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The Effects of Age, Parity, Menopause and Previous Pelvic Surgery on the Outcomes of Laparoscopic Hysterectomy

Laparoskopik Histerektomi Sonuçları Üzerine Ya , Parite, Menopoz ve Önceki Pelvik Cerrahinin Etkileri

ABSTRACT

Purpose: The aim of our study was to evaluate the effects of age, parity, menopausal status and previous history of pelvic surgery on perioperative and postoperative outcomes of laparoscopic hysterectomy operations (LH).

Methods: Total of 87 patients, who underwent LH between January 2012 and July 2013, were included in this study. A retrospective medical record review was performed.

Results : There was no significant difference between 68 patients below 55 and 19 patients at or above 55 years in terms of major complication rate (p=0.206), need for postoperative blood transfusion (p=0.299), operation time (p=0.991), delta Hb (p=0.161), length of hospital stay (p=0.737) and postoperative fever (p=0.823). The length of hospital stay was negatively correlated with the parity (r=-0.238, p=0.026). Operation time was significantly lower among women who were at menopause (p=0.001). The length of hospital stay was significantly lower among patients with a previous history of pelvic surgery (p=0.016).

Conclusion: The outcomes of LH are affected by previous pelvic surgery, parity and menopausal status.

Key Words: age; laparoscopic hysterectomy; menopause; parity; previous pelvic surgery.

ÖZET

Amaç: Çalışmamızın amacı, laparoskopik histerektomi operasyonlarının (LH) perioperatif ve postoperatif sonuçları üzerine ya , parite, hormonal durum ve pelvik cerrahi öyküsünün etkilerini belirlemektir.

Yöntem: Ocak 2012 ve Temmuz 2013 tarihleri arasında LH uygulanan toplam 87 hastanın retrospektif olarak tıbbi kayıtlar incelenmiştir.

Bulgular: Elli beş yaş altı 68 hasta ve üzeri 19 hasta arasında majör komplikasyon oranı (p = 0.206), postoperatif kan transfüzyonu gereksinimi (p = 0,299), operasyon süresi (p = 0,991), delta Hb (p = 0.161), hastanede kalı süresi (p = 0.737) ve postoperatif ate (p = 0,823) açısından anlamlı bir fark saptanmamıştır. Parite sayısı ile hastanede kalı süresi arasında negatif korelasyon bulunmuştur (r = -0,238, p = 0.026). Operasyon süresi menopozdaki hastalarda anlamlı derecede düşük bulunmuştur (p = 0.001). Hastanede kalı süresi pelvik cerrahi öyküsü olan hastalarda (p = 0.016) anlamlı derecede düşük bulunmuştur.

Sonuç: LH operasyonunun sonuçları hastanın pelvik cerrahi öyküsü, parite sayısı ve menopoz durumundan etkilenmektedir.

Anahtar Kelimeler: geçirilmiş pelvik cerrahi, laparoskopik histerektomi, menopoz, parite, ya .

INTRODUCTION

Laparoscopic hysterectomy (LH) was first performed in 1989 by Harry Reich (1). This method was initially accepted to be a time consuming procedure by many surgeons, has become a popular hysterectomy method in subsequent years (2). The reports in the last decade emphasize increased importance of minimal invasive procedures in hysterectomies performed for benign disease (3). LH offers distinct advantages such as reduced blood loss, lower rate of wound site infection, less number of post operative paralytic ileus and shorter length of hospital stay, all of which make it more attractive approach than abdominal hysterectomy (AH). LH also eliminates cosmetic problems associated with AH (4, 5). Vaginal hysterectomy (VH) has been advocated to be a cost effective and easy-to-perform procedure in multiparous women with moderate uterine prolapse. Despite many advantages of LH, it only accounts for 6-16% of all hysterectomy procedures (6). The main factors that preclude common use of LH include higher complication rate during the learning curve, lack of surgical expertise and longer time of

dedication for gaining this procedure.(7). A survey conducted in Australia reported that many gynaecologists were not satisfied with their rate of LH procedures and had a desire to increase it further (8).

One must take into account certain factors such as body mass index of the patient, uterus size and previous history of pelvic surgery in order to accomplish successful and safe LH (9,10). However, there are limited number of studies in the literature that evaluate life- time exposure to endogenous oestrogen and reproductive factors such as parity or menopausal status, and patient age on the outcomes of LH (11,12).

The aim of our study was to evaluate the effects of age, parity , menopausal status and previous history of pelvic surgery on outcomes of LH.

MATERIALS AND METHODS

Patients, who underwent an operation in the Department of Obstetrics and Gynaecology in Bucak State Hospital and Department of Obstetrics and Gynecology in Düzce University Faculty of Medicine between January 2012 and July 2013, were included in this study. The Institutional local ethics committee approved the retrospective research. The patients underwent LH together with cystoscopy (CYS) with or without adnexectomy. All operations were performed by the same surgeon. All patients provided written informed consent before the operation. Data of the patients were retrieved retrospectively from the records of State and University Hospital. Patients with descensus uteri and confirmed malignancy were excluded from the study. A total of eighty-seven patients were investigated.

