Gynecologic Oncology 140 (2016) 95–100

Contents lists available at ScienceDirect

Gynecologic Oncology

journal homepage: www.elsevier.com/locate/ygyno

Prevalence of sexual dysfunction after risk-reducing salpingo-oophorectomy

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HIGHLIGHTS

- Study of 119 women who have undergone risk-reducing salpingo-oophorectomy (RRSO)
- The prevalence of female sexual dysfunction (FSD) after RRSO was 74%.
- The prevalence of hypoactive sexual desire disorder (HSDD) after RRSO was 73%.
- Significant factors were relationship satisfaction, bodily pain, and vaginal estrogen.
- Serum testosterone and free androgen index are not associated with sexual function.

ARTICLE INFO

Article history:
Received 3 October 2015
Received in revised form 27 October 2015
Accepted 2 November 2015
Available online 3 November 2015

Keywords:
Risk-reducing salpingo-oophorectomy
Prophylactic oophorectomy
Female sexual function
Androgen levels
BRCA1
BRCA2
Lynch syndrome
Ovarian cancer
Female sexual dysfunction
Hypoactive sexual desire disorder
Breast cancer

ABSTRACT

Objectives. To determine the prevalence of sexual dysfunction in women after risk-reducing salpingo-oophorectomy (RRSO) and to assess factors which may influence sexual wellbeing following this procedure.

Methods. This work is a cross-sectional study of women who underwent RRSO at a tertiary gynecologic oncology unit between January 2009 and October 2014. Data collection involved a comprehensive questionnaire including validated measures of sexual function, sexual distress, relationship satisfaction, body image, impact of event, menopause specific quality of life, and general quality of life. Participants were invited to undergo blood testing for serum testosterone and free androgen index (FAI).

Results. 119 of the 206 eligible women participated (58%), with a mean age of 52 years. The prevalence of female sexual dysfunction (FSD) was 74% and the prevalence of hypoactive sexual desire disorder (HSDD) was 73%. Common sexual issues experienced included; lubrication difficulty (44%), reduced sexual satisfaction (41%), dyspareunia (28%) and orgasm difficulty (25%). Relationship satisfaction, the use of topical vaginal estrogen and lower generalized body pain were significantly associated with a decreased likelihood of sexual dysfunction. Serum testosterone, FAI, the use of systemic hormone replacement therapy (HRT), prior history of breast cancer, menopausal status at the time of surgery and hysterectomy did not correlate with sexual dysfunction.

Conclusion. The prevalence of FSD and HSDD after RRSO was 74% and 73% respectively. Relationship satisfaction, low bodily pain and use of topical vaginal estrogen were associated with a lower likelihood of sexual dysfunction. There was no correlation between serum testosterone or FAI, and sexual dysfunction.

1. Introduction

1.1. Background and rationale

The current recommendation for women at high risk of ovarian cancer is to undergo risk-reducing salpingo-oophorectomy (RRSO) at 35–40 years of age, and upon completion of child bearing [1]. RRSO has recently received significant publicity, and with improved access to genetic testing; the number of women electing to undergo this surgery is likely to increase, despite emerging interest in bilateral salpingectomy

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http://dx.doi.org/10.1016/j.ygyno.2015.11.002
0090-8258/

as an alternative prophylactic treatment [2]. Several studies have reported quality of life outcomes in women following RRSO, including assessment of sexual function [3–13]. Their results suggest that many women experience a decline in sexual function after RRSO regardless of the use of hormone replace therapy [7,8,11].

The etiology of the sexual difficulties encountered by women following RRSO is likely to be multifactorial. The psychosexual development of women in families with breast–ovarian cancer syndrome is complex and may differ from the general population, potentially predisposing these individuals to higher rates of sexual dysfunction in later life [14]. However, the adverse effects of RRSO on psychological wellbeing and body image have also been described in women who are not from breast–ovarian cancer syndrome families [4,6]. Relationship satisfaction has been suggested as an important factor influencing sexual wellbeing following RRSO [13,15], but studies to date have not used validated instruments to measure this.

Declining serum androgen levels following RRSO have also been postulated as a causal factor in female sexual desire and hypoactive sexual desire disorder (HSDD). Several randomized-controlled trials have demonstrated that systemic testosterone replacement therapy in surgically menopausal women can improve sexual desire, frequency, satisfaction and orgasm [16,17]. However, results of studies investigating the correlation between circulating androgen levels and female sexual function have been conflicting [18,19].

