

Increased Rate of Emergency Admissions for Degenerative Cervical Myelopathy Patients of Non-White Race and Non-English Speakers

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INTRODUCTION:

There are a number of factors related to socioeconomic status (SES) that may impact care via delayed access, increased likelihood of surgical complications, and prolonged hospital stay, among others. More specifically, patients with degenerative cervical myelopathy (DCM) often require complex care that necessitates effective communication and a thorough understanding of any social barriers that patients may face. The goal of the current study was to identify socioeconomic factors that were independently associated with emergency admissions and increased length of stay in patients who required surgery for DCM.

METHODS:

The New Jersey (NJ) Statewide Inpatient Database (SID) was queried for patients with a principal diagnosis of DCM from 2009 to 2015 using International Classification of Disease – Ninth Revision – Clinical Modification (ICD-9-CM) codes. Patients undergoing surgery were identified using ICD-9 Procedural Modification (ICD-9-PM) codes. Only patients with degenerative causes of cervical myelopathy were considered, and other causes such as infection or malignancy were excluded. Primary grouping variables of interest included primary language (English vs. non-English), race (White vs. Non-White), and insurance status (commercial vs. non-commercial). The primary outcome of interest was emergency admission. Secondary outcomes analyzed include total length of stay (LOS), and pre and postoperative LOS, mortality, discharge disposition, and total hospital charges incurred. Univariate analysis using Pearson's Chi-squared and student's t-tests where appropriate were used to compare outcomes between groups, with multivariable logistic regression used to analyze rates of emergency admissions while controlling for factors found to be significant on univariate analysis. In addition, the number of chronic conditions and gender was included in the multivariable model.

RESULTS:

A total of 7,853 patients with a principal diagnosis of DCM were identified. Of these, 6,775 were identified as undergoing a major surgical procedure and were included for analysis (Table 1). The mean age was 58.4 years (SD 12.7). A total of 3,033 (44.8%) of patients were female. The average number of chronic conditions was 4.3 (SD 2.6), while the average number of diagnoses per admission was 6.8 (SD 4.7). In total, 4,844 (71.5%) of 1,087 (16.0%), 409 (6.0%), and 132 (1.9%) of patients were classified as White, Black, Hispanic, and Asian/Pacific Islander, respectively. A total of 6,495 (95.9%) reported a primary language of English, while 147 (2.2%) and 133 (2.0%) reported a primary language of Spanish or other. For emergency admissions, non-white race, non-commercial insurance, and non-English language were all significantly associated with higher rates of emergency admission ($p < 0.001$). Non-English primary language was significantly associated with longer time from admission to initial procedure (1.01 vs. 0.69 days, $p < 0.001$), but not significantly longer total LOS or postoperative LOS. Non-white race and non-commercial insurance were all significantly associated with longer total, preoperative, and postoperative lengths of stay, as well as increased total hospital charges on univariate analysis. On multivariable logistic regression, non-English primary language (OR 1.9, 95% CI 1.2-3.1), non-White race (OR 1.4, 95% CI 1.1-1.8), and number of chronic conditions (OR 1.2, 95% CI 1.2-1.3) were found to be significantly associated with increased odds of emergency admission. Age, however, was negatively associated with emergency admission (OR 0.99, 95% CI 0.98-0.99). Patient gender and insurance status were not found to be significantly associated.

DISCUSSION AND CONCLUSION:

Non-English primary language and non-White race were found to be significantly associated with increased rates of emergency admission for DCM requiring surgery. These factors were found to be independently associated with emergency admission and surgery for DCM even when controlling for factors such as age and number of comorbidities. While the exact causes for this relationship are not entirely clear from the results of the current study, possible hypotheses include differences in referral pathways, patient-provider communication, and health literacy. These are fundamental components of effective health care, and further research should focus on elucidating any disparities in these realms to ensure that quality care is being delivered.