

Author's Responses to Reviewers Comments

Reviewer #1: The authors investigated the effect of preoperative opioid dependence or abuse on post-operative opioid consumption after shoulder arthroplasty and concluded opioid use was more prevalent among patients with pre-operatively diagnosed opioid dependence or abuse, and age less than 65 years old, prior diagnosis of mood disorder and chronic pain diagnosis were the significant risk factors for opioid dependence or abuse before surgery. A major comment: The orthopedic surgeons in the United States of America are among the highest prescribers of opioids and there is no guideline for appropriate managements of post-operative pain after arthroplasty. The results of the study will raise an alarm for easy use and/or overuse of opioids in this field because the substantial number of patients without pre-operative opioid dependence/abuse required opioid prescription after surgery. The reviewer thinks the design of the study is simple and results are clear. The World Journal of Orthopedics would be a proper journal for publication of this study.

Author's Response: Thank you.

A minor comment: Some studies have shown that interscalen peripheral nerve block via single injection or continuous infusion which is commonly used during shoulder surgery can reduce total opioid consumption and can lower pain scores after surgery. However, anesthesiologists might avoid the procedure of peripheral nerve block or intra-operative administration of opioids in patients with pre-operatively diagnosed opioid dependence or abuse because interscalen peripheral nerve block and intra-operative opioids have an adverse effect on pulmonary functions in patients with limited pulmonary reserve such as diagnosed opioid users. Were there any differences in the choice of anesthesia methods between patients with and without a history of opioid dependence or abuse before surgery?

Author's Response: This is an important point to consider as the use of an interscalene nerve block could be a confounding variable when analyzing postoperative opioid use if the rates of nerve block were different between patients with or without opioid dependence/abuse. We found no significant differences in the frequency of brachial plexus nerve block prior to TSA or RSA between patients with opioid dependence/abuse and those without. The following paragraphs and a table have been added to the manuscript for clarification.

In Methods: Patients who received a brachial plexus nerve block on the day of surgery were identified using the Current Procedural Terminology (CPT) code 64415 and the proportion of patients receiving nerve blocks were compared between groups.

In Results for TSA: The proportion of patients receiving a brachial plexus nerve block was not significantly different between patients with and without opioid dependence or abuse ($p=0.199$, Table 2).

In Results for RSA: The proportion of patients receiving a brachial plexus block did not differ significantly between groups ($p=0.803$, Table 2)

In Discussion: Secondly, previous studies have shown that brachial plexus nerve blocks prior to shoulder surgery decrease postoperative opioid utilization, thus acting as a potential confounding variable. However, the proportion of patients receiving brachial plexus nerve blocks in this study was equivalent between study groups (Table 2) and thus did not likely affect the results.

Table 2: Patients receiving a brachial plexus block on the day of surgery.

I	With pre-op opioid dependence/abuse	Without pre-op opioid dependence/abuse	p-value
TSA	92 (58.60%)	4,105 (53.44%)	0.199
RSA	108 (52.43%)	3,461 (51.55%)	0.803