

Spinal Surgery Patients' Preoperative Education Effects

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Abstract

Preoperative patient education (PE) has been used by many institutions to deal with patient anxiety, pain control, and overall satisfaction. Although the literature suggests PE's effectiveness in joint reconstruction, data are missing in spinal surgery. This research retrospectively analyzed patients having elective spinal surgery who underwent PE (spine pre-care class) from January 2016 to June 2016. Of the 160 patients surveyed, (36.5%) attended the class whereas (63.5%) did not. Results of the participants in the pre-care class, 86% were satisfied with their pain management versus 73% in the control group. There was also a trend for better overall satisfaction in the pre-care class group (88.1% vs 85, multiple regression analysis). Elderly women tend to be less satisfied with pain management and overall treatment. The study concluded that the implementation of PE has had a positive impact on patient satisfaction, especially in terms of pain management.

1.1 Introduction

Patient satisfaction represents a crucial aspect in the evaluation of healthcare services. Patients may choose a different physician depending on their expectations and overall satisfaction with the care provided (Gordon; Dahl & Miaskowski, 2005).

Preoperative anxiety, impaired functional status, and postoperative pain control are important aspects in the management of surgical patients and are related to a successful recovery and patient satisfaction. Postoperative pain management has often been described as suboptimal3 ; it has been reported that in only one-quarter of the 23 million procedures performed in the Arab world annually did the patients receive adequate pain control (WHO, 2013).

Information tools can reinforce the material covered by the surgeon during the consultation and include material not discussed or asked about. The quality of the existing educational tools are difficult to assess due to lack of adequate reporting of the methods used in their development; and due to lack of comprehensive stakeholder engagement in their development, particularly of the end users – surgeons and patients (Zahrai, 2010).

And to understand spine surgery, Lumbar laminectomy and laminotomy are surgeries performed to relieve pressure on the spinal cord and/or spinal nerve roots by removing all or part of the lamina. The lamina is the roof of the spinal canal that forms a protective arch over the spinal cord. A laminotomy is the partial removal of the lamina. A laminectomy is the complete removal of the lamina. Patients can undergo laminectomies at several levels and still remain structurally stable. The spinal cord and nerves are protected by the bridge of bone on each

side, along with overlying muscle and fascia, so the spinal cord is not exposed (Fehlings, Vaccaro, Wilson, Singh, Cadotte, Harrop, & Arnold, 2012).

1.2 Problem statement

Fear of the unknown is expected when patients are admitted for a surgical procedure, and patients may feel vulnerable and have significant perioperative anxiety. Patient education (PE) has been used by many institutions to deal with patient anxiety, pain control, and overall satisfaction. Several authors have found PE to be beneficial, whereas others found little or no significant improvement. In a study of patients undergoing surgery after lumbar disc surgery, less than half of the patients were satisfied with their preoperative PE.

PE may help them to set realistic goals and meet their expectations. This, in turn, may positively influence surgical outcome and overall satisfaction. In the orthopedic field, PE has frequently been used in total joint replacement programs. To our knowledge, there are no comprehensive data on the effectiveness of PE in patients undergoing spinal surgery. The purpose of this study is to report the outcomes of PE in patients having elective spinal surgery. The null hypothesis was that there is no difference in overall satisfaction and satisfaction with pain management between the PE group and the control group. The study also attempted to analyze whether certain variables are correlated with the results.

1.3 Methods

The purpose of the study is to assess the patients' perception of their pain control, regardless of spinal procedure performed. We retrospectively analyzed the data on patients who underwent the pre-care class from January 2016 to June 2016. All patients who were scheduled to undergo spinal operations throughout this time frame were offered the class. Overall, 300 patients were operated on, and 179 (59%) participated in the class; the main reason for nonparticipation was time restraints or lack of coordination between the patients and healthcare providers. A discharge phone survey was developed by the unit staff and administered to patients who underwent spinal surgery from January 2016 to June 2016 to evaluate the effectiveness of the pre-care class. All patients who were discharged home throughout the study period were contacted by phone within one week after their discharge regardless of whether they attended the class. The study surveyed 58 of 179 class participants and 102 of 120 nonparticipants; the remaining patients were either discharged to a rehabilitation facility or could not be located. Dichotomous questions were asked to evaluate patients' satisfaction regarding pain control and overall care received while in the hospital. Those who took the class were also asked whether they believed the class was beneficial in their recovery. Of the 160 patients who participated in the survey, 94 were men and 66 were women. The mean age was 50 years (range, 25–84 years). Demographics are shown in Table 1. Psychiatric evaluations were not performed for these patients. They all underwent elective spinal surgery, with an admitting diagnosis of cervical spondylarthritis (21.3%) and lumbar spondylarthritis (60%) being the most prevalent. Overall, 58 of 160 patients had attended the pre-care educational class that was offered by the hospital, whereas 102 did not attend the class. For statistical analysis, the study used SPSS, version 22. Groups were compared in terms of gender and age distribution by use of a 2 test. On the basis of the answers to the questionnaire, groups were compared to determine whether class attendance made a difference in terms of overall satisfaction and pain

management satisfaction by use of multiple regression analysis. Differences were considered significant at the P= 0.05 level.

