

The Use of Venlafaxine in Reducing Post-Surgical Pain and Opioid Consumption after Primary Total Knee Arthroplasty.

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Background:

After knee replacement surgery, patients experience acute postoperative pain secondary to surgical manipulation. In addition, a subset of patients, up to 30%, may experience persistent pain usually associated with pain with movement and/or nerve pain. Serotonin–norepinephrine reuptake inhibitors have been widely used in treating chronic neuropathic pain, but their role in acute and transitional pain is less well known. Our study is the first study to our knowledge to examine the effect of perioperative administration of venlafaxine in reducing acute and chronic postsurgical pain in patients undergoing total knee arthroplasty.

Hypothesis:

Our current hypothesis is that Venlafaxine may reduce opioid consumption and pain severity scores acutely as well as reduce incidence of chronic pain at 3 months post TKA.

Methods: Single center, randomized, prospective clinical trial study. Patients will complete a 7 day course of venlafaxine 37.5mg vs placebo starting on the day of TKA. Numerical pain scale during PACU stay and postoperative day 1 were recorded. Brief pain inventory and batter tests of (KOOS JR, PROMIS10, and VR12) were documented at the baseline and then at postoperative day 1 and 7 and 1 month and 3 months post-surgery. The occurrence of adverse events was noted.

Aims:

- Primary:**
- Pain severity scores via Numeric rating scale (NRS)
 - Consumption of morphine milligram equivalents (MME)
- Secondary:**
- Incidence of chronic pain 3 months s/p TKA
 - Disability scale and Function
 - PROMIS (Patient-Reported Outcomes Measurement Information System)10 Global Health
 - KOOS, JR. (Knee injury and Osteoarthritis Outcome Score Short Form)
 - VR-12 (Veterans RAND 12 Item Health Survey) Scale

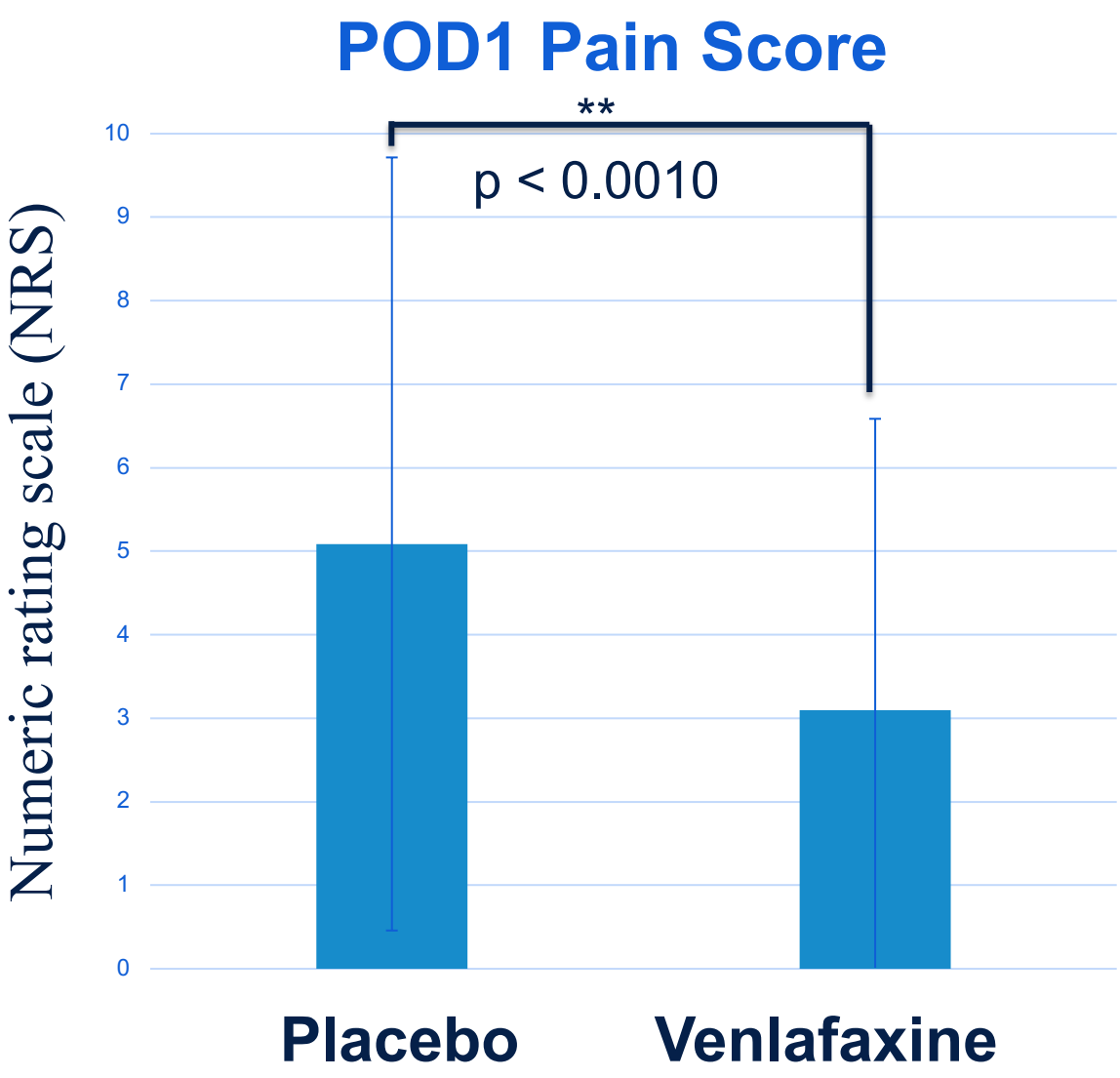
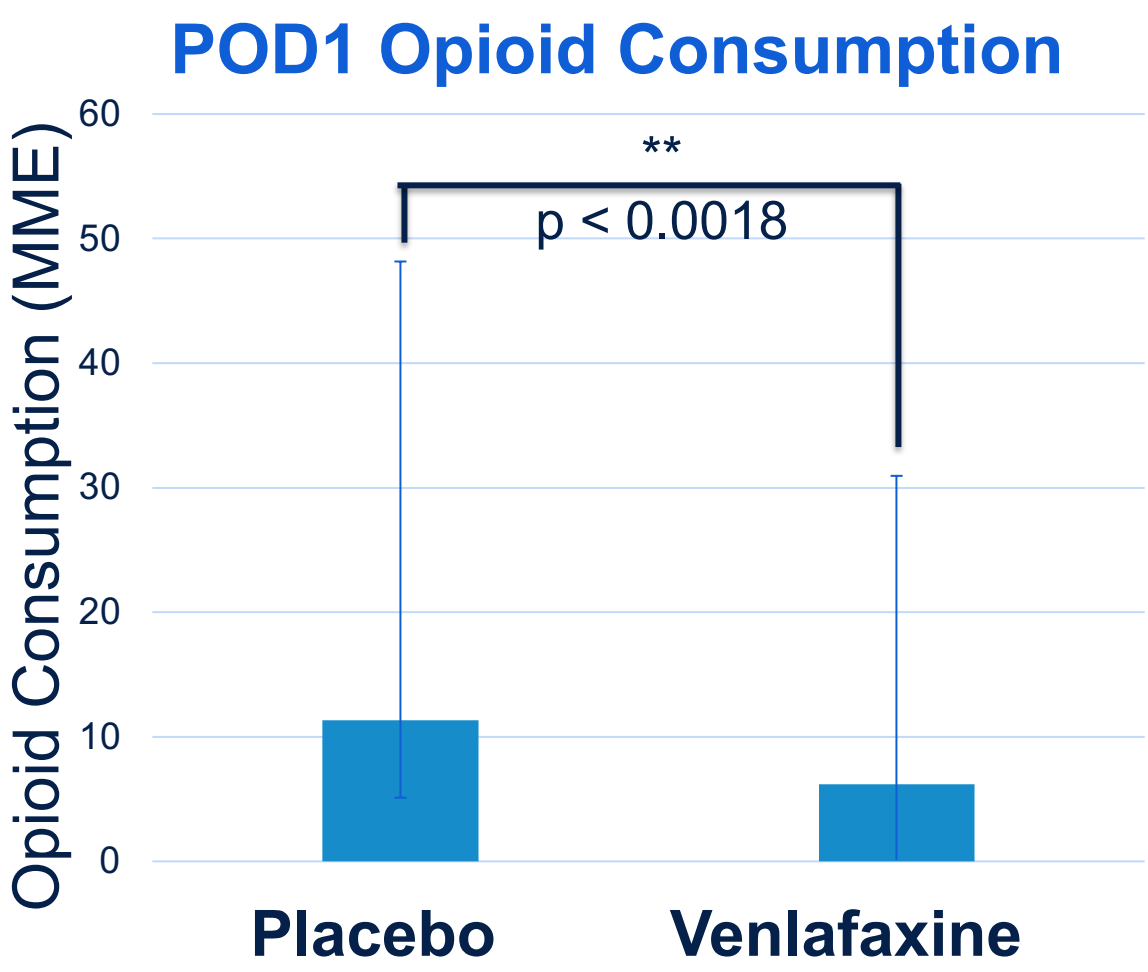
Results:

