A Prospective Evaluation of Clinical and Psychologic Factors on Extended Postoperative Opioid Use after Primary Total Joint Arthroplasty.

Dhiren S. Sheth, MD, Robert S. Namba, MD, Peggy D. Zill, PharmD, Jose R. Pio, MD, MPH, Ngoc J. Ho, PhD, Stephanie Tovar, MS

Kaiser Permanente Orange County - Irvine Medical Center – Irvine, California

INTRODUCTION

Anxiety, depression and pain catastrophizing have been implicated for an increase in postoperative opioid use. The purpose of the study was to identify clinical and psychological risk factors associated with extended postoperative opioid use following primary joint replacement (TJR).

METHODS

During preoperative visit patients were asked to fill out PHQ9, PCS (pain catastrophizing scale), opioid risk tool (ORT) and either KOOS-JR or HOOS-JR. Patient with opioid prescription dispensed after 90 days were considered as extended users. Enrollment was limited to primary TJR patients and data was collected in prospective fashion

Logistic regressions were used for univariate and multivariable modellings and create receiver operating characteristic (ROC) curves. A backward stepwise regression analysis was used to select significant factors in the multivariable model.

RESULTS

The study included 258 patients (163 TKR, 95 THR) with average age of 68.2 years (range 23 – 91), 58% (151) were females, average BMI of 30.21 (range 19.26 – 43.13), 49.22% were obese (BMI $\geq$ 30) and 19% had total PHQ-9 score $\geq$ 10. The average length of stay was 1.41 days. 23.6% patients had associated back pain. 29.84% were taking pre-operative opioids, the majority of which (81.78%) were taking opioids for reasons other than index primary joint pain.
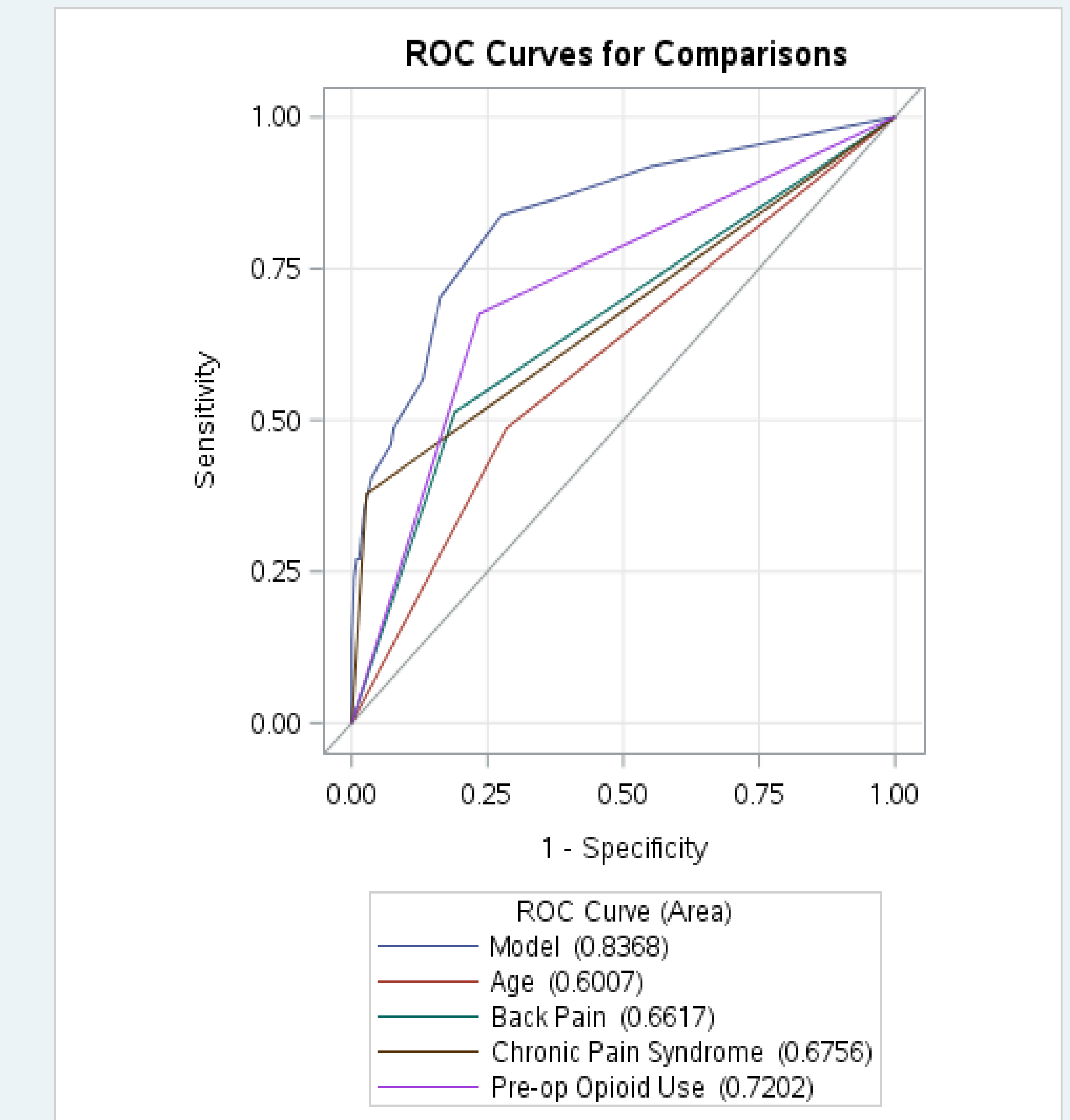
14% (37 out of 258) of patients had opioids dispensed after 90 days (extended users). In univariate analysis, age < 65, associated back pain, chronic pain or fibromyalgia, previous use of opioids, drug potency of more than 10 morphine equivalent and total score on ORT of more than 7, were associated with extended use. In multivariable analysis, age < 65, associated back pain, chronic pain and preoperative use of opioids were significant risk factors for extended use (combine AUC = 0.83). Pre-op Opioid Use had the highest AUC=0.72 (p=0.0005). None of the psychological profile tests either as continuous variable of total score or accepted cut off predicted extended use.

Pre-op Opioid Use is the Strongest Predictor of Extended Opioid Use after Total Joint Replacement Surgery.

RESULTS

ROC curves for comparisons graph show ROCs for each predictor and how they compare with the combined model. Pre-op Opioid Use has the highest AUC=0.72 (p=0.0005) compared to the AUC for the other four factors, Age (AUC =0.60, p<0.0001) Chronic Pain Syndrome (AUC =0.68, p<0.0001), and Back Pain (AUC =0.66, p<0.0001). With all 4 factors included in the predicted model the AUC was 0.84 (p < 0.0001)

ROC Curves for Comparisons

ROC Curve (Area)
- Model (0.8368)
- Age (0.6007)
- Back Pain (0.6617)
- Chronic Pain Syndrome (0.6756)
- Pre-op Opioid Use (0.7202)

CONCLUSION

In our prospective study, preoperative opioid use was the strongest predictor of extended opioid use after primary THR and TKR. Neither total nor accepted cut off scores of the psychological profile tests assessing depression, pain catastrophizing or opioid addiction risk correlated with extended use of opioids.

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CONTACT

Peggy Zill, Pharm.D. Inpatient Pharmacy Supervisor
Kaiser Permanente OC Irvine Medical Center
Peggy.X.Zill@kp.org