Research Article

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A Pilot Randomized Controlled Trial of a Preoperative Patient Education Intervention to Improve Satisfaction and Reduce Resource Utilization in Gynecologic Surgery

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Abstract

During the initial surgical consult patients may feel overwhelmed by the information they are given regarding their diagnosis and surgical plan. We looked to determine if a preoperative patient educational intervention would improve patient satisfaction and optimize use of medical services after discharge.

Methods: We randomized women undergoing major gynecologic surgery by laparoscopy or laparotomy, to standard of care (Control) or a preoperative educational intervention. The pre-operative educational intervention consisted of: 1) a handout with information on inpatient and outpatient recovery and 2) a preoperative phone-call to review the handout and answer questions. At the post-operative visit, patients completed a Patient Satisfaction Questionnaire (PSQ-18), addressing satisfaction, interpersonal manner, communication, time spent with doctors and physician accessibility. The number of phone calls, emergency department visits and unscheduled post-operative clinic visits were quantified during the first 2 weeks after surgery. Descriptive statistics and t-tests were used for analysis.

Results: 62 consecutive patients were randomized: 31 to intervention and 31 to the control group. Within the cohort 35 patients underwent laparoscopy and 21 laparotomy, 6 patients withdrew or cancelled their surgery. Forty postoperative patient satisfaction questionnaires were collected, 20 in the intervention group and 20 in the control group (response rate 71%). Intervention was associated to increased patient satisfaction. In the LSC group, the intervention improved patients' perception of their physicians' interpersonal manners, communication and time spent with the doctor ($p < 0.05$). Only one patient (3.5%) in the intervention group visited the ER post-operatively (laparotomy, wound separation) compared to 5 (17.8%) control patients (4 laparoscopy, 1 laparotomy, $p < 0.05$), all for minor complaints (pain, anxiety, incision).

Conclusions: In our randomized trial this low-cost, feasible pre-operative educational intervention improves patients'

perception of their surgeons' communication skills and decreased post-operative healthcare resource utilization. The effects are most pronounced in women undergoing minimally invasive surgery.

Keywords: Pre-operative patient education, Patient satisfaction, Post-operative resource utilization

Abbreviations: HCAHPS: Hospital Consumer Assessment of Healthcare Providers and Systems; PSQ- 18: Patient Satisfaction Questionnaire Short Form (PSQ-18)

Introduction

Often, a patient's first encounter with the gynecologic oncologist becomes a pre-operative visit. This decision-making visit may cover education about the diagnosis, review various treatment options and ultimately include logistics and details pertaining to surgical planning [1]. Although the plan of care is made with patient's input and consent, the gynecologic oncologist often takes the lead with the goal of creating a surgical plan. Patients may instead anticipate a patient-centered visit where they take the lead with their questions and concerns. The patients may not feel their needs are met if the surgeon diverges from their expectations [2]. Literature shows that patient satisfaction is positively correlated to patient-centered visits over decision-making visits [3].

In an era where the centers for Medicare and Medicaid compensate based on performance, great attention has paid to patient satisfaction. Thirty percent of the hospital assessment is based on patient satisfaction measured by the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) [4]. The HCAPS survey contains questions regarding the patient's perspective on hospital quality of care that includes communication with hospital staff, pain management, cleanliness, quietness and transition of care. Prioritizing drivers of patient satisfaction during the time-limited pre-operative visit requires innovative ways to deliver the information patients need while maintaining both quality of care and meeting patient expectations.

Patient satisfaction is increased when physicians show empathy and satisfy the patients' agenda while simultaneously providing detailed counseling and education regarding their diagnosis and treatment plan [1,3]. Perhaps most importantly, patient education improves medical outcomes and adherence [2]. We conducted a randomized control trial to determine if a pre-operative patient education intervention would improve patient satisfaction, post-operative recovery and utilization of medical services after discharge compared to our current standard of care.

Methods

Patients

We recruited all new patients aged 18 years and older who were seen at a single academic gynecologic oncology practice between June 2015 and April 2016 and were scheduled for major abdominal surgery, performed either laparoscopically or by laparotomy. Both benign and oncologic surgeries were included. This time period was selected due to the fellow's tenure at the institution. Sixty-two consecutive patients were randomized to receive the preoperative patient education intervention or current standard of care preoperative counseling. We excluded patients who were non-English speaking and those who had previous abdominal surgery requiring inpatient recovery within the past 5 years. The primary oncologist was blinded to the randomization.

Intervention

The intervention consisted of providing the patient a written handout on the post-operative recovery process, followed by a phone call by the gynecologic oncology fellow to review the handout by a gynecologic oncology medical provider within a week of surgery. Two separate handouts were created: one for patients undergoing laparoscopy, and one for those undergoing laparotomy. The handouts, organized into sections on in-patient recovery and outpatient recovery, included information on pain control, diet, ambulation and exercise, venous thrombotic embolism prophylaxis, goals for discharge and reasons to call the office after discharge.

