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Sexual functioning after total abdominal hysterectomy or total laparoscopic hysterectomy in climacteric women

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ABSTRACT

Objectives: Hysterectomy is a major surgical procedure in gynecology and the postoperative effects of hysterectomy significantly alter women's quality of life. The aim of this study is to investigate the effects of total abdominal hysterectomy (TAH) or total laparoscopic hysterectomy (TLH) for benign indications on sexual function changes in the climacteric period of women.

Materials and Methods: A prospective study of 188 women with benign uterine conditions in the climacteric period operated with hysterectomy (134 in the TAH group and 54 in the TLH group) between 2018 and 2021 were performed. After hysterectomy, the sexual function changes in women were determined between TAH and TLH groups using the female sexual function index (FSFI).

Results: The demographic characteristics of the patients were similar in both groups. In TLH group, a statistically significant increase was determined in the postoperative FSFI score of patients compared to their preoperative score ($p<0.001$). On the other hand, no significant difference was determined between postoperative and preoperative scores in the TAH group ($p>0.05$).

Conclusion: In the climacteric period, TLH procedure in benign conditions improved the sexual functions of women compared to TAH method according to the FSFI scores.

Keywords: Hysterectomy; total abdominal hysterectomy; total laparoscopic hysterectomy; FSFI; sexual function

INTRODUCTION

Hysterectomy is one of the most commonly performed surgical procedures to treat a number of conditions, particularly for benign indications.[1] Traditionally, hysterectomy has been performed via laparotomy or the vaginal approach to be mostly abdominal hysterectomy until the late 1980's when the first laparoscopic procedures were introduced.[2] Since laparoscopic hysterectomy has some superiorities to total abdominal hysterectomy (TAH), such as earlier return to work and less blood loss, it has been increasingly preferred by surgeons for hysterectomy during the last decade, particularly in developed countries.[3,4] On the other hand, total laparoscopic hysterectomy (TLH) also has some

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shortcomings, including high cost, long learning curve, and need for sophisticated technological tools such as sealing devices.[3,5] Therefore, TAH still is the most-performed type of hysterectomy in worldwide.

All hysterectomy methods have important risks of acute complications such as infection, major bleeding, and injury of adjacent organs. In the long-term, some changes in quality of life, mental health, and sexual functions in patients after hysterectomy have been reported in the literature.[6,7] Because hysterectomy may cause changes in pelvic vascularization and innervation and it is related with vaginal shortening, it has been associated with being a potential factor in female sexual dysfunction etiology. Besides, there are conflicting data in the literature about the effect of hysterectomy on female sexual function. If oophorectomy is performed with hysterectomy in a premenopausal patient, the hormonal effect is the main factor on sexual function. However, it is controversial whether the effects of hysterectomy without oophorectomy on sexual function are positive or negative. Studies are showing that post-operative sexual function changes positively, especially in patients who have undergone hysterectomy for reasons such as chronic pelvic pain and abnormal bleeding.[8-10] Unfortunately, the literature lacks sufficient evidence whether the type of hysterectomy is the reason of this inconsistent outcome.

In this study, we aimed to compare sexual function changes with a questionnaire in women who underwent TAH or TLH for benign indications in the climacteric period.

MATERIALS AND METHODS

Study Design and Study Group

We performed a single-center prospective cohort study performed at Atatürk Training and Research Hospital, İzmir Katip Çelebi University, İzmir, Türkiye. Ethical approval was obtained from Local Ethics Committee of İzmir Katip Çelebi University, İzmir, Türkiye (19.12.2018-IRB#0401). Verbal and written approval for inclusion into the study was obtained from each participant. All protocols were conducted in accordance with the principles of the Declaration of Helsinki. Informed consent was obtained from all individual participants included in the study.

The initial cohort assessed for eligibility comprised in the climacteric women who had undergone total hysterectomy for benign hysterectomy indications at our center, from July 2018 to December 2021 by high volume surgeons.[11] After the first analysis of patient data, 188 patients were finally enrolled, 134 in the TAH group and 54 in the TLH group. The exclusion criteria for TAH and TLH groups were as follows: Concomitant bilateral oophorectomy, additional gynecologic operation with/or after hysterectomy, psychiatric diseases, chronic diseases that could affect sexual function such as hypertension, diabetes, hypothyroidism, and multiple sclerosis, lack of preoperative female sexual function index (FSFI) survey data, and unable to reach the patient by phone.[12,13]

Data Collection

The following data were obtained and recorded from electronic and medical records: Demographic characteristics (height, weight, age, body mass index, and gravida-parity), the mean age of menarche, the mean age of first gestation, the type of delivery and the preoperative FSFI scores.

