The Effects of a Take-Home Educational Video on Patient Knowledge Retention, Anxiety, Satisfaction, and Provider Time

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Patient anxiety related to prostate cancer surgery may lead to reduced patient satisfaction. Repeated reinforcement of pre-operative education to reduce anxiety greatly impacts provider time. Improved knowledge retention of what to expect postoperatively may reduce patient anxiety. This quality improvement project demonstrated that a take-home educational video supports patient knowledge retention, reduces patient anxiety, increases patient satisfaction, and saves postoperative provider time.

Key Words: **Prostate cancer, patient education, robotic-assisted laparoscopic prostatectomy (RALP).**

Prostate cancer is a leading cause of death for men. In 2015, it was estimated that 220,800 men would be diagnosed with prostate cancer and that approximately 27,540 of all those previously diagnosed would die from the disease (National Institutes of Health, National Cancer Institute, 2015). Following a diagnosis of prostate cancer, patients typically meet with a specialty urologist who outlines the expected prognosis and available treatment options, and discusses which treatment approach is considered optimal for the status of the individual.

Several management approaches may be discussed, including active surveillance, radiation therapy, hormonal manipulation, or one of several surgical approaches. Surgical removal of the prostate gland by robotic-assisted laparoscopic prostatectomy (RALP) has gained popularity among both surgeons and patients. Surgery via RALP is reported to have successful outcomes when compared to traditional open surgery (Finkelstein et al., 2010). Further, RALP affords the patient smaller incisions, less blood loss, a shorter hospital course, and a faster surgical recovery (Liu, Maxwell, Panousis, & Chung, 2013).

When a patient is considering surgery for prostate cancer, the urologist or the pre-surgical team will provide pre-operative education, which includes an explanation of what to expect in the usual postoperative course, possible side effects, and interventions to reduce the likelihood or shorten the duration of surgical side effects. Patients can optimize their prostate cancer surgical recovery if they follow specific actions of eating a prostate-healthy diet, performing pelvic floor therapy, taking medications appropriately, and monitoring their prostate cancer status with laboratory assessments. The intent of preoperative education is to reduce patient anxiety and improve patient knowledge and satisfaction.

Problem Statement

Despite urology practitioners' best efforts at providing thorough pre-surgical education and using a variety of teaching strategies, patients commonly feel unprepared for the events that occur in the postoperative period. Two dis-

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Research Summary

Problem

Despite providing pre-surgical education related to prostate cancer surgery, it is common for patients to be unprepared postoperatively. Problems include anxiety from lack of knowledge retention of pre-surgical teaching. Undue anxiety can affect patient outcomes; the need to re-educate the patient can significantly increase provider time.

Method and Participants

This quality improvement project employed a pre/posttest design wherein 31 surgical patients with prostate cancer received the usual care plus a video education presentation on a take-home disc. Knowledge and anxiety were measured at specific points in time and compared. Additionally, patient satisfaction with the educational delivery platform and postoperative provider re-education time were measured.

Results

Information acquired regarding specific postoperative expectations and activities was retained. While pre-surgical anxiety was initially low, it did decrease over time. The majority were satisfied with the educational delivery method. Follow-up appointment provider time was significantly reduced.

Conclusion and Implications

Results demonstrated that take-home video education can improve patient knowledge retention and reduce anxiety. Patients were satisfied with the delivery format, and provider time spent on re-educating was reduced.

Level of Evidence – Level VI

(Polit & Beck, 2012)

tinct clinical problems exist. First, patients fail to adequately retain the information provided in the pre-operative educational discussion. Secondly, lack of retention of the pre-operative information leads to patient anxiety related to the surgical course. This chain of events can lead to the need for patient re-education, which significantly impacts provider time.

Purpose and Intended Improvement

The purpose of this evidence-based, quality improvement project was to develop, implement, and evaluate the effects of a video education program, which was provided via a take-home disc, to determine if it resulted in improved patient retention of pre-surgical teaching and reduced patient pre-surgical anxiety. Further, patient satisfaction with video format education and the impact on provider time used for post-surgical patient teaching was considered.

By creating a take-home video disc containing the information provided in the pre-surgical education, it was anticipated that patients would view the information in the comfort of their home, have unlimited access to repeatedly view the information both pre- and post-operatively, discuss the information with significant others, have opportunity to formulate any additional questions or concerns to address with their urology team, and be satisfied with the content delivery method.