Despite several studies reporting a high frequency of sexual difficulties after RRSO, no comprehensive, quantitative study has been performed that specifically investigates the rate of sexual dysfunction and associated factors following this surgery. The primary aim of our study was to determine the prevalence of female sexual dysfunction (FSD) and hypoactive sexual desire disorder (HSDD) after RRSO and to assess factors which may influence these.

2. Methods

2.1. Study design

A cross-sectional study of women who had undergone RRSO was conducted with participants completing a questionnaire and undergoing serum testing for androgen levels.

2.2. Setting

The study was undertaken at the Department of Gynecologic Oncology, St John of God Subiaco Hospital, a tertiary private hospital in Perth, Western Australia. This study was reviewed and granted ethics approval by the St John of God Healthcare Human Research Ethics Committee (HREC) and the University of Notre Dame Fremantle HREC. Participants were recruited between February 1st and June 30th 2015. In total 206 women were eligible and were invited to participate by mail and a follow-up telephone call. Those who were unable to be contacted by phone were sent a paper copy of the questionnaire with a reply-paid envelope.

2.3. Participants

Participants were identified from the records of two consultant gynecologic oncologists at St John of God Subiaco Hospital. Women were eligible to participate if they had undergone RRSO between January 1st, 2009 and December 31st, 2014. Exclusion criteria were: a suspected gynecologic malignancy, major psychiatric illness, intellectual impairment or limited English language skills.

2.4. Variables

The primary outcome was sexual function as measured by the Female Sexual Function Index (FSFI), which is a validated 19-Likert item measure of female sexual function [20]. The FSFI total scores can range from 1.6 to 36, with a higher score indicating a higher level of sexual functioning. A cut-off score has been psychometrically evaluated to discriminate between sexually functional and dysfunctional women, with those scoring a total FSFI of 26.55 or less being likely to have female sexual dysfunction (FSD) [21]. The FSFI assesses six domains of female sexual function; arousal, desire, pain, orgasm, lubrication and satisfaction. The combined score of the desire questions in the FSFI can vary from 2 to 10 and has been validated for the diagnosis of HSDD, with those scoring 5 or less having a high likelihood of HSDD and those having a combined score of 6 or more having low likelihood of HSDD [22]. We used these diagnostic cut-offs to determine FSD and HSDD prevalence. See Appendix A for the diagnostic criteria (DSM IV) used to validate these cut-off scores [21,22].

2.5. Data sources

Data was collected via a comprehensive questionnaire which included: operation details, previous hysterectomy, previous mastectomy, past history of cancer, current cancer treatment, previous and current hormone replacement therapy (HRT) use, and the following validated questionnaires: Female Sexual Function Index (FSFI) [20]; Sexual Activity Questionnaire (SAQ) [23]; Female Sexual Distress Scale Revised (FSDS-R) [24]; Relationship Assessment Scale (RAS) [25]; Body Image Self-Consciousness Scale (BICS) [26]; Menopause-specific quality of life questionnaire (MENQOL) [27]; Short Form Health Survey (SF-36) [28]; and Impact of Event Scale (IES) [29]. Please see Appendix B for descriptions of these questionnaires.

Participants were asked to undergo serum testing for testosterone and free androgen index (FAI). Blood tests were performed at St John of God Pathology.

2.6. Bias

A potential source of bias in cross-sectional studies is non-response and attempts to minimize this in our study included telephone and mail prompting. Another source of bias is response bias although our high participation rate (58%) should mitigate this to some extent. Attempts to minimize the risk of information bias included the use of standardized and validated measures. The associations tested in this study may be subject to confounding factors: however, this was minimized by the assessment of multiple factors in a multivariate logistic regression analysis.

2.7. Sample size

As the prevalence of FSD or HSDD among women after RRSO is currently unknown, a prevalence of 50% was assumed. It was calculated that a sample size of 96 women would give an estimate of prevalence which will be within 10 percentage points of the true population prevalence [30].

2.8. Statistical analysis

All statistical analysis was performed using the statistical software program Stata 14.0 (StataCorp. 2015. *Stata Statistical Software: Release 14*. College Station, TX: StataCorp LP). Multivariate logistic regression analysis was used to control for confounders and to test for interactions between groups. The dependent variable in the logistic regression was the diagnosis of FSD using the FSFI cut-off described above. Both FSD and HSDD were used as dependent variables in multivariate logistic models to investigate the effect of androgen levels. Two participants did not complete the FSFI and these data points were treated as missing.