For our interim study, we have focused on perioperative phase. We have found that patients in the venlafaxine group reported better pain control on POD1 compared to placebo group (p<0.001). Opioid consumption in morphine equivalent was significantly less when venlafaxine taken in preop than the placebo group (p < 0.01). However, no difference was found in numerical pain scale and opioid consumption between placebo groups and venlafaxine group during PACU stay. In addition, there was no difference between groups in the prevalence of adverse events.

Patient Demographics:

Chart 1: Patient Characteristics of total participants.

Demographic Factor	Number (%)
Total Participants	100
Age, years, mean ± SD	66.21 ± 8.61
Sex # Female (%)	52 (52%)
Height (cm) mean ± SD	171 ± 10.42
Weight (kg) mean ± SD	86 ± 20.28
BMI mean ± SD	29.1 ± 5.15
ASA Class	
I	1 (1.40%)
II	54 (74%)
III	18 (24.7%)
IV	0 (0%)
Preoperative Medications	
Acetaminophen	71 (97.30%)
Celecoxib	43 (58.90%)
Gabapentin	60 (82.20%)



Graphs 1 & 2: POD1 Opioid Consumption and Pain scores
Based on interim data that does not incorporate all participants.

Discussion:

Our interim study supports the role of venlafaxine in improving acute pain after total knee replacement. This clinical data of patients undergoing TKA may support SNRI’s mechanism in modulating nerve injury in hopes to limit the incidence of chronic pain syndromes. Our study is the first study to our knowledge to examine the effect of perioperative administration of venlafaxine in reducing acute and chronic postsurgical pain in patients undergoing total knee arthroplasty. We will be conducting more comprehensive data analysis and assess the long-term effect of venlafaxine at 3 month after their total knee replacement. The high variability of quantitative data can be explained by interim analysis and limited sample size. Our data’s qualitative components may be biased by recall as not all patients completed their follow-up surveys at the same time.

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