PROMIS Anxiety and Sleep Disturbance Scores are Associated with High Barriers to Proper Opioid in Patients Presenting for Adult Spinal Deformity

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INTRODUCTION:
The opioid epidemic remains a major health crisis in the United States. The rates of severe postoperative pain and long-term prescription opioid use are highest among orthopaedic patients, particularly after spinal procedures. A better understanding of the psychobehavioral barriers to proper opioid use is warranted for orthopaedic spine patients.
METHODS:
Adult spinal deformity (ASD) patients with ≥ 5 levels fused from July 2020 to December 2021 and were able to speak the English language were retrospectively identified in a single-institution database. Patients also met at least one of the following radiographic criteria: sagittal vertical axis (SVA) ≥ 5 cm, coronal Cobb angle ≥ 20 degrees, pelvic tilt (PT) ≥ 25 degrees, pelvic incidence minus lumbar lordosis (PI-LL) ≥ 25 degrees, global coronal malalignment ≥ 7 cm, or thoracic kyphosis greater ≥ 60 degrees.
Barriers to opioid use were measured using the previously validated Barriers Questionnaire-Taiwan short form (S-BQT) with total scores ranging from 0 to 35. Scorers in the top 25% (>17) were identified as patients with high barriers to proper opioid use.
Threshold linear regression with Bayesian Information Criteria was performed to identify a discrete threshold score associated with high barriers. Multivariable logistic regression controlled for age, gender, comorbidity, income, and education level.
RESULTS:
A total of 106 patients were included in this study, of which 23 (22%) had high barriers to proper opioid use. The mean age was 51 years with 72 (68%) females. On bivariate analysis, patients with high barriers to proper opioid use were more likely to be older (61.1 years vs. 48.2 years), have less comorbid disease (Charlson Comorbidity Index 0.544 vs. 0.717), live alone (78% vs 46%), have greater fatigue (PROMIS fatigue 57.2 vs. 52.2), anxiety (57.2 vs. 52.2), and sleep disturbances (58.3 vs. 52.8), and have less satisfaction with participation in social roles (39.4 vs. 43.9) ($P<0.05$ for all). Threshold regression identified cut-offs of ≥60 for PROMIS Anxiety and ≥61.7 for PROMIS Sleep Disturbance as predictive of higher opioid use barriers ($P<0.05$ for both). Multivariable analysis confirmed that patients with PROMIS Anxiety ≥60 (OR 3.85; $P=0.018$) and PROMIS Sleep Disturbance ≥62 (OR 6.04; $P=0.006$) had greater odds of experiencing high barriers to proper opioid use.
DISCUSSION AND CONCLUSION: Abnormal PROMIS score thresholds of Anxiety ≥60 and Sleep Disturbance ≥62 can be used to preoperatively identify patients who may be more likely to have higher barriers to proper opioid utilization. This can aid in joint decision-making and patient counseling to ensure more responsible use of narcotic analgesics for patients undergoing ASD surgery.