Table 1: Demographic characteristics of participants (N= 160)

Characteristics		No. of patients
Age	25-34 years	15
	35-44 years	26
	45-54 years	41
	55-64 years	30
	65-74 years	31
	75-84 years	12
Gender	Male	94
	Female	66

1.4 Results

Patients who attended the pre-care class reported better satisfaction with pain control (86% vs 73%) compared with those who did not attend (Fig. 1). There was no statistically significant difference between those who attended the pre-care class and those who did not in terms of overall satisfaction (88.1% vs 85%) (Fig. 2). As age increased satisfaction with pain control and overall care tended to decrease. Women tended to report less satisfaction with pain control and overall care when compared with their male counterparts, but these results were not statistically significant.

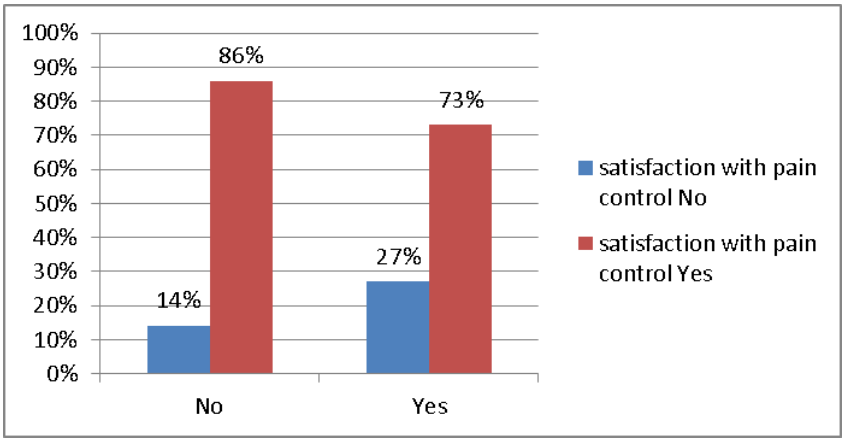

Fig. 1: Satisfaction with pain control

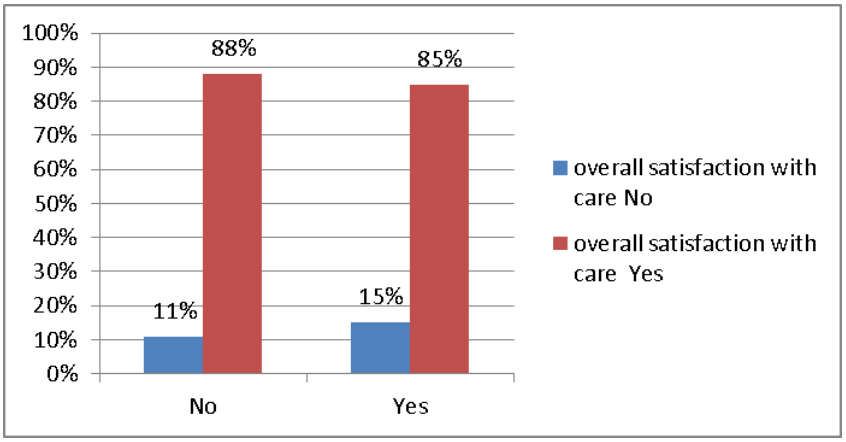

Fig. 2: Overall satisfaction with care

1.5 Discussion

Preoperative PE pertains to various types of educational interventions that occur before surgery to prepare patients for the increasing physical and psychological demands during and after the operation. These provisions include health information, skill training for patients on the use of pain pumps, and provision of psychosocial support to address patients' anxieties, needs, and concerns.

