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RESEARCH

Learning Needs of Women Who Undergo Robotic Versus Open Gynecologic Surgery

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ABSTRACT

Objectives: To compare the learning needs of women undergoing robotic versus open (laparotomy) gynecologic surgery for benign and cancerous conditions.

Design: Descriptive exploratory study.

Setting: A tertiary care hospital in Orlando, Florida.

Participants: Women undergoing gynecologic surgery ($N = 226$; $n = 71$ laparotomy and $n = 155$ robotic). Q2

Methods: All consenting procedures and data collection occurred in two study visits. Instruments included a demographics questionnaire and the Patient Learning Needs Scale. Bivariable sociodemographic and clinical differences between surgical groups were assessed with Pearson's chi-square test. Multiple linear regression was used to assess differences in total Patient Learning Needs Scale scores and subscores between surgical groups and to evaluate the association of demographic and clinical variables with total Patient Learning Needs Scale scores within surgical groups.

Results: White and non-Hispanic women were more likely to receive robotic surgery. Women who underwent robotic surgery were more likely to ambulate and have their first oral intake on the day of surgery. Women in the robotic surgery group were also significantly more likely to have a hospital length of stay of 1 day or less (90.3% vs. 4.2%, $p < .001$). At discharge, participants in the robotic surgery group had significantly more learning needs overall (179.67 vs. 159.66, $p < .001$) and for the subscales of Medication, Activities of Daily Living, Feelings Related to Condition, Treatment/Complications, Quality of Life, and Skin Care than participants in the laparotomy group. For women in the robotic surgery group, those with a hospital length of stay longer than 1 day had significantly greater learning needs. For women in the laparotomy group, Asian women had greater learning needs than White women.

Conclusion: Participants who underwent robotic gynecologic surgery had greater learning needs than those who underwent laparotomy. Nurses and other health care providers may perceive robotic surgery as a less invasive procedure with fewer adverse effects, shorter length of stay, and faster recovery that requires fewer postoperative care instructions. Q3

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Minimally invasive laparoscopic surgical procedures are accepted as the gold standard in abdominal surgery because of less perioperative and postoperative morbidity compared with open laparotomy procedures (Best et al., 2014). The newer computer-assisted laparoscopic surgery (robotic surgery) provides the surgical advantages of three-dimensional, high-definition vision; improved ergonomics for the operator; articulated instruments with increased range of motion; and elimination of hand tremor (Goetgheluck, Carbonnel, & Ayoubi, 2014). Advantages also have been seen in patient outcomes, including reduced hospital length of stay (LOS), less loss of blood, fewer blood transfusions, and less postoperative pain (Best et al., 2014; Lauterbach, Matanes, & Lowenstein, 2017). These advantages have led to more widespread use of robotic surgery in several specialties, including colorectal surgery, gynecology, otolaryngology, and urology (Weissman & Zinner, 2013).

In gynecology, robotic surgery is used for procedures such as hysterectomy, myomectomy, tubal re-anastomosis, ovarian transposition, and

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There is little information in the nursing literature about the specific learning needs of women who undergo robotic gynecologic surgery.

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pelvic reconstructive surgery (Lim & Kang, 2017; Tse, Sheung Ngan, & Lim, 2017). Additionally, robotic surgery is increasingly used to perform hysterectomies and lymphadenectomies for endometrial cancer staging, radical hysterectomies, trachelectomies for cervical cancer, and even for the staging and debulking of early ovarian cancer (Lauterbach et al., 2017; Minig, Achilarre, Garbi, & Zanagnoto, 2017).

Current literature suggests that women who undergo gynecologic surgery with robotics have benefitted from many of the same advantages as other patients. In addition to the benefits mentioned, women who undergo robotic surgery also experience an overall reduction in complications during the postoperative period, ambulate earlier, and advance to a regular diet more quickly than women who undergo laparotomy (Lim & Kang, 2017; Sert et al., 2016; Tse et al., 2017).

However, missing from the literature is information related to the implications of shorter LOS on discharge education and the specific learning needs of women who undergo robotic surgery (Best et al., 2014). It also is unknown whether learning needs are different for women who undergo traditional laparotomy for gynecologic indications than for those who undergo robotic surgery. Therefore, the aim of our study was to determine and compare the specific learning needs of women who undergo robotic and open gynecologic surgery via laparotomy. Specifically, our research questions were as follow: *What are the learning needs of women who undergo laparotomy versus those who undergo robotic surgery?* and *Are there differences in learning needs within each group based on demographic or clinical characteristics?* Analysis of the data obtained from this study could provide important new insights into the unique challenges and education needs of women who undergo robotic surgery based on reduced hospital LOS.

Methods

Design

This was a descriptive exploratory study to evaluate and compare the learning needs of women who experienced robotic and open gynecologic surgeries for benign or cancerous conditions. The study was reviewed and approved by the institutional review board of Florida Hospital Orlando.

Sample and Setting

The sample consisted of 226 women who underwent laparotomy (L; $n = 71$) or robotic (R; $n = 155$) surgery at Florida Hospital Cancer Institute at Florida Hospital in Orlando, Florida, which is a nonprofit acute care facility. Women receiving care from the Gynecology/Oncology Medical Group (GOMG) at the Florida Hospital Cancer Institute were recruited. This group sees approximately 1,700 women per year for various gynecologic conditions. Inclusion criteria for participation included women ages 18 years or older; scheduled for laparotomy or robotic gynecologic surgical procedures (e.g., hysterectomy, salpingectomy, oophorectomy, lymphadenectomy, myomectomy); able to speak, read, and understand English or Spanish; and able to provide informed consent.

A statistical power analysis was performed to determine the needed sample size. Because the GOMG group performs more robotic surgery, the sample size was accordingly calculated in a 1:2 allocation ratio (laparotomy vs. robotic surgical procedures) as 225 women. The sample size for the laparotomy group was calculated as 75 participants and for the robotic surgery group as 150 participants. Given this sample size estimate, there was 80% power to detect a difference in mean total Patient Learning Needs Scale (PLNS) scores (described later) of 16.4 between the surgery groups.

Study Procedures

All women scheduled to undergo laparotomy or robotic surgery with the GOMG were given information about the study and the recruitment brochure during preoperative visits with the surgeon about a week before surgery. On the day of surgery, the first author (G.K.) and/or fifth author (S.G.) met with interested women who met inclusion criteria to discuss the study and review the informed consent document. A certified translator was used for Spanish-speaking women. Consent and all data collection occurred in two visits. Study Visit 1 occurred before surgery. Interested women signed the consent form and then completed a sociodemographic questionnaire. The average time for Study Visit 1 took approximately 15 to 20 minutes.

Study Visit 2 took place at the gynecologic oncology office during each woman's postdischarge follow-up

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