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CLINICAL ARTICLE

Clinical outcomes after fast-track care in women undergoing laparoscopic hysterectomy

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ABSTRACT

Objective: To evaluate the feasibility and safety of multimodal perioperative care after laparoscopic hysterectomy. *Methods:* A prospective observational study was performed at Clara Campal Comprehensive Cancer Center, Madrid, Spain, between April 1, 2011, and July 30, 2014, and included women who were scheduled to undergo a laparoscopic hysterectomy. Fast-track (multimodal) care included provision of full preoperative verbal and written information, intravenous dexamethasone (8 mg) during surgery, removal of the urinary catheter at the end of surgery, and early mobilization and solid food intake. The main outcome was the length of hospital stay. *Results:* Overall, 88 patients were included. The median hospital stay was 22.7 hours (range 5–72). Same-day discharge was feasible in 24 (27%) patients. A total of 51 (58%) women were discharged after overnight stay, 46 (90%) of whom elected to do so because of personal preference. Finally, 13 (15%) patients were discharged at least 36 hours after surgery. Eleven (13%) women visited the emergency unit after discharge and 3 (3%) were readmitted. *Conclusion:* The perioperative multimodal recovery program is safe and feasible in a selected group of women after an elective laparoscopic hysterectomy.

1. Introduction

Hysterectomy is the most commonly performed gynecologic surgery in high-income countries [1], with the great majority of these procedures being performed by minimally invasive surgery [2]. Despite the well-known advantages of laparoscopy over laparotomy in terms of the reduction of hospitalization time and postoperative complications [2], some gynecologists prefer to delay hospital discharge after laparoscopy to monitor for postoperative bleeding or any undetected organ damage, or because of other postoperative concerns such as nausea, vomiting, and pain.

In recent years, a multimodal rehabilitation program, known as Enhanced Recovery after Surgery [3] or the Fast-track Perioperative Care Program [4], has been developed to decrease convalescence time after surgery. This approach has reduced the incidence of postoperative complications and increased patient satisfaction [3,4]. It combines various steps of patient-centered care for individuals undergoing elective surgery, comprising adequate preoperative information and counseling, optimal postoperative pain control, and aggressive postoperative rehabilitation, including early oral feeding and ambulation.

Several studies have shown the feasibility of secure hospital discharge within the first 24 hours after laparoscopic hysterectomy [5–9], a practice that has been widely adopted in the USA and Scandinavia [10,11]. However, this strategy of care has not been widely implemented in other European countries. Therefore, the present prospective observational study was conducted to evaluate the feasibility and safety of multimodal perioperative care after laparoscopic hysterectomy in Spain.

2. Materials and methods

In a prospective observational study, consecutive patients undergoing laparoscopic hysterectomy with or without salpingo-oophorectomy at Clara Campal Comprehensive Cancer Center, Madrid, Spain, between April 1, 2011, and July 30, 2014, were identified. Patients with at least one family or friend available to provide care after discharge were included in the study. The exclusion criteria were conversion to laparotomy, age older than 70 years, limitations in independent mobility at preoperative assessment, or any kind of mental health disability that could limit autonomy. The Clara Campal Comprehensive Cancer

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Center's review board approved the study and all included patients provided written informed consent before surgery.

All staff involved, including gynecologists, anesthesiologists, and nurses, received specific instructions regarding perioperative management according to the fast-track protocol (Box 1). All patients received care according to this protocol.

All patients were evaluated at 4 and 8 hours postoperatively and were discharged following a physical examination and if they were able to tolerate a regular diet without feeling nauseous and/or vomiting, had good pain control with the prescribed oral medication, and had acceptable clinical parameters. Nevertheless, despite meeting the criteria for same-day hospital discharge, some patients preferred to remain in hospital overnight. Oral pain medication was continued in these patients.

After hospital discharge, follow-up was conducted through telephone interviews on postdischarge days 1, 7, and 30, to record all occurrences of readmission in other hospitals and/or long-term postoperative complications. A clinical examination 15 days after surgery was performed in all cases.

Box 1
Multimodal perioperative care in laparoscopic hysterectomy.

1. Preoperative preparation
   - Full verbal and written information provided to patient on admission regarding what to expect during the perioperative period (including type of anesthesia and postoperative analgesia, and a clear description of the surgical procedures), postoperative mobilization and feeding, and the planned hospitalization time.
   - Drinks and food are allowed until 6 hours before the procedure.
   - No mechanical bowel preparation.