Significance

Patients who retain information provided in the pre-surgical educational discussion and adhere to the guidance can greatly enhance their surgical recovery. However, patients who fail to retain information and do not adhere often experience anxiety and may have less favorable outcomes. Patient understanding and knowledge are paramount; however, the urology healthcare team does not have unlimited time to repeatedly provide such teaching. Pre-recorded, repeat teaching may be an effective means to reinforce pre-surgical teaching, reduce patient anxiety, and reduce the time needed for re-education by the healthcare team.

Conceptual Model

The Practical, Robust Implementation and Sustainability Model (PRISM) was used to guide the implementation process and questionnaire development (Feldstein & Glasgow, 2008). The PRISM model was chosen because it provides an avenue for research translation into clinical practice and diffusion of the innovation into measurement, effectiveness, and sustainability of the intervention. The salient features of the PRISM model used to guide the project implementation process were those of *reach* and *effectiveness*. *Reach* is the number of patients with prostate cancer undergoing a RALP procedure who participated in watching the video education. *Effectiveness* was measured by the impact video education had on patient outcomes of knowledge retention, pre-surgical anxiety, satisfaction, and saved provider time.

Literature Review

The amount of pre-surgical information and education to which a patient is exposed have shown to improve the patient's overall anxiety and stress levels. Video instruction and education are beneficial in helping with this fear (Ong, Miller, Appleby, Allegretto, & Gawlinski, 2009). Further, patient satisfaction (Strömberg, Ahlén, Fridlund, & Dahlström, 2002) and saved provider time (Gautschi et al., 2010; Kakinuma, Nagatani, Otake, Mizuno, & Nakata, 2011; Klein-Fedyshin, Burda, Epstein, & Lawrence, 2005) have been shown as benefits of video education. The literature provided evidence supporting video education to reduce anxiety and improve knowledge retention (Danino et al., 2005; Jlala, French, Foxall, Hardman, & Bedforth, 2010;

Pager, 2005; Sørlie, Busund, Sexton, Sexton, & Sørlie, 2007; Stergiopoulou, Birbas, Katostaras, & Mantas, 2007).

Overall, the literature review revealed that video-style education was more effective at promoting knowledge retention than other forms of education, though studies were limited by the use of non-validated instruments, lack of experimental blinding, and convenience sampling (Guyatt et al., 2011). Several studies examined the effect of video style instruction on knowledge retention and found improvement in patient understanding and recall of presented information (Albert, Buchsbaum, & Li, 2007; Armstrong, Idriss, & Kim, 2011; Chan et al., 2008; Chen & Yeh, 2005; Danino et al., 2005; Ong et al., 2009; Stergiopoulou et al., 2007; Wilhelm et al., 2009; Wilson et al., 2010).

Performance Improvement Methods

This quality improvement project used a pre- and double-posttest design. The project was conducted at an acute care hospital in which clinicians have extensive experience working with patients undergoing prostate surgery and a designated outpatient specialty clinic for follow-up visits. This project was given exempt status by the International Review Board (IRB) at the implementation site and the associated university.

The project participants were consenting adult patients, fluent in English, who were scheduled to undergo RALP surgery for prostate cancer during a four-month period beginning in June 2014. A priori determination of sample size for two-tailed, paired *t*-test was carried out using G*Power 3.1.9.2 (Heinrich-Heine-Universität Düsseldorf, 2016), with input parameters of alpha = 0.05, power = 0.80, and anticipation of a medium effect = 0.5. The sample calculation of at least 34 participants was consistent with the expected participant availability at the project site during the time span it was conducted.

Instrumentation

Each participant provided demographic information and assessment information at three separate time intervals. A 13-item pretest that collected information prior to the educational intervention was completed once and used to measure baseline knowledge, anxiety, and satisfaction. The 20-item posttest assessment was completed twice, once within 24 hours of viewing the educational presentation that measured initial knowledge acquisition, and then again at the first postoperative visit to measure knowledge retention. Of these 20 posttest questions, 13 were duplicated from the pretest instrument, one item related to anxiety, and six multiple choice questions were added. These additional questions related to the video education, and specifically, satisfaction with the video, how many times the video was watched, who watched the video, the video effects on pre-surgical anxiety, and the video effects on learning new information. Each questionnaire took approximately 5 to 10 minutes to complete.