The patients included in the study were called and invited to our clinic for interview. In the face-to-face interview, we asked the volunteers to answer questions on the FSFI which is considered an appropriate measure of sexual function assessment.[14,15] The answers received were recorded on the case form. Scores were calculated according to the subcategories of the answers given to the FSFI questions, which consisted of six subcategories: Desire, arousal, lubrication, orgasm, satisfaction, and pain.[16] Women with total FSFI score ≤26.5 were considered to have sexual dysfunction.

Statistical Analysis

All analyses were performed using the SPSS 21 program. Pearson chi-square test was used to determine the difference between categorical variables. Conformity of continuous numerical data to normal distribution was evaluated with Shapiro-Wilk test and histogram. In cases where the normal distribution condition was met, the independent samples t-test was used in pairwise comparisons, and the Mann-Whitney U test was used in the comparison of numerical data that did not comply with the normal distribution in paired groups. Data are presented as mean ± standard deviation, and *p*-value below 0.05 was considered statistically significant.

RESULTS

From July 2018 to December 2021, 188 women in the climacteric period having TAH and TLH operation were included in this study. Patients' demographic and baseline characteristics are described in Table 1. Demographic and the baseline characteristics were similar in TAH and TLH groups except the mean gravida number which was significantly higher in TLH group (p=0.046).

In TLH group, the FSFI score in subcategories was improved after surgery and the total score was increased from 20.4±4.3 to 29.6±3.2 (p<0.001). Although all scores in the TAH group (FSFI

subcategories and total score) were improved, the changes were not statistically significant (p>0.05). Although the median of all FSFI scores were similar preoperatively, the median of all FSFI score were statistically higher in the TLH group compared to TAH group (Table 2).

DISCUSSION

In the literature, it is still a controversial issue whether the uterus plays a role in women's sexual activities. It is claimed that uterine contractions have a great effect on libido, which is the perception of orgasm. Some studies supporting this situation have reported sexual dysfunction after TAH. However, there is not enough study in the literature to compare the effects of other types of hysterectomy (vaginal, TLH, etc.) on sexual function in women.[17,18]

Ayoubi et al.[16] compare different hysterectomy types for women sexual dysfunctions and the obtained results indicated that vaginal hysterectomy, TAH and TLH has same effect on sexual health in regard of arousal and intercourse frequency. However, the delay in starting the postoperative sexual intercourse after TAH procedure was found to be longer in women compared to vaginal hysterectomy and TLH procedure. They concluded that these differences might be related with significant poorer self-image in TAH group women.[16] Although we searched sexual health in different methodology, we also think that poorer self-image perception may be one of the reasons of low FSFI scores in TAH group because of worse abdominal scar. Another study reported that body image dissatisfaction was associated with lower sexual function scores after TAH.[19]

Some researchers compared conventional TLH with single-port laparoscopy-assisted vaginal hysterectomy (LAVH), and they reported more patient body image dissatisfaction rates in LAVH group but both groups had similar results for sexual function after operations.[20] In our opinion the body image dissatisfaction is acceptable with TLH, supporting this result.

In another study, FSFI questionnaire was administered to a total of 4.895 pos-hysterectomized women (3.539 women in TLH group and 1.356 women in TAH group). The results demonstrated

Table 1. Demographic and baseline characteristics of participants

	TAH	TLH	p
Age (years)	43.0±3.2	43.7±3.7	0.14
BMI (kg/m²)	25.2±4.5	24.9±3.4	0.70
Gravida	2.6±1.4	3.1±1.6	0.046
Parity	2	2	0.47
Postoperative date (months)	12.7±1.2	12.3±4.0	0.32
Type of delivery			
Cesarean	36 (26.87%)	11 (20.37%)	0.37
Vaginal	85 (63.43%)	30 (55.56%)	0.44
Both vaginal and cesarean	13 (9.70%)	8 (14.81%)	0.33
Nullipara	0	5 (9.26%)	0.32
Mean age of menarche	12.6±1.1	12.4±1.0	0.45
Mean age of first gestation	21.7±5.1	21.6±3.5	0.38