2. Intraoperative
   - Intravenous antibiotic (2 g cefoxitin given intravenously) 30 minutes before surgery.
   - Maintain intraoperative euvolemia.
   - Dexamethasone (8 mg given intravenously) and ondansetron (8 mg given intravenously) 10 minutes before surgery.
   - Nasogastric tube inserted as requested by the anesthesiologist during surgery and removed at the end.
   - Opioids given intravenously at discretion of anesthesiologist, supplemented with dextropropoxyphene.
   - Injection of bupivacaine (2%) at port sites at the end of the surgery.
   - Urinary catheters inserted before surgery and removed at the end, unless signs of damage to the bladder noted.

3. Postoperative
   - Out of bed 2–3 hours after surgery, including one or more walks and sitting in chair.
   - First urination in the bathroom.
   - Patients are encouraged a liquid diet 3 hours after the procedure; if tolerance is satisfactory, a normal, pasta-based diet is indicated.
   - Ondansetron (4 mg) in case of nausea and vomiting.
   - Pain medication: 1000 mg paracetamol and 60 mg dextropropoxyphene given intravenously every 6 hours after surgery; patients with adequate pain control received 500 mg oral paracetamol every 6 hours until discharge.
   - Omeprazole (20 mg) every 12 hours over 14 days.

Table 1
Preoperative characteristics (n = 88).[a]

Preoperative characteristics	Values
Age, y	50.6 (37–68)
Body mass index [b]	26.0 (17.4–54.5)
Previous abdominal surgeries	
1	21 (23)
≥2	10 (11)
Comorbidity	
1	14 (16)
≥2	5 (6)
Surgical indication	
Leiomyoma	32 (36)
Endometrial hyperplasia	23 (26)
Endometrial cancer stage IA, grade 1–2	18 (20)
Cervical dysplasia	9 (10)
Cervical cancer stage IA1	2 (2)
BRCA mutation – Lynch syndrome	4 (4)

[a] Values are given as median (range) or number (percentage).
[b] Calculated as weight in kilograms divided by the square of height in meters.

The main outcome of the study was the length of hospital stay. Secondary outcomes were postoperative complications, postoperative emergency visits, and readmission.

The Kolmogorov-Smirnov test with Lilliefors correction was used to evaluate the normal distribution of the data of the collected variables. Frequencies and proportions were used as summary statistics for categorical variables, and medians and interquartile ranges were used for continuous variables. Statistical analysis was performed using SPSS version 20.0 (IBM, Armonk, NY, USA).

3. Results

A total of 93 consecutive patients underwent laparoscopic hysterectomy during the study period. Four patients were excluded because they were older than 70 years, and one patient was excluded as a result of intraoperative conversion to laparotomy. Thus, 88 patients were finally included in the study (Table 1). A total of 31 (35%) patients had one or more comorbidities, including hypertension (n = 5, 6%), diabetes mellitus (n = 3, 3%), hypothyroidism (n = 3, 3%), and obesity (body mass index [calculated as weight in kilograms divided by the square of height in meters] >30; n = 3, 3%).

The median estimated blood loss was 114 mL and the median operative time was 78 minutes (Table 2). Hysterectomy with adnexectomy was performed in 63 (72%) patients; the specimen was removed vaginally when possible or through a mini-laparotomy in 9 (10%) patients. A laparoscopic morcellator was not used in any case. Intraoperative complications occurred in 2 (2%) patients (Table 2).

Table 2
Intraoperative characteristics (n = 88).[a]

Intraoperative characteristics	Values
ASA score	
I–II	82 (93)
III	6 (7)
Estimated blood loss, mL	114 (50–500)
Surgical time, minutes	78 (45–180)
Uterine size, cm	10.1 (5–25)
Surgical procedure	
Hysterectomy with bilateral salpingectomy	25 (28)
Hysterectomy with adnexectomy	63 (72)
Mini-laparotomy for specimen removal	8 (9)
Intraoperative complications	2 (2)
Bleeding (requiring transfusion of two units of packed red blood cells)	1 (1)
Bladder damage (repaired by laparoscopy)	1 (1)

Abbreviation: ASA, American Society of Anesthesiologists.
[a] Values are given as number (percentage) or median (range).

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