Do Different CPM Protocols Improve Short Term Outcomes in TKA: A Randomized Prospective Study

Vinod Dasa, MD, James Kyle, MD, Philip Fontenot, BS, Matthew Delarosa, MD

BACKGROUND: Patients who fail nonoperative management for knee arthritis often undergo total knee arthroplasty (TKA) using a continuous passive motion device (CPM) post operatively. CPM is achieved by applying a device with a pre-set range of motion that passively moves the patient's leg for a variable amount of time. CPM is no longer thought to improve range of motion, however its effect on reducing pain is controversial.

Methods: Randomized prospective study of 90 patients enrolled in 3 different protocols (no CPM, 15 mid BID, 2hrs BID). Primary outcomes measures were pain (VAS) and secondary outcome measures were active range of motion, passive range of motion, gait distance, and length of hospital stay.

RESULTS: There is no statistically significant difference in time spent in CPM in regards to pain. Using no CPM (mean = 1.7) or CPM for 2 hours twice per day (mean = 1.5) showed no statistical difference for length of stay, however using CPM for 15 minutes twice per day showed a statistically significant increase in the length of stay (mean = 2.1). There was no statistical significance in the gait distance between the three groups, however we did observe an increased gait distance in the group receiving CPM 2 hours twice per day. There is no statistical significance in active range of motion between the three groups. There was a statistically significant increase in the passive range of motion in those who received 15 minutes of CPM twice a day but no increase in the passive range of motion in those who received 2 hours of CPM twice a day or no CPM at all.

CONCLUSIONS: Our data shows no evidence that different times spent in CPM alleviates pain. There was no evidence that CPM increased gait distance or active range of motion. While 15 minutes of CPM did show an increase in the passive range of motion, it was also related to a longer length of hospital stay.