Are Pain Ratings Influenced by Patient BMI and Type of Anesthesia Used for TKA?

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Purpose/Hypothesis: Total knee arthroplasty (TKA) is surgical orthopedic procedure performed to increase functional mobility and relieve pain due to arthritis and degenerative joint disease. There is a strong correlation between a patient's body mass index (BMI) and the need for TKA. Although more than 90% of people who receive this procedure show significant improvement, TKA remains one of the most painful orthopedic surgeries. To control pain after this procedure a number of surgical anesthetics, or techniques, have been introduced. The most common pain regimens are nerve blocks and general anesthesia. Pain continues to limit the patient's function. Pain ratings are a subjective measure of personal discomfort and can be affected by personal perception, comorbidities, BMI, age, etc. The purpose of this study was to determine for patients who have had a TKA, does BMI affect their pain ratings while controlling for regional anesthetic techniques compared to general anesthesia. For our study, we categorized the anesthetic techniques into 3 categories: general anesthetics, femoral nerve blocks, and a combination of both femoral and sciatic nerve blocks.

Number of Subjects: One hundred and four electronic chart reviews of patients who received a TKA at an area hospital were completed.

Materials/Methods: For this retrospective study, 104 out of 500 electronic chart reviews were completed for patients who received a TKA from May 2012 to June 2013. The subjects were categorized by type of surgical anesthesia used: femoral nerve black (FNB), combined femoral nerve and sciatic nerve block (CNB), and general anesthesia (GA), and the BMI category they fit into: underweight (UW), normal (NW), overweight (OW), obese (O), and morbidly obese (MO). Data was collected on the following variables: surgical anesthetic, BMI, pain ratings, age, sex, length of stay, and functional outcomes. The current study focused on surgical anesthetic, BMI, and pain ratings. The data was analyzed with SPSS version 22.

Results: The data revealed that on Day 1 the OB group with CNB reported the highest average pain ratings = 5.43±.59 (MO with CNB 4.85±.72 and OW with CNB 3.18±.53). Day 2, the highest pain ratings were from the OB group with CNB 4.93±.59 (MO with CNB reported 4.70±.97 and OW with CNB reported 4.3±.72). Day 3, the highest pain ratings were from OB group with GA 5.12 ±1.16 (MO with GA =2.33±1.20 and OW with GA = 3.25±.59).

Conclusions: The results of this study indicate that although there are differences in the pain ratings of the different groups stratified by BMI and type of analgesia technique used, they are statistically not significant. A larger sample size could have provided more conclusive data for all the categories.

Clinical Relevance: The data gathered from this study can be used as a basis for promoting personal health and wellness to improve patient outcomes post TKA. It can also be utilized by practitioners and patients in determining a preferred drug regimen for TKA.