BMI: body mass index; TAH: total abdominal hysterectomy; TLH: total laparoscopic hysterectomy

Table 2. The comparison of changes of preoperative and postoperative FSFI scores in TAH and TLH groups

	TAH			TLH		
	Preoperative FSFI score	**Postoperative FSFI scores**	p	**Preoperative FSFI scores**	**Postoperative FSFI sacores**	p
Desire	2.4±0.8	3.6±1.0	0.43	2.2±0.9	4.3±0.8	<0.001
Arousal	3.9±0.9	4.5±0.9	0.37	4.0±1.0	5.2±0.5	<0.001
Lubrication	3.8±0.7	4.3±1.0	0.32	3.9±0.7	5.2±0.7	<0.001
Orgasm	3.5±0.6	4.1±0.9	0.44	3.4±0.5	4.8±0.7	<0.001
Satisfaction	3.4±0.7	4.2±0.8	0.33	3.8±0.7	5.1±0.6	<0.001
Pain	3.3±0.6	4.1±0.9	0.54	3.1±0.5	5.0±0.7	<0.001
Total	20.1±4.2	24.9±4.6	0.44	20.4±4.3	29.6±3.2	<0.001

TAH: total abdominal hysterectomy; TLH: total laparoscopic hysterectomy; FSFI: female sexual function index

that all FSFI score in subcategories was found to be high and statistically significant scores were obtained in lubrication and satisfaction parameters in the 12th month postoperative follow-up.[21] Our result supported this well-attended study in long-term period.

To investigate the change of sexual function in pos-hysterectomized women, Lermann et al.[22] compared five different hysterectomy methods (TAH, TLH, LAVH, laparoscopic supracervical hysterectomy, and vaginal hysterectomy). They observed no significant differences between hysterectomy types and sexual function according to brief profile of female sexual function assessment tool. In this study we found statistically significantly high FSFI scores for TLH group.[22] The difference in results may be the different questionnaire used in Lermanns' et al.[22] study and the longer follow-up interval.

In a study on women who underwent hysterectomy in the climacteric period, FSFI scores in TLH group were significantly improved compared preoperative values at 6th month according to arizona sexual experiences scale, system checklist-90-revised and Rosenberg self-esteem scale instruments.[23] In this study we confirmed these results at about one-year follow-up.

Ercan et al. [24] compared pos-hysterectomized women (TAH, TLH and vaginal hysterectomy) with non-surgical women to determine sexual function changes after surgery. The results indicated that non-surgical women had significantly better scores than all patients who were underwent hysterectomy by any methods. They concluded that shortened vaginal length was the major determinant of altered sexual function in hysterectomized women.[24] In recent study, Kiremitli et al.[25] reported that TAH caused more vaginal length loss than TLH and post-operative FSFI score were significantly higher in TLH group than TAH group.

CONCLUSION

Sexual dysfunction is an important health problem among women, and it prevents satisfaction from sexual activity. Many physical and/or medical conditions lead to the occurrence of the sexual dysfunction. Hysterectomy is a standard surgical procedure to treat benign gynecological conditions, and its effects on the sexual dysfunction have been reported in many studies. Our results indicated that TLH procedure has provided significantly better improvement of FSFI scores than TAH operation and significantly higher FSFI scores, as well. TLH may be the most appropriate surgical method among hysterectomy procedures to prevent sexual dysfunction in women. Furthermore, this study has some important key features such as being single center study, conducting in homogenous group of patients and relatively large of study populations.

ETHICS

Ethics Committee Approval: Ethical approval was obtained from Local Ethics Committee of İzmir Katip Çelebi University, İzmir, Türkiye (19.12.2018-IRB#0401).

Informed Consent: Informed consent was obtained from all individual participants included in the study. **Peer-review:** Externally peer-reviewed.

Contributions

Surgical and Medical Practices: E.Y.T., S.A.K.; Concept: E.Y.T., S.A.K., D.U.; Design: E.Y.T., D.U.; Data Collection or Processing: C.M.G.; Analysis or Interpretation: E.Y.T., C.M.G.; Literature Search: E.Y.T., S.A.K.; Writing: C.M.G., D.U.

DISCLOSURES

Conflict of Interest: No conflict of interest was declared by the authors.

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