Scale items measuring knowledge, anxiety, and satisfaction provided a 5-point Likert-type scale, wherein 1 represented *strongly disagree* and 5 represented *strongly agree*. Multiple choice questions were scored as 1 for *correct* or 0 for *incorrect*. Face validity for the instruments was supported by feedback from an expert panel of four doctoral prepared healthcare experts and two lay persons who evaluated the tool for clarity and relevance of each item.

Knowledge was measured by a constructed set of nine items related to pelvic floor exercises, nutrition, erectile dysfunction medication, and prostate-specific antigen (PSA) post-surgical blood draw frequency. This information was collected in the pretest and then again in the two posttests.

Pre-surgical anxiety was measured utilizing four questions; three questions were from the validated modified Amsterdam Preoperative Anxiety and Information Scale (Berth, Petrowski, & Balck, 2007). This instrument has previously demonstrated good reliability when used to evaluate anxiety levels and the need for information related to anesthesia. Added to the posttest form was one question related to the effect of the video education reducing pre-surgical anxiety.

Five items included in the 20-item posttest specifically related to patient satisfaction with the educational video presentation. Postoperative visit time was measured via a stopwatch at the beginning of the appointment and stopped at the end of appointment.

Procedures

The 15-minute video, *Robotic Prostatectomy: What to Expect,* was created by a certified nurse practitioner and filmed from the perspective of a patient. An overview of the educational video topics, timing, and content is presented in Table 1.

All participants received the usual and customary pre-surgical care of a 60- to 90-minute discussion with the urologic cancer surgeon. Following this meeting, patients were sent home to decide upon their treatment options. Patients who chose to undergo RALP notified the outpatient urology office and requested a surgical date. The surgical scheduler then mentioned the educational video disc they would receive in the mail and discussed the patient's next steps in surgical preparation (e.g., preoperative laboratory tests, watching the video).

At least one week prior to the RALP procedure, each patient was mailed several items, including an introduction letter, the video disc, the preoperative education evaluation pretest and one posttest form, and a self-addressed postage-paid envelope to return the questionnaires.

Participants were instructed to complete the pretest instrument prior to watching the video and then complete the

Table 1.
Overview of Educational Video

Topic	Time in Minutes	Content
Introduction	3.04	• The benefits of having robotic surgery at the project hospital.
Preoperative preparation	1.25	• Preoperative preparation included laboratory testing, electrocardiogram (EKG), medication reconciliation, and medications to avoid prior to surgery. • Bowel preparation and dietary suggestions were included to help prepare for the surgical procedure.
Your surgery	1.20	• View of the robotic room, operating table, and robot docked in position to patient via ports. • Animation of the post-surgical abdomen and the surgical wounds were demonstrated. • External view of the urinary catheter equipment was also included.
Postoperative activities	3.53	• Foods to avoid until return of normal bowel function. • Diet recommendations on the continuation of good prostate health post-prostate surgery.
Nutrition and medication	2.50	• Prescriptions after surgery and prophylactic erectile dysfunction medication. • Post-surgery dietary instructions were reviewed. • A description and demonstration of pelvic floor exercises, including Kegel and ball squeeze exercises.

Table 2.
Characteristics of the Sample (*N* = 31)

Characteristic	*n*	%
Educational level		
High school graduate	4	12.9
College graduate	15	48.4
Post-graduate education	3	9.7
Post-graduate degree	9	29.0
Length of time of diagnosis prior to surgery		
0 to 3 months	23	74.3
3 to 6 months	4	12.9
6 to 12 months	2	6.4
Greater than 12 months	2	6.4

first posttest evaluation within 24 hours of watching the video. This same posttest measure was repeated approximately one week after surgery while the patient was waiting to be seen for their postoperative appointment.

Results

Of the 37 RALP surgery patients screened, 31 were included in the final sample. Three were excluded because English was not their primary language; however, these patients received the instructional video disc. Three did not complete the three questionnaires in their entirety, and these were not included in the analysis. The average age of the cohort was 64.78 years. Additional characteristics of the sample are presented in Table 2.

