Improved Accuracy of the Risk Assessment and Prediction Tool in Extended Length of Stay Patients following Total Hip Arthroplasty

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INTRODUCTION:
Previous studies have attempted to validate the risk assessment and prediction tool (RAPT) in primary total hip arthroplasty (THA) patients. The purpose of this study was to 1) identify patients with an extended length of stay (ELOS) following THA and 2) compare the accuracy of two previously validated RAPT models.
METHODS:
We retrospectively reviewed all primary THA patients from 2014 to 2021 who had a completed RAPT score. A Youden's J computational analysis was used to determine the LOS where facility discharge was statistically more likely. Based on the cut-offs proposed by Oldmeadow and Dibra, patients were separated into high- (O:1-5 vs. D: 1-3), medium- (O: 6-9 vs. D: 4-7), and low- (O: 10-12 vs. D: 8-12) risk groups.
RESULTS:
We determined that a LOS of greater than two days resulted in a higher chance of facility discharge. In these patients (n=717), the overall predictive accuracy (PA) of the RAPT was 79.8%. The Dibra model had a higher PA in the high-risk group (D: 68.2 vs. O: 61.2% facility discharge). The Oldmeadow model had a higher PA in the medium-risk (O: 78.7 vs. D: 61.4% home discharge) and low-risk (O: 97.0 vs. D. 92.5% home discharge) groups.
DISCUSSION AND CONCLUSION:
As institutions continue to optimize LOS, the RAPT may need to be defined in the context of a patient's hospital stay. In patients requiring a LOS of greater than two days, the originally established RAPT cut-offs may be more accurate in predicting discharge disposition.