A wide range of different approaches have been described, including group or individualized lectures, printed information such as a booklet or information sheet, audiovisual presentation, or a combination of these modalities. Timing of education also varies (before vs after admission, 1 day vs several days or weeks before the operation). PE has been implemented to help with various aspects of patient management, including length of hospitalization, preoperative anxiety, patient compliance, pain control and analgesic use, overall satisfaction, physical coping, mobility independence, and discharge preparation. PE has been found to be beneficial by most authorities. Previous meta-analyses have reported the effectiveness of PE. For example,

Devine found that patients who received PE spent less time (1.5 days) in the hospital. Hathaway reported that PE reduced fear and anxiety. Vukomanovic´ et al., in a prospective comparative study, concluded that PE accelerated functional recovery after hip arthroplasty and recommended its use routinely. Another randomized controlled trial in the same patient population found that PE decreased preoperative anxiety and pain. Pulido et al. observed that after the implementation of an education program, there was a marked decrease in staff phone calls and improved optimal pain control. In a randomized controlled trial, coping intervention taught in PE reduced pain levels after scoliosis correction in adolescents.

Sjöling et al. conducted a comparative study in patients undergoing knee arthroplasty and concluded that postoperative pain declined more rapidly for patients in the PE group, anxiety was lower, and patients were more satisfied with pain management. Various other studies support the usefulness of PE.

On the other hand, there have been a few reports of little or no improvement with PE. Pain control is an essential aspect in the management of orthopedic patients, who in general have high levels of postoperative pain. Pain is being regarded as the fifth vital sign4 but is frequently addressed improperly. This may cause increased morbidity and mortality rates and diminish patients' ability to ambulate or participate in physical therapy. Many

options exist: nonsteroidal anti-inflammatory drugs, opioids, and anticonvulsants, given orally, intramuscularly, intrathecally, or in the epidural space. Frequently, patient-controlled analgesia (PCA) is used.

Educating patients about PCA before surgery (eg, through practice on a dummy) and explaining to them the relationship between pain and taking pain medication and what pain relief should be expected are highly recommended. Patients should be involved in the decision making regarding pain control, tailored to their individual needs, desires, and circumstances; this shared decision making with their healthcare providers leads to improved health outcomes. Specific and realistic goals should be set preoperatively.

Patients' expectations preoperatively frequently influence outcome and overall satisfaction. Besides the importance of PE in improved optimal pain control, other beneficial aspects include reduction of anxiety by familiarizing the unknown, compliance in execution of activities, discharge preparation, realistic expectations, and overall satisfaction. In this study PE was positively correlated with patient satisfaction, especially with regard to pain management. We believe that this intervention strengthens the bond and creates a better relationship between the patient and the healthcare providers. By participating in the treatment algorithm, patients are satisfied with the tailored therapy and are educated to set reasonable expectations.

We found that PE tended to be more beneficial in elderly women, although this did not reach statistical significance. This may reflect the fact that older patients frequently require repeated instructions on how to use resources (eg, PCA pumps26) and their frail health status may attenuate their anxiety and fear of adverse outcome. To our knowledge, the only relative study reports bene- ficial results from coping instructions (specific coping intervention) in adolescents undergoing scoliosis correction.

Here, we present a more comprehensive approach in a wide spectrum of elective spinal operations. We think that because of the complexity of the operations and the anatomic structures, along with the potential for catastrophic complications, PE should play a vital role in spinal surgery compared with other fields (eg, joint reconstruction). Information provided is frequently insufficient to address patients' questions and meet their expectations. It should not be acceptable to lead patients into complex surgery without full awareness of the procedure, postoperative course, and potential problems or complications without ways to cope or avoid adverse outcomes.

Every effort should be made for a systematic, thorough, multidisciplinary preoperative preparation and education process. In line with other authors, we found that a combination of verbal instruction and provision of written pamphlets is beneficial. There are certain limitations of our study because it is a retrospective series. The number of subjects was also limited, and because of a high satisfaction level (80%), the study may have been underpowered to detect discrepancies in overall satisfaction between treatment groups. The dichotomous nature of the questions being asked in our survey may also have underestimated more subtle differences. Pain ratings (on a visual analog scale [VAS]) were not compared. This was chosen for varying reasons. First, there is an inherent bias of interpreting the success of an operation with evaluation of subjective measures such as the VAS score: patients may refer to maximum pain, average pain, current pain, pain with or without medications, or positional pain; the examiner and/or the patient may be unable to document those discrepancies. Second, a mere statistical difference in VAS score may not represent a meaningful clinically significant difference. Third, as shown by previous studies, satisfaction with provided health care may not reflect improvement in pain levels.

Satisfaction from pain management is a multifactorial issue and is being influenced by accessibility, continuity and convenience of hospital care, perceived technical quality of the center, participation in decision making, warmth of personnel, patients' perception of a clinician's desire to provide pain relief, and so on.

1.6 Conclusion

The implementation of our spine pre-care program has had a positive impact on patient satisfaction, especially in terms of pain management. PE represents a viable, efficient, and inexpensive intervention in patients undergoing spinal surgery.

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