

Can Educational Intervention Have Effectiveness on Pain Management Among Patients Undergoing Foot Surgery? A Randomized Controlled Trial

Hammad Zafar, DPM, AACFAS; Ian Newport, DPM; Thomas Poore, DPM; Dung Bui, DPM, FACFAS Chi-Mei Liu, Ph.D.

Kaiser Permanente Department of Podiatry and Orthopedics, Kaiser Permanente, Santa Clara Medical Center, California, U.S.A.



Introduction

Postoperative pain is an anticipated after surgery but can be challenging to manage especially after elective foot and ankle surgery. Pain is the most intense among orthopedic patients compared to other types of operations¹. Among different approaches, patient education is the most direct way to manage postoperative pain; education provides opportunity of engagement from both patients and healthcare professionals. Previous studies have demonstrated that patient education can have a positive outcome on post-operative pain management^{2,3,4}. Very Few studies have been published concerning outpatient surgical procedure; no such study (to our knowledge) has been performed for elective outpatient foot surgery. This study aims to explore whether conducting a pilot postoperative pain education for patients immediately following foot surgery could improve their knowledge, satisfaction, and decrease pain medication use.

Methods

This is a single-blinded randomized controlled study with post-test design with total 56 eligible subjects. The Intervention group (n=28) received a specific education following foot surgery, while control group (n=28) received standard postoperative information. The intervention consists of an easy to understand handout and one 15-min face-to-face counseling sessions given by the nursing staff following foot surgery. The short-form McGill Pain Questionnaire and modified American Pain Society Patient Outcome Questionnaire were used to assess subjects' perspective of physical pain and satisfaction toward treatment, decision making, and surgery experience individually^{5,6,7}. Data was collected during the first post-operative visit around two weeks after surgical intervention. Descriptive statistics and Chi-square test were used to present data. All statistical analyses were performed with Stata 14.0.

Figure 1. Conceptual Framework

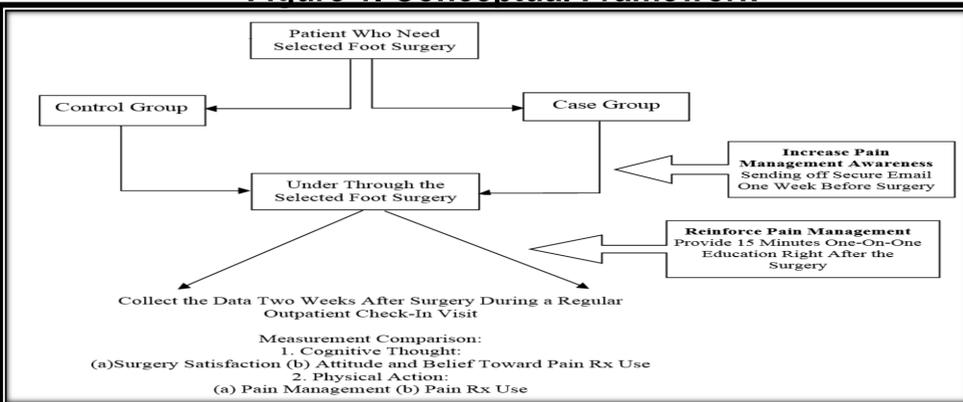


Table 1. Patient Related Characteristics

| | Case (N=28, 50%) | Control (N=28, 50%) | Total (N=56, 100%) |
|--------------------------|------------------|---------------------|--------------------|
| Gender | | | |
| Female | 21 (75.00) | 18 (64.29) | 39 (69.64) |
| Male | 7 (25.00) | 10 (35.71) | 17 (30.36) |
| Age | | | |
| Less than 35 | 4 (14.29) | 5 (17.86) | 9 (16.07) |
| Between 35-49 | 4 (14.29) | 3 (10.71) | 7 (12.50) |
| Between 50-64 | 14 (50.00) | 6 (21.43) | 20 (35.71) |
| 65 and Over | 6 (30.00) | 14 (50.00) | 20 (35.71) |
| Race | | | |
| White | 13 (46.43) | 16 (57.14) | 29 (51.79) |
| Non-White | 15 (53.57) | 12 (42.86) | 27 (48.21) |
| Anxiety | | | |
| Yes | 2 (7.14) | 2 (7.14) | 4 (7.14) |
| Depression | | | |
| Yes | 2 (7.14) | 3 (10.71) | 5 (8.93) |
| Psych | | | |
| Yes | 3 (10.71) | 1 (3.57) | 4 (7.14) |
| Smoking Status | | | |
| Yes | 10 (35.71) | 5 (17.86) | 15 (26.79) |
| Opioid Use | | | |
| Yes | 25 (89.29) | 19 (67.86) | 44 (78.57) |
| Name of Current Rx Pain* | | | |
| Norco | 21 (75.00) | 19 (67.86) | 40 (71.43) |
| Percocet | 7 (25.00) | 3 (10.71) | 10 (17.86) |
| Others | 0 (0.00) | 6 (21.43) | 6 (10.71) |
| Past Foot Surgery | | | |
| Yes | 7 (25.00) | 7 (25.00) | 14 (25.00) |