Knowledge Retention

Patient knowledge improved from the pretest assessment, completed prior to viewing the educational video, to the first posttest of knowledge, completed within 24 hours after the initial viewing the educational video; all patients answered all knowledge items correctly. At the first post-surgical follow-up appointment, all patients completed a second posttest of knowledge. Again, all patients answered all items correctly, scoring 100%, indicating that the knowledge measured at the first posttest was retained through the surgical event and into the early postoperative period.

Anxiety

Very few patients reported pre-surgical anxiety and no statistical significance was found when comparing pretest and posttest scores. However, questions related to worry about surgery and the procedure being on the patient's mind continually were clinically significant as more patients reported less worry and concern about the surgery over time.

Patient Satisfaction With Video Format

Overall, patients reported satisfaction after watching the video instruction. Findings further indicated that 90.3% *agreed* or *strongly agreed* that they were satisfied with receiving video-style format for education; 93.5% *agreed* or *strongly agreed* that the video education helped to reinforce information covered in the pre-surgical appointment. Patients reported that they learned new information from watching the video (90.3% *agreed* or *strongly agreed*). The last question pertained to surgical questions being answered to the patient's satisfac-

tion, 21 of 31 patients *agreed* with the question pre-video; however, 30 of 31 patients post-video reported that their surgical questions were answered to their satisfaction by the video.

Several patients added additional comments on their questionnaires, stating their approval and appreciation related to the video instruction. Twenty-five of the 31 patients (80.6%) reported watching the video three or more times; 62.9% of patients watched the video with a spouse or a partner.

Provider Time Allotted For Patient Teaching

When comparing the standard postoperative follow-up appointment of 30 minutes, the average follow-up appointment for patients in the project was 23.8 minutes (t = -7.05, p = < 0.001, M = 23.77, SD = 4.92), demonstrating a significant reduction in provider time needed.

Practice Changes And Recommendations

The process improvement technique of *plan, do, study, act* (PDSA) (Langley et al., 2009) was beneficial in the evaluation and sustainability of this project. PDSA allows for continuing reevaluation of the project and the encouragement for change as needed. *Plan* involved the distribution of video education, patient questionnaires, and patient participation in watching of the video disc. *Do* is a measurement of the efficacy of the distribution of the video disc and questionnaires. As part of the *study* step, the project progress was analyzed by counting the number of returned and completed questionnaires and evaluating the video disc efficacy on the stated goals. As the video was reanalyzed, a discrepancy of information was found. The surgeon and nurse practitioner verbalized the patient's blood draw frequency of every three to four months, then extending out to every six months after two years postoperatively, whereas the video states a broader frequency of every six months for 10 years.

Though either approach is correct, this may be confusing to patients, so this information is now included in written postoperative material the patients receive. The *act* step was accomplished by evaluating the implementation of the innovation and patient participation frequently in order to allow the organization to readily adapt to changing strategies as needed for project sustainability. Patients were also asked to return the video disc after their postoperative appointment; approximately 90% of the discs have been returned, reducing our duplication cost and environmental waste.

Cost-Effectiveness Analysis

A limitation of video disc education is the cost of professional production. This 15-minute video, including a scripter, professional videographer, editor, and disc fabrication, cost approximately $7,000.00. Arguably, non-monetary benefits far surpassed the financial impact of video production. Further, the impact of saved provider time could financially benefit the outpatient practice by allowing more time to perform billable functions. A final limitation of video disc education is the cost and difficulty of future editing.

Implications and Limitations

Results from the questionnaire allowed practitioners to see where educational deficiencies were, allowing practitioners to further address these issues in subsequent patient appointments. Further, a limitation of the questionnaires is that they were specific to this video format and not transferable. Lastly, the questionnaires, educational tools, and appointment time measures were limited by the creation, implementation, and collection by one provider.

Conclusions

Consistent with the literature, findings of this project demonstrated that video disc education is an efficient and easily implemented intervention to improve patient knowledge retention of pre-surgical information, impacted anxiety related to surgical expectations, positively improved patient satisfaction, and saved provider time. Overall, the response to the video education presentation was extremely positive and demonstrated both statistical and clinical significance. In the future, it is our intention to provide an electronic link to the video, as well as a Spanish-translated version.

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