Response Letter

Name of Journal: World Journal of Orthopedics

Manuscript NO: 39877

Manuscript Type: Original Article

Retrospective Study

Reducing Costly Falls After Total Knee Arthroplasty

Reviewer #1: The authors have not mentioned the post-operative days (POD) when the falls occurred. Most falls attributed to peripheral single shot nerve block should occur on POD 1 or 2. **Response:** We have included the POD in which the falls occurred on the revised manuscript (See line 171).

Also, whether continuous FNB or ACB were given and for how long is also not known. Which local anesthetic was used for each block is also not clear. Bupivacaine is known to cause more motor block compared to Ropivacaine. Also, the strength of each local anesthetic used is important. How the block was performed, whether ultrasound guidance was used and who performed the block, trainee or consultant. **Response:** We have added a new paragraph to address your question (See lines 148 – 155). A continuous femoral nerve block was used while a single shot of 20 ml of 0.5% Ropivacaine injection was used for the adductor canal block.

Were there any other measures for pain relief like PCA with morphine or other drugs which would make the patient drowsy? **Response:** all the patient's that fell were under the standard post-operative narcotic regimen which was oxycodone with PRN Fentanyl available.

Patient inclusion criteria are also not mentioned in the method. Whether the TKA was unilateral or bilateral….Also, the patients undergoing revision surgery are bound to have weak quadriceps and there will be a greater chance of fall. Only patients with primary unilateral TKA should be included. Did all patients have osteoarthritis (OA) or there were a few patients with rheumatoid arthritis? Patients with OA usually have bilateral disease and usually the quadriceps are weak pre-operatively. Patient's age and sex also should be taken into consideration as the risk of fall in much higher in elderly males. Patients with neurological and psychological diseases and with history of stroke should be excluded. Also, patients with unicondylar knee replacement, previous hip arthroplasty or previous hip, tibia, ankle, foot fractures should be excluded. Previous non-ambulatory status and chronic use of opioids can also increase the risk of fall and hence these patients cannot be included in the study. Patients who are demented also should be excluded. The risk of fall also increases with increase in other comorbidities. Another important factor which can easily be included is the use of general anesthesia without neuraxial block in both groups. **Response:** We have applied the inclusion and exclusion criteria you suggested. Implementing the inclusion/exclusion criteria to our data lead to the exclusion of 8 patients that fell after TKA (See lines 141 – 147).

The tile of the paper says: Reducing Costly Falls After Total Knee Arthroplasty: so, were there any other measures taken to prevent falls besides knee immobilization? E.g. checking muscle strength after continuous peripheral nerve block before mobilizing patient etc. **Response:** Our physical therapy department check the patient's muscle strength before mobilizing them. Patients with weak muscles or patients that were unstable were not allowed to get out of bed until cleared by physical therapy. Fortunately, all the patients that fell after POD 01 were cleared to ambulate. Also, patients receiving TKA

are now required to attend an arthroplasty class that educate the patients on fall prevention. Our institution has invested in fall prevention awareness programs which included frequent education of floor staff, replacing old hospital beds with new beds equipped with bed alarms and motion sensors that detect patients' movement out of bed and automatically notify floor staff.

Reviewer #2: Abstract. It should be more brief and be shortened accordingly. **Response:** A new and shorter abstract has been added (see lines 50 – 70).

2nd page line 25. (p=0.04) value should be removed. **Response:** (p=0.04) has been removed.

Methods. Which statistical method did the authors use? The study group was too small to compare. **Response:** We used the Fisher's exact test to look at differences between the two groups. A statistical analysis section has been added (See lines 157 – 159).

Why did not authors use KI in ACB group? **Response:** It was discovered after polling the floor staff that majority of patients were noncompliant with the use of the KI and a couple of patients fell while wearing the KI. Given the unsatisfactory compliance with the use of the KI and relatively high fall rate, the adult reconstruction team discontinued the use of KI (See lines 105 – 110)

How did the authors exclude factors like hypotension, vertigo, neurologic disease which can cause falls from TKA? **Response:** Our physical therapy department check the patient's muscle strength before mobilizing them. Patients with weak muscles, unstable vital signs or weak were not allowed to get out of bed until cleared by physical therapy. We also expanded our exclusion criteria to include factors like neurologic diseases (See lines 141- 145)