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Survey of Postoperative Satisfaction and Pain Following Femoral Nerve Block and On-Q Pain Pump Catheter in Total Knee Replacement

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Introduction and Background

Patients elect to undergo total knee replacement (TKR) due to intense or worsening pain or severe arthritis. Many patients experience symptoms that interfere with their everyday lives, such as an uneven gait, pain walking up stairs, or getting out of a car, and difficulty walking long distances, as well as decreased range of motion and weakness. After surgery, the vast majority of patients are able to live more fulfilling lives with greater independence and less pain.

Many patients are given a combination of anesthesia to control postoperative pain. TKR patients can be given a femoral nerve block, where an anesthesiologist inserts a small catheter into the groin, blocking sensation in the majority of the leg. Some patients receive the On-Q Pain Pump, an anesthetic similar to a nerve block, where a catheter remains for approximately 24 hours and allows Ropivoxaine to infuse into the nerve and continue to block pain and sensation. Some patients are given a spinal nerve block, causing numbness from the umbilicus down. In a handful of patients nerve blocks do not work or cannot be used, and general anesthesia must be used.

Purpose

The purpose of this study is to evaluate how different modes of anesthesia effect postoperative pain and satisfaction for patients undergoing total knee replacement.

Methods

Over a five-week period, fifty-two TKA patients were interviewed the day of their surgery and every day until discharge. Patients were asked to rate their pain (weight-bearing and non-weight bearing), confidence in performing daily activities, overall satisfaction, and overall comfort on a scale 1-10. Patients were asked to respond “yes” or “no” to “difficulty falling and staying asleep” and to mention any side effects. Then patients were asked to complete a double-blind survey in which they rated their satisfaction with their nursing care, surgeon, anesthesiologist, physical therapy staff, facilities, and miscellaneous staff on a scale 1-5.

In addition to interviewing the patient, various metrics were taken from each patient’s chart and from Centricity. Anesthesia mode, age, gender, degree of flexion, strength of extremity, time of arrival to TK, time of discharge, opioid consumption, and ability to bear weight were recorded.

Results

The chart to the left gives averages of the metrics obtained from the study, organized by postoperative day and by mode of anesthesia. Below are graphical representations of average weight bearing and non-weight bearing pain scores over time.

Weight Bearing Pain

Non-Weight Bearing Pain

Discussions

Overall, patients who received a femoral block reported the lowest levels of pain and the highest levels of comfort and satisfaction. Patients on the pain pump appeared to experience the most intense pain on postoperative days one and two, but their pain on postoperative day zero was well-controlled. Those on the On-Q Pain Pump also experienced a consistently high level of comfort, whereas, those with other modes of anesthesia appeared to become less comfortable over time.

On the day that patients underwent surgery, pain seemed to be best managed on the pain pump and with the femoral nerve block. Patients reported more average non-weight bearing pain if they did not receive a regional anesthetic. Patients experienced the greatest comfort on postoperative day zero for all modes of anesthesia, with those receiving a femoral block reporting the greatest comfort.

On postoperative day one, patients on the pump rated their weight-bearing pain as the highest, followed by patients with the femoral nerve block, and then patients who received neither anesthetic. Patients on the pump reported lower comfort levels than those with the nerve block, and those with neither anesthetic. By postoperative day two, the pain metrics for each type of anesthesia appeared to be similar. Pain pump recipients averaged the lowest non-weight bearing pain on postoperative day two.

Conclusion

The femoral nerve block appears to be the most effective mode of anesthesia for managing postoperative pain. The On-Q Pain Pump was very effective on postoperative day zero, but pain appeared to increase sharply on postoperative days one and two. For better pain management, it is suggested that the On-Q Pain Pump catheter remain for a longer period of time. Both aforementioned modes of anesthesia yielded lower average pain scores than non-regional modes of anesthesia.

References

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