore, in the comparison between CG and THBOG, a difference was observed in all six components of the FSFI, where the domains desire, arousal, lubrication (p<0.0001), orgasm (p=0.04), satisfaction (p=0.0006) and pain (p=0.015) showed significantly reduced scores in THBOG (Table 2).

Table 2. Comparison of FSFI domains between the control group (CG) and the total hysterectomy with bilateral oophorectomy group (THBOG)

Domains	CG: n=94	THBOG n=68	P-value
Desire	4.1±1.07	3.02±1.31	<0.0001
Arousal	4.58±0.96	3.67±1.4	<0.0001
Lubrication	5.07±0.93	3.95±1.31	<0.0001
Orgasm	4.73±1.06	4.21±1.48	0.04
Satisfaction	5.16±0.93	4.16±1.73	0.0006
Pain	4.90±1.14	4.30±1.52	0.015
Overall score	28.68±3.94	23.56±7.26	<0.0001

p<0.05 (Mann-Whitney).

In the total sample, 42 (26%) cases presented prevalence of SUI. Twenty-four (57%) out of them belong to THBOG and 18 (43%) to CG. Regarding the total number of participants in THBOG, 35.3%

had symptoms of SUI. In CG, in turn, SUI was found in 19.1% of the women. Thus, a significant association was observed between the performance of hysterectomy and the presence of SUI, $X^2 2=5.3556$, p=0.02.

DISCUSSION

Concern about sexual function is an important cause of anxiety for women who have undergone hysterectomy, and the influence of this procedure on female sexuality is a controversial topic. Studies suggest that hysterectomy does not affect or positively affect female sexuality[17,18], while others claim that the procedure causes decline in sexual function[19,20].

In this study, it was observed that women who have undergone THBO are at a higher risk of developing SD when compared with CG, as they present scores below the FSFI cutoff point, corroborating data present in the literature[21,22]. In fact, a multicenter and prospective study observed a significant increase in the occurrence of SD when comparing pre (30.3%) and post (47.2%) surgical period in pre-menopausal women who have undergone THBO[23]. During the performance of hysterectomy, there may be a reduction in the local nervous and blood supply and anatomical changes in the pelvic organs, which may alter the sexual response[19]. In addition, the reduction in ovarian sex steroids due to oophorectomy is the reason for frequent sexual complaints, such as less desire, lubrication and sexual satisfaction[24].

On the other hand, certain authors argue that hysterectomy can improve sexual function due to the removal of the underlying disease process, relieving symptoms such as bleeding and dyspareunia, particularly in benign conditions[25,26]. In this context, a retrospective study observed that hysterectomy, with or without bilateral oophorectomy for benign causes, can positively affect sexuality, with an increase in the FSFI score[27]. The abovementioned study, however, observed that undergoing bilateral oophorectomy in the pre-menopause can cause dyspareunia, decreased libido and orgasm, as observed in this study. Authors suggest that, in these cases, the deterioration of sexual function may occur in the long term, probably as an effect of aging and removal of the ovaries[19,28].

As for the evaluation of the components of the female sexual response, there was a significant impairment in the scores of all FSFI domains in THBOG in relation to CG. Surgical menopause leads to androgen deficiency, which can reduce sexual desire and arousal[29]. Castelo Branco et al.[29] reinforce the findings of this study and indicate that three out of four women who have undergone bilateral oophorectomy were at risk of developing hypoactive sexual desire disorder. However, Aziz et al.[30] claim that THBO positively affects psychological and sexual well-being in women experiencing menopause. This difference is justified by the population studied, since the negative influence on sexual life may be smaller in patients who have undergone surgery after menopause[23,31]. Besides, hypoestrogenism associated with nerve damage during hysterectomy decrease vaginal lubrication, and reduced lubrication plus the vaginal canal reduction by cervix removal cause pain during intercourse[32,33]. The result is decrease in sexual satisfaction and anorgasmia[22].

Among THBOG women, 35.3% had SUI symptoms, with a significant association between the presence of these symptoms and having undergone THBO. Hypoestrogenism may explain this finding, since estrogen receptors are found in the vagina, bladder, urethra, and pelvic floor muscles. Since these tissues are sensitive to estrogen and are related to urinary continence, it is likely that their deficiency can lead to urinary incontinence[34]. Although some authors[13,35] confirm this association, others report a significant reduction in urinary disorders after hysterectomy due to the disappearance of urogenital pressure problems caused by benign conditions, especially in patients with large uterine sizes[23,36]. Although SUI does not represent a direct risk to life, it is a condition that can have serious medical, social, psychological and economic implications, affecting quality of life and sexuality[37].

Finally, some limitations of this study should be mentioned. There is a significant difference in age, education and socioeconomic level between THBOG and CG participants. Although ANCOVA test shows that there was no significant relation between the sexual function score and age, this may be a bias to be considered. In addition, the sample is small in size for generalized results.

CONCLUSION

Women who have undergone total hysterectomy with bilateral oophorectomy had a score below the FSFI cutoff point and a significantly higher risk of developing sexual dysfunction. There was a 35% prevalence of urinary incontinence in hysterectomized women and a significant association between its presence and hysterectomy.

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