Table 2. Patient Reported Pain Status & Rx Use

| | Case (N=28, 50%) | Control (N=28, 50%) | Total (N=56, 100%) |
|---|------------------|---------------------|--------------------|
| Present Pain | | | |
| No Pain | 6 (21.43) | 10 (35.71) | 16 (28.57) |
| Mild | 13 (46.43) | 11 (39.29) | 24 (42.86) |
| Discomforting | 7 (25.00) | 6 (21.43) | 13 (23.21) |
| Distressing | 2 (7.14) | 1 (3.57) | 3 (5.36) |
| Feeling of Pain | | | |
| Brief | 12 (42.86) | 13 (46.43) | 25 (44.64) |
| Intermittent | 2 (7.14) | 3 (10.71) | 5 (8.93) |
| Continuous | 14 (50.00) | 12 (42.86) | 26 (46.43) |
| Satisfaction of Post-operative Pain Treatment | | | |
| Extremely of dissatisfied | 0 (0.00) | 2 (7.14) | 2 (3.70) |
| Neutral | 4 (15.38) | 4 (14.29) | 8 (14.81) |
| Slight to satisfied | 8 (30.77) | 6 (21.43) | 14 (25.93) |
| Extremely satisfied | 14 (53.85) | 16 (57.14) | 30 (55.56) |
| Satisfaction of Foot Surgery Results | | | |
| Neutral | 4 (16.00) | 1 (3.70) | 5 (9.62) |
| Slight to satisfied | 2 (8.00) | 0 (0.00) | 2 (3.85) |
| Satisfied | 8 (32.00) | 14 (51.85) | 22 (42.31) |
| Extremely satisfied | 11 (44.00) | 12 (44.44) | 23 (44.23) |
| # Of Prescribed Rx Pain | | | |
| 0-5 | 7 (26.92) | 9 (32.14) | 16 (29.63) |
| 6-10 | 7 (26.92) | 6 (21.43) | 13 (24.07) |
| 11-15 | 5 (19.23) | 4 (14.29) | 9 (16.67) |
| 15-20 | 3 (11.54) | 7 (25.00) | 10 (18.52) |
| 21 and more | 4 (15.38) | 2 (7.14) | 6 (11.11) |
| Use other non-medical methods to relieve pain | | | |
| Yes | 19 (73.08) | 18 (64.29) | 37 (68.52) |

Results

- Statistically significant difference in patient's attitude toward pain medication addiction was found between two groups (p=0.036). However, there were no significant differences regarding socio-demographic information, pain awareness, surgery satisfaction and pain medication use.
- Nearly 53% reported using less than 11 pills of prescribed opioids pain medication
- 81% reported using pain medication less than 6 days post-operatively.
- Walking was reported as common activity leading to pain in 49% of all patients.
- Most patients described the pain as brief or intermittent, less than 9% patient described the pain as continuous.

Discussion

- Comparable difference was noted between control and case group was with regards to attitude concerning addiction with post-operative pain medication use.
 - Patients in case group were more likely to disagree with statement "People get addicted to pain medicine easily" compared to control group who more likely to agree with above statement.
- Most patient reported using less than 11 pills of prescribed opioids pain medication
- Most patients reported using pain medication less than 6 days post-operatively.
- Study design that likely affected the results
 - A prospective randomized study design but was not double blinded.
 - Face to face patient education was conducted immediately post-operatively while patients might still have been under the effect of sedation anesthesia.
 - The education/information provided to patient was broad and did not solely focus on the targeted outcomes.
- Gravity usually leads to significant increase in post-surgical edema, this could contribute to increase in pain intensity that is likely not experienced with other types of surgical procedures.
- Walking was described as the most common activity leading to pain, with standing being second.
- Take away points: Strong Pilot study for future studies; Able to utilize current medical technology; Detail knowledge regarding post-operative pain experience after foot surgery

Reference

- Mcgrath, B., Elgendy, H., Chung, F., Kamming, D., Curti, B., & King, S. (2004). Thirty percent of patients have moderate to severe pain 24 hr after ambulatory surgery: A survey of 5,703 patients. *Canadian Journal of Anesthesia*, 51(9), 886-891. doi:10.1007/bf03018885
- Odonnell, K. F. (2015). Preoperative Pain Management Education: A Quality Improvement Project. *Journal of PeriAnesthesia Nursing*, 30(3), 221-227. doi:10.1016/j.jopan.2015.01.013
- Barry, M. A. (2017). The Effect of Preoperative Education on Postoperative Pain After Joint Surgery: An Integrative Literature Review. *Creative Nursing*, 23(1), 42-46. doi:10.1891/1078-4535.23.1.42
- Andersson, V., Otterstrom-Rydberg, E., & Karlsson, A. (2015). The Importance of Written and Verbal Information on Pain Treatment for Patients Undergoing Surgical Interventions. *Pain Management Nursing*, 16(5), 634-641. doi:10.1016/j.pmn.2014.12.003
- Melzack, R. (1987). The short-form McGill pain questionnaire. *Pain*, 30(2), 191-197. doi:10.1016/0304-3959(87)91074-8
- Gordon, D. B., Polomano, R. C., Pellino, T. A., Turk, D. C., Mccracken, L. M., Sherwood, G., . . . Farrar, J. T. (2010). Revised American Pain Society Patient Outcome Questionnaire (APS-POQ-R) for Quality Improvement of Pain Management in Hospitalized Adults: Preliminary Psychometric Evaluation. *The Journal of Pain*, 11(11), 1172-1186. doi:10.1016/j.jpain.2010.02.012
- Fairman, K. A., & Matheral, B. (2000). Evaluating Medication Adherence: Which Measure Is Right for Your Program? *Journal of Managed Care Pharmacy*, 6(6), 499-506. doi:10.18553/jmcp.2000.6.6.499