

Predictive Model for Discharge to Home After Elective Surgery for Lumbar Degenerative Disease: An Analysis from National Neurosurgery Quality Outcomes Database Registry

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Introduction

Current trajectory and costs related to spine care are unsustainable. Therefore, it is important to understand and optimize each step through a patient's journey following spine surgery. The ability to predict discharge to rehabilitation or skilled nursing facility will allow for preadmission social work planning potentially decreasing length of stay, and appropriately stratify patients as we move toward a bundled payment system. We set forth to determine the predictors of discharge to home versus a facility after elective surgery for lumbar degenerative disease

Methods

A total of 10,889 patients undergoing elective spine surgery for degenerative lumbar disease were entered into prospective multicenter registry(N2QOD. Patients were dichotomized as discharge to home versus a facility (rehabilitation or skilled nursing facility). A multivariable logistic regression model, including an array of preoperative factors, was fitted to for discharge to home.

Results

89.3% of the patients were directly discharged to home with or without healthcare services. The odds of discharge to home were significantly lower in:older patients(OR=0.28,CI-0.17-0.45), female(OR=0.62,CI-0.51 -0.78), black as compared to white race(OR=0.53,CI-0.38-0.75), patients with higher BMI (OR=0.75,CI-0.59-0.96), history of diabetes(OR=0.67,CI-0.54-0.83), depression (OR=0.75,CI-0.59-0.97), dominant leg pain as presenting symptom(OR=0.69,CI-0.54-0.88), preoperative ambulation with an assist device(OR=0.47,CI-0.37-0.60), non-ambulatory (OR=0.23,CI-0.12-0.49) patients, those with higher baseline disability(ODI)(OR=0.60,CI-0.48-0.73), increasing number of levels involved(OR=0.77,CI-0.69-0.86), those requiring fusion(OR=0.22,CI-0.15-0.29) and Medicare payer status(OR=0.63,CI-0.48-0.84). Patients with higher EQ-5D baseline(OR=1.4,CI-1.1-1.8) were more likely to be discharged to home. Area under the curve 0.892 for the model's receiver operator curve, demonstrates moderate to high accuracy in predicting the discharge to home versus facility

Conclusions

We identified the predictors of discharge to home versus facility. The early identification and discussion with patients regarding the discharge disposition based on this predictors has potential in promoting patient, families and caregivers to have realistic expectations after surgery resulting in improved patient satisfaction and potential health care savings

Learning Objectives

The early identification and discussion with patients regarding the discharge disposition based on these predictors have potential to allow smooth and timely transition of care, provide informed decision of discharge placement to patient based on their individual risk factors, resulting in improved patient satisfaction and potential health care savings.

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