Study procedures

IRB approval was obtained from Columbia University Medical Center. The study was conducted at New York Presbyterian Hospital - Columbia University Medical Center, Division of Gynecologic Oncology. All four gynecologic oncologists in the Division agreed to participate in the study. After the patient completed her visit with the provider, eligible patients were approached by a member of the research team and asked to participate in the study. After consenting, 62 patients were randomized, 31 to intervention and 31 to standard of care. The primary gynecologic oncologist remained

blinded to randomization. Two predetermined block randomization schedules were created using a computer random number generator. The first block was used for patients undergoing laparoscopy (n=37) and the second block for those undergoing laparotomy (n=25). Patients randomized to the intervention received the handout before leaving the office and were called within a week of the surgery to go over the handout and clarify doubts. The phone calls were made by the study investigator.

Data collection and analysis

We collected data regarding number and reason for phone calls to the office, emergency room visits and unplanned clinic visits during the first 2 weeks of the postoperative period after discharge from the hospital. All of the patients answered a modified Patient Satisfaction Questionnaire Short Form (PSQ-18) at their scheduled post-operative visit within 3 weeks from surgery. The questionnaire has questions focusing on seven different subscales (general satisfaction, technical quality, interpersonal manner, communication, financial aspects, time spent with doctor, accessibility and convenience). We substituted the subscale on financial aspects with a scare-level subscale. We asked patients whether they were scared of surgery and whether they were scared of the recovery process (Appendix 1). The main outcome was patient satisfaction. The secondary outcomes were the number of phone calls after discharge, non-scheduled post-operative clinic visits and emergency room visits all within 2 weeks of discharge. Statistical analysis was done with descriptive statistics and t-tests.

Results

A total of 62 consecutive patients were randomized, 31 patients to the intervention group and 31 to the control group. Six patients withdrew from the study, 3 from the standard of care group and 3 from the intervention group. Two patients withdrew due to medical complications before scheduled surgery, one patient had surgery at another institution, one patient opted for conservative management instead of surgery, one never scheduled surgery and one did not give a reason to withdraw from the study but did undergo surgery. Of all patients, 35 underwent laparoscopic surgery and 21 underwent a laparotomy. We collected 40 postoperative patient satisfaction surveys at the post-operative visit, 20 in the intervention group and 20 in the standard of care group. The overall survey response rate was 71%; 64% (n=14) in the laparotomy group, and 74% (n=26) in the laparoscopy group. Demographics were well balanced between the

intervention and standard of care groups and between the laparoscopy and laparotomy groups (Table 1).

We found a trend favoring the intervention group in overall patient satisfaction and all components of the satisfaction survey. A subset analysis comparing intervention to standard of care in the laparoscopy group found a statistically significant difference favoring intervention in the following PSQ-18 components: perception of physicians' interpersonal manners ($p=.03$), communication ($p=.01$) and time spent with the doctor ($p=.02$). No difference was found in the laparotomy group (Figure 1).

Figure 1: Detailed Patient Satisfaction Questionnaire short form (PSQ-18) by subscale. Perceived communication, time-spent with the physician and accessibility and convenience were significantly improved with the intervention.

Only one patient (3.5%) in the intervention group visited the emergency room post-operatively for a small wound separation of her laparotomy incision compared to 5 (17.8%) patients in the standard of care group ($p=.09$), all for minor complaints (pain, anxiety, oozing of the incision). Only one patient in the intervention group was seen in clinic for a non-scheduled post-operative visit with a chief complaint of "bruising of the groin" compared

Table 1: Demographics comparing standard of care and intervention groups.

		Standard (n=28)		Intervention (n=28)	
		Laparoscopy (n=16)	Laparotomy (n=12)	Laparoscopy (n=19)	Laparotomy (n=9)
Median age		55.2	54.8	56	54.55
Race	White	11(69)	5(42)	10(56)	3(34)
	African American	2(12)	3(25)	2(11)	2(22)
	Hispanic	0(0)	1(8)	0(0)	2(22)
	Asian	0(0)	1(8)	2(11)	0(0)
	Not reported	3(19)	2(16)	4(22)	2(22)
Insurance	Private	15(94)	9(75)	13(76)	7(78)
	Medicare	0(0)	3(25)	3(18)	2(22)
	Medicaid	1(6)	0(0)	1(6)	0(0)
Marital status	Married	8(50)	4(33)	9(50)	5(56)
	Single	5(31)	3(25)	8(44)	2(22)
	Divorced	0(0)	2(17)	0(0)	0(0)
	Separated	0(0)	0(0)	0(0)	1(11)
	Widow	3(19)	1(8)	1(6)	0(0)
	Not reported	0(0)	1(8)	0(0)	1(11)
BMI		28.1	29.6	32.1	27.5
Primary diagnosis	Cancer	6(38)	4(33)	7(43)	3(34)
	Benign	10(62)	8(66)	9(57)	6(66)
Mean length of stay (days)		0.94	5.08	1.07	4

Table 2: Post-operative use of health care systems. In the non-intervention laparoscopy group there is a trend toward more post-operative ER visits.