In this study, patients were stratified according to age:patients < and 55 years old (11). Permanent cessation of menstrual periods, determined retrospectively after a woman has experienced 12 months of amenorrhea without any other obvious pathological or physiological were considered menopausal. Past medical history was considered remarkable if the patient had undergone caesarean section, pelvic surgery, any other operation for pelvic genital organs or gastrointestinal/urinary tract structures adjacent to the pelvic organs. Parity was determined according to the number of pregnancies that have resulted in birth greater than 20 weeks of gestation or greater than 500 grams birth weight.

Operation time was defined as the time period in minutes between the first skin incision and last suture placement for skin closure. The difference in haemoglobin (Hb) levels measured before and at 6 hours after surgery was termed as delta Hb(gr/dl). Postoperative fever was defined as body temperature above 100.4°F (38°C) degrees in two consecutive measurements taken with 4-hour intervals. Highest value for the temperature was recorded for patients who did not have postoperative fever. Conversion to AH, reoperation due to bleeding or any other reason, urinary tract,bowel and major vessel injuries were considered as major complication. The amount of blood transfusion was recorded in units. The patients were evaluated every 24 hours postoperatively. Time of discharge was recorded as the corresponding time frame after the operation (0-24, 24-48 or 48-72 hours). Mobilized patients with no opioid requirement, normal defecation and those without urinary retention were discharged from the hospital (13).

Statistical Analysis

Mean,standard deviation,proportion and frequency were used in descriptive statistics. Quantitative data were analysed using independent samples T-Test. Fisher's Exact Test was used to compare qualitative data between two groups. Pearson Correlation Test was used for parametric data. SPSS v19.0 package program was used in statistical analyses. P values < 0.05 were considered statistically significant.

Table 1. General characteristics of the patients.

AUB : abnormal uterine bleeding.

CIN : cervical intraepithelial neoplasia.

*Values are given in mean \pm SD.

Total number of patients	n: 87 (100%)	Min.- Max.
*Age (years)	50.11 \pm 7.30	38-79
Age 55 years	19 (21.8%)	
*Parity	2.85 \pm 1.17	0-7
Parity <3	31 (35.6%)	
Parity 3	56 (64.4%)	
History of Surgery	17 (19.5%)	
Menopause	28 (32.2%)	
Major Comp.	4 (4.6%)	
Indications		
Myoma uteri	38 (43.7%)	
AUB	21 (24.1%)	
Pelvic Mass	17 (19.5%)	
Hyperplasia	10 (11.4%)	
CIN	1 (1.1%)	
Transfusion	5 (5.7%)	
*Operation time (min.)	139.02 \pm 34.26	70-250
*Delta Hb (gr/dl)	1.44 \pm 1.40	0.00-8.26
*Hospitalisation (day)	3.18 \pm 1.14	2-9
*Body Temperature(°C)	36.78 \pm 0.43	36.00-38.50

RESULTS

Mean age of the total patients was 50.11 \pm 7.30 years. Of the patients,19 (21.8%) were above 55 years of age. Parity was three or 3 in 64.6% (n=56) of the patients. 17 (19.5%) patients had previously undergone a pelvic surgery and 56 (32.2%) were at menopause. The most common indication was uterine myomas (n=38 [43.7%]). And the second was abnormal uterine bleeding (AUB) (n=21 [24.1%]) for the operation. Major perioperative complication occurred in only 4 patients (4.6%). General characteristics of the patients are presented in Table 1.

There was no significant difference between patients below and 55 years of age in terms of major complication rate (p=0.206), need for postoperative blood transfusion (p=0.299), operation time (p=0.991), delta Hb (p=0.161), length of hospital stay (p=0.737) and postoperative fever (p=0.823).

The length of hospital stay was negatively correlated with the parity. The increased parity is associated with shorter stay after surgery (r=-0.238, p=0.026). Among patients who underwent LH, the length of hospital stay was significantly lower if the parity was 3 (p=0.015). There was no significant difference between patients with a parity <3 and those 3 in terms of major complication rate (p=0.551), need for postoperative blood transfusion (p=0.588),operation time (p=0.347),delta Hb (p=0.425) and postoperative fever (p=0.778) (Table 2).

In our study,the operation time was significantly lower among women who were at menopause (p=0.001). However, there was no significant difference between premenopausal and menopausal women in terms of major complication rate (p=0.551), need for

Table 2. Evaluation of the parity 3 in relation to the perioperative outcomes (* P values < 0.05 were considered statistically significant).

	Parity<3 N (%) / Mean ± SD	Parity 3 N (%) / Mean ± SD	P value
Major Comp.	1(1.1%)	3(3.4%)	0.551
Transfusion	2(2.2%)	3(3.4%)	0.588
Operation time (min.)	134.3±27.71	141.61±37.38	0.347
Delta Hb (gr/dl)	1.60±1.63	1.35±1.26	0.425
Hospitalisation (day)	3.58±1.38	2.96±0.93	0.015
Body Temperature (°C)	36.80±0.48	36.77±0.41	0.778

postoperative blood transfusion (p=0.588),delta Hb (p=0.425),length of hospital stay (p=0.778), and postoperative fever (p=0.778) (Table 3).

