Trends and Disparities in Cervical Spine Fusion Procedure Utilization in the New York State

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Introduction

There has been a steady increase in spinal fusion procedures performed each year in the US, especially cervical and lumbar fusion. Our study aims to analyze the rate of increase at low-, medium-, and high-volume hospitals, and socioeconomic characteristics of the patient populations at these three volume categories.

Methods

We searched the New York State, Statewide Planning and Research Cooperative System (SPARCS) database from 2005 to 2014 for the ICD-9-CM Procedure Codes 81.01 (Fusion, atlas-axis), 81.02 (Fusion, anterior column, other cervical, anterior technique), and 81.03 (Fusion, posterior column, other cervical, posterior technique). Patients' primary diagnosis (ICD-9-CM), age, race/ethnicity, primary payment method, severity of illness, length of stay, hospital of operation were included. We categorized all 122 hospitals high-, medium-, and low-volume. We then described the trends in annual number of cervical spine fusion surgeries in each of the three hospital volume groups using descriptive statistics.

Results

African American patients were significantly greater portion of patients receiving care at low-volume hospitals, 15.1% versus 11.6% at high-volume hospital. Medicaid and self-pay patients were also overrepresented at low-volume centers, 6.7% and 3.9% versus 2.6% and 1.7% respectively at high-volume centers. In addition, Compared with Caucasian patients, African American patients had higher rates of post-operative infection ($p = 0.0020$) and post-operative bleeding ($p = 0.0044$). Compared with privately insured patients, Medicaid patients had a higher rate of post-operative bleeding ($p = 0.0266$) and in-hospital mortality ($p = 0.0031$).

Conclusions

Our results showed significant differences in racial distribution and primary payments methods between the low- and high-volume categories, and suggests that accessibility to care at high-volume centers remains problematic for these disadvantaged populations.

Learning Objectives

1. Number of cervical spine fusion procedures continues to increase each year.

2. There are significant disparities in racial distribution and primary payments methods between the low- and high-volume hospitals.

3. Accessibility to care at high-volume centers remains problematic for these disadvantaged populations.