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Outpatient vaginal hysterectomy is safe for patients and reduces institutional cost

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KEYWORDS:
Hysterectomy;
Outpatient;
Safety;
Cost effectiveness

Abstract

OBJECTIVE: To evaluate a management protocol based on scientific evidence in the care of patients undergoing vaginal hysterectomy.

STUDY DESIGN: (Canadian Task Force classification II-2).

SETTING: 110-bed community hospital.

PATIENTS: Women with vaginal hysterectomy between 2000 and 2003.

INTERVENTION: Data were collected on all vaginal hysterectomies performed by a single surgeon over a 4-year period. Demographics, surgical indications, procedural parameters, length of stay, and postoperative complications were evaluated. Hospital costs for all vaginal hysterectomies performed over a 2-year period at the same hospital also were examined. An analysis of the literature was performed to develop a protocol for optimizing patients' surgical experience. All patients were managed using the protocol. These patients were compared with a cohort at the same institution.

MEASUREMENTS AND MAIN RESULTS: Four hundred twelve vaginal hysterectomies were performed by the lead author during the 4-year time period. Three hundred eighty-four patients (93%) were discharged within 12 hours of admission. There were no readmissions for bleeding, pain management, urinary retention, or nausea and vomiting. Four hundred nineteen vaginal hysterectomies were performed by 10 surgeons from 2002 through 2003 at the same institution, including 219 by the lead author. The average direct cost for outpatient vaginal hysterectomy was 21.3% lower than for inpatient vaginal hysterectomy.

CONCLUSION: Incorporating a protocol based on scientific evidence into the management of surgical patients facilitated safe outpatient vaginal hysterectomy in a majority of patients. This optimized management may save up to 25% of the cost for these procedures.

Over 500 000 hysterectomies are performed in the United States annually, resulting in an expenditure of approximately five billion health care dollars (www.cdc.gov/mmwr/pdf/ss/ss5105.pdf). A recent study compared more than 23 000 cases of laparoscopic-assisted vaginal hysterectomy, vaginal hysterectomy, and total abdominal hysterectomy. While laparoscopic-assisted vaginal hysterectomy was found to improve recovery time compared with total abdominal hysterectomy, it was more expensive and required longer procedure times. Vaginal hysterectomy had the lowest cost, the shortest hospital stay, and the lowest patient morbidity. Further reduction in cost can be realized with same-day discharge after vaginal hysterectomy.[1]

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Outpatient vaginal hysterectomy has been reported in small numbers with seemingly good results.[2–5] A protocol of balanced and preemptive analgesia using local anesthesia, nonsteroidal antiinflammatory drugs (NSAIDs), and opioids was developed by the lead author based on a review of published literature from the anesthesia, surgery, and pain management literature. In addition, attention was carefully directed to preventing nausea and vomiting, a significant problem delaying discharge especially among gynecology patients. Again, current literature was analyzed to generate what appeared to be an optimal protocol for eliminating postoperative nausea.

In this study, we evaluated the safety and feasibility of outpatient vaginal hysterectomy in a community setting through the use of a standardized protocol to minimize the need for inpatient hospitalization. We also assessed the hospital costs associated with this approach compared with all other vaginal hysterectomies performed in the same hospital over a 2-year period.

Materials and methods

Data were collected prospectively on all hysterectomies performed by a single surgeon from January 1, 2000, through December 31, 2003. An analysis of these records included all patients within the lead author's practice. Of the 438 hysterectomies performed over this period, 412 (94%) were completed vaginally. Data were collected on 412 consecutive patients and included patient demographics, surgical indication, and procedural parameters including blood loss and operating room time. Additional procedures including salpingo-oophorectomy, anterior and posterior colporrhaphy, enterocele repair, and suburethral slings were performed in 179 patients (43%). Operating time was measured from initial mucosal injection to completion of the hysterectomy portion of the procedure with satisfactory hemostasis. Blood loss was estimated by the anesthesia department to guard against potential surgeon bias. Additional data collected were length of stay, uterine weight, and postoperative morbidity. Postoperative complications were assessed by daily postoperative monitoring for at least 2 days and up to 7 days depending on the patients' condition and by two follow-up visits that occurred at 3 and 6 weeks after the procedure.

Data were analyzed with the Wilcoxon's rank-sum test. All comparisons were two-tailed with a $p \leq .05$ considered significant. Analyses were completed using SAS Statistical Software Version 8.02 (SAS, Inc., Durham, NC).

All patients were treated using an outpatient vaginal hysterectomy protocol designed to decrease the need for inpatient hospitalization. The protocol was developed by the lead author based on a PubMed search of the English-language literature. General surgery, anesthesia, and obstetrics and gynecology sources were assessed. Trials studying management of pain, nausea, complications, and early oral intake were reviewed, and the protocol designed based on the outcomes of this research. The study was approved by the Medical Evaluation and Research Committee of the Franciscan Health System, Tacoma, WA. All procedures were performed at St. Francis Hospital in Federal Way, WA, a 110-bed suburban hospital south of Seattle.

Additional analysis was completed on hospital cost data for all women undergoing vaginal hysterectomy in the same hospital from January 1, 2002 through December 31, 2003. Four hundred nineteen patients underwent vaginal hysterectomy by 10 surgeons, including the lead author (212 procedures) in this 2-year period. The other surgeons did not employ the author's protocol.

The hospital provided direct cost as well as charge data for all hysterectomies performed during the years 2002 and 2003. The costs for the entire perioperative episode of care including preoperative clinic assessment, surgery, anesthesia, recovery, nursing care, pharmacy and supplies, laboratory, and radiology were included. The physicians' fees and outpatient pharmacy costs were not included in this assessment.

The outpatient vaginal hysterectomy protocol is a system of anticipatory management designed to include intensive preoperative teaching, preemptive and balanced pain management, aggressive management of nausea, early ambulation and oral intake, and careful postoperative monitoring (Figure 1).

Adequate preoperative teaching is important for successful same-day discharge[6] and is an essential element to this outpatient protocol. A separate 30-minute appointment for each patient is scheduled with the surgeon to provide focused preoperative teaching and discussion. At an earlier visit, patient information pamphlets on hysterectomy are provided and alternative treatment options discussed. This allows the patient to ask informed questions, have a clear understanding of what the proposed procedure entails, and develop a realistic expectation of the surgical experience. At the preoperative appointment, previous problems with anesthesia or surgery are discussed, and pain medications that have worked well for the patient in the past are identified. Prescriptions for continuous NSAIDs, as well as opioids for breakthrough pain, are provided during the visit to allow the patient to obtain the medications before surgery. Patients are queried regarding prior symptoms of nausea and vomiting as well as history of motion sickness. Transdermal scopolamine has been shown to decrease postoperative nausea and vomiting both in outpatients undergoing laparoscopic procedures and inpatients using patient-controlled analgesia pumps. In patients at high risk, reductions in postoperative nausea and vomiting of approximately 50% can be achieved with this intervention alone.[7,8] Strategies for nausea control are reviewed with the patient, and transdermal scopolamine is prescribed for preoperative use as indicated. For patients with difficulty tolerating opioids due to nausea or itching, hydroxyzine is provided as well. To ensure that the patient harbors no unrealistic expectations, she is fully briefed as to the hospital admission process, the rationale of same-day