The length of hospital stay was significantly lower among patients with a previous history of pelvic surgery as compared to those who did not have a remarkable history for pelvic surgery (p=0.016). Major complication rate, need for postoperative blood transfusion, operation time, delta Hb and postoperative fever did not significantly differ between patients with or without a history of pelvic surgery (p=0.170; p=0.672; p=0.990; p=0.925 and p=0.584, respectively).

DISCUSSION

Improvement in the operation time, perioperative complications and postoperative outcomes of LH is anticipated with increasing experience of the surgeon (11,12). In this study, the operations performed by the same surgeon within a time frame of 18 months. We excluded patients with descensus uteri in order to avoid any interference with the operation time and perioperative outcomes. Major complication rate in our study was identical to that reported in similar studies. Studies evaluating perioperative and postoperative factors in LH usually have focused on surgical experience,past history of pelvic surgery and patient age (11,12). Apart from them, we also evaluated the effects of reproductive factors and menopausal status on the outcomes of LH.

Epithelization is delayed with increasing age and wound healing is compromised. Regardless of age, patients between 18-55 years of age are considered “young” with regards to tissue repair (14). Although Makinen et al.(15) advocated unfavourable effects of advancing age on the outcomes of LH, we did not show any significant difference between patients below and at or above 55 years. Similar results have been reported from a large series of 1679 patients (11). Twijnstra et al. reported that the success of operation in LH was not affected by the increasing age (12).

Lower parity increases endogenous exposure of oestrogens. Oestrogens are involved in the regulation of physiologic processes in the reproductive tract. Vaginal epithelial proliferation and differentiation is mediated by oestrogen receptors (ER) (16). In women of reproductive age, the structure and strength of cardinal ligament and utero-sacral ligament, which stabilizes the uterus are associated with serum oestrogen levels and the number of ERs in the ligaments (17). Dissecting firm and rigid pelvic structures in LH is harder in women with lower parity. Destruction of elasticity by birth may cause laxity of the vaginal membrane. The transvaginal specimen extraction is more difficult in women with lower parity because of the absence of vaginal laxity (18). These may cause difficulties in recovery in patients with lower parity. In our study,length of hospital stay decreased with increasing parity. Besides, patients with a parity 3 had shorter return time

Table 3. Comparison of the perioperative outcomes between menopausal and premenopausal patient groups.

	Premenopausal N (%) / Mean ± SD	Menopause N (%) / Mean ± SD	P value
Major Comp.	2 (2.2%)	2 (2.2%)	0.591
Transfusion	3 (3.4%)	2 (2.2%)	0.665
Operation time (min.)	130.93±29.02	156.07±38.52	0.001
Delta Hb (gr/dl)	1.49±1.58	1.34±0.94	0.645
Hospitalisation (day)	3.05±0.87	3.46±1.55	0.117
BodyTemperature (°C)	36.81±0.43	36.73±0.45	0.412

to their daily activities. Other perioperative and postoperative outcomes do not seem to be affected by mean parity and parity 3. O'Hanlan et al. reported that hospital stay, operation time and complication rates are not affected by parity in patients undergoing LH (19).

Musculoskeletal mass is reduced and muscle quality is impaired at menopause (20). The turnover in connective tissue is normally maintained in the presence of oestrogen (21). Elastin metabolism is a key process in maintaining the tissue strength of utero-sacral ligament. Increased elastolytic protease activity has been shown in utero-sacral ligaments during menopause (22). These factors facilitate readily use of LH together with tissue fusion technology in menopausal women. In our study, operation time was found to be shorter among menopausal women but no significant change was observed in perioperative and postoperative outcomes. Menopausal status is not an important factor to be considered while deciding whether to perform LH, VH or AH (23). There are limited number of studies evaluating the effects of menopausal status on the operation time,major complication rate,need for postoperative transfusion,delta Hb,length of hospital stay and postoperative fever in patients undergoing LH.

In our study, past history of pelvic surgery did not prolong the duration of hospitalization. Furthermore, there was no significant difference between patients with or without past history of pelvic surgery in terms other perioperative and postoperative outcomes. However,there is no clear consensus in the literature regarding the effects of previous pelvic surgery on the outcomes of LH. Yada-Hashimoto et al. indicated that perioperative and postoperative outcomes were not affected even in the patients with a past history of major abdominal surgery (24). On the other hand, a wide spectrum research showed the outcomes reported unfavourable outcomes associated with previous history of pelvic surgery (12). As per our findings, the outcomes of LH are affected by parity and menopausal status. Comprehensive researches are warranted to clearly indicate the effects of reproductive factors and exposure to endogenous oestrogens on the outcomes of LH.

* The authors report no declarations of interest.

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