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GEOGRAPHIC VARIATION IN HOSPITAL COSTS ASSOCIATED WITH ISOLATED CORONARY ARTERY BYPASS GRAFTING

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Background: In the past decades, studies have shown geographic variation (GV) in patient risk factors, outcomes, and practice patterns associated with coronary artery bypass grafting (CABG). However, contemporary data related to GV in hospital costs associated with isolated CABG are lacking.

Methods: We used the latest (2014) National Inpatient Sample (NIS) to identify patients aged 18+ who underwent primary isolated CABG. ICD-9 codes were used to derive comorbidities and procedure types. Geographic stratification was based on the Census Division of each hospital. The NIS cost-to-charge ratio based on all-payer inpatient costs and census-region-based medical care consumer price index were used to adjust for hospital costs. Data were analyzed by using weighted analyses of variance for continuous data and the Rao-Scott likelihood ratio Chi-square test for categorical variables. Weighted multivariable regression analysis was used to examine the association between geographic divisions and adjusted costs (log-transformed) by adjusting for patient/procedure characteristics, and comorbidities.

Results: In 2014, 132,270 patients from 1,106 hospitals underwent a primary isolated CABG. The median (Inter Quartile Range [IQR]) of age was 65 (57-72) years (GV: 63-66), and 25% was female (GV: 22%-28%). Overall, 47% were admitted electively (GV: 38%-54%), 28% had a primary diagnosis of acute myocardial infarction (GV: 26%-32%), 84% had hypertension (GV: 80%-86%), 27% had atrial fibrillation (GV: 24%-29%), 12% (GV: 8%-15%) had 4+ coronary arteries bypassed and 1.4% died in-hospital (GV: 0.9%-2.1%). The median (IQR) hospital length of stay was 6.9 (5.0-9.8) days (GV: 6.3-7.2). The median (IQR) adjusted cost was \$34,949 (\$26,879-\$44,725), which was lowest in the East South Central (\$28,854 [\$23,268-\$36,193]) and highest in the East North Central (\$41,852 [\$32,965-\$54,223]) ($p < 0.001$ from multivariable regression).

Conclusions: We observed statistically, but not clinically, significant differences in patient baseline characteristics. Geographic variations exist in outcomes and the hospital costs among patients who underwent isolated CABG.

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