	Standard Care		Intervention	
	Laparoscopy	Laparotomy	Laparoscopy	Laparotomy
Office calls during business hours				
Reason for call				
Office calls after business hours	2			
Reason for call	Pain			
Number ER visits after discharge	4	1		1
Reason for visit	Pain, swelling, anxiety, oozing of the incision	Pain		Wound separation
Number unplanned clinic visits			1	
Reason for visit			Bruising of the groins	

to none on the standard of care group. Two patients in the standard of care group called in the first two post-operative weeks complaining of pain compared to none in the intervention group (Table 2).

Discussion

Patient satisfaction and utilization of health care services are important elements of quality of care and reimbursement. Patient education can optimize both patient satisfaction and utilization of health care services. Our low-cost, easily implemented intervention has a positive impact on patient satisfaction and decreases the use of medical resources post-operatively.

The largest impact of our intervention was seen in patients undergoing laparoscopy compared to laparotomy. As patients undergoing laparotomy generally have a longer inpatient post-operative stay, they may not have felt that our additional information significantly changed their recovery given that they had nursing and physician support during their immediate recovery period. The longer hospital stay in patients undergoing laparotomies may have diluted the positive effect of the intervention. However, patients undergoing laparoscopy are commonly discharged home the day of or the day after surgery and may have used the handout as a reference during their recovery. The handout mainly focused on outpatient recovery and helped outline what to expect during recovery. Studies in outpatient orthopedic surgery have associated patient satisfaction with meeting post-operative expectations [5,6]. One of the strengths of our intervention is that it is focused on patient education and helps set reasonable and attainable post-operative goals.

In this study, surgeons were blinded to the intervention and therefore participation in the study likely had minimal impact on their preoperative counseling. If implemented in practice, knowing that patients will get a handout on postoperative recovery may allow for a more patient-centered pre-operative visit rather than focusing on the details of recovery. This could potentially increase patient satisfaction even further since the literature shows a positive association between patient-centered visits and patient satisfaction [3]. During a decision-making visit the surgeon communicates what he thinks is important for the patient to hear, and thus may not have the time to answer the questions the patient may feel are important. Patients frequently give clues as to what they want to focus on and physicians may not have the time to address these issues if they need to cover post-operative care. Regardless of whether they are medically important, skipping the topics that patients feel are important

decreases patient satisfaction [1,7].

Patient satisfaction plays an important role in many aspects of health care including but not limited to reimbursement. Since the early 2000's there has been a push towards pay-per-performance and in 2015 the Medicare Act and CHIP Reauthorization Act was introduced tying quality of care to physician reimbursement [8,9]. Under the Affordable Care Act, the centers for Medicare and Medicaid are compensated based on performance. Thirty percent of the performance evaluation is based on patient satisfaction measured by the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAPS) survey [4]. In our study, we did not measure impact on reimbursement but this low-cost intervention has the potential to increase HCAPS scores and therefore reimbursement.

Another important finding of this intervention is the trend towards decreased use of medical resources during the first two post-operative weeks. Fewer patients visited the emergency room in the intervention group. Furthermore, those who visited the emergency room in the standard of care group had minor complaints that could have likely been managed with a phone call. A study by Brekke on outpatient endocrine surgery where 54% of patients called within the first four post-operative weeks showed that phone calls most commonly pertain to patients' wounds, pain control or gastrointestinal problems [10]. Our handout addressed all of these issues and although we did not find a statistical difference in the number of phone calls, we did find a trend toward decreased emergency room visits for these same reasons. We did not calculate differences in cost of care with our intervention but it is reasonable to believe that this low-cost intervention could also decrease cost of care by avoiding unnecessary emergency room visits.

The findings of this study should be interpreted in light of its strengths and limitations. The biggest strength of our study is its controlled randomization, which ensures that factors that may affect the relationship between the intervention and outcome will be roughly balanced between groups, thus minimizing bias. Furthermore, the attending physicians were blinded to the randomization, therefore their standard of care was not influenced by knowledge of whether the patient would receive the intervention. Another strength is the study's generalizability. Since we included patients undergoing both benign and oncologic procedures, the findings are generalizable to both general gynecology

and gynecologic oncology practices. Furthermore, the intervention is aimed at patient satisfaction and resource utilization regarding recovery in the immediate post-operative period, which is generally similar for benign and oncologic patients. The major limitation to the interpretation of the results is our relatively small sample size. This study was initiated by a graduating gynecologic oncology fellow, and therefore the study was closed to accrual in time to allow for completion of data analysis and manuscript preparation prior to his departure from the institution. Despite the small sample size, our results show interesting trends that justify further research and possibly the implementation of our intervention.

A patient education intervention consisting of a handout on post-operative recovery as well as a pre-operative phone call is a practical, low cost and feasible intervention that may help improve patient satisfaction in minimally invasive surgery, decrease post-operative utilization of health care resources and potentially improve reimbursements and cost of care.

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