OUTCOME MEASURES: Significant differences in mean total charges across small ($59,010.97 ± $55,211.71), medium ($63,775.99 ± $50,823.21) and large ($63,546.59 ± $54,831.45) hospitals (p=0.002). Post-hoc testing revealed significant differences in charge between small and medium hospitals (p=0.004) and between small and large hospitals (p=0.002).

CONCLUSIONS: Hospital size is a determining factor for cost of elective single-level ACDF.

FDA DEVICE/DRUG STATUS: This abstract does not discuss or include any applicable devices or drugs.

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PS3. Clinical risk factors for adjacent segment disease following lumbar spine fusion surgeries: A systematic review and meta-analysis

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BACKGROUND CONTEXT: Adjacent segment disease (ASD) is a possible complication following lumbar surgeries, particularly lumbar fusion.

PURPOSE: To investigate the clinical risk factors associated with developing radiological and/or clinical ASD following lumbar fusion.

STUDY DESIGN/SETTING: Systematic review and meta-analysis.

PATIENT SAMPLE: Adult patients undergoing lumbar fusion.

OUTCOME MEASURES: Clinical risk factors associated with the development of ASD.

METHODS: We performed a comprehensive literature search to find the relevant studies using PubMed, Embase, Medline, Scopus, and the Cochrane library databases from the beginning to December 2019. The titles and abstracts were used for initial screening, followed by a full-text review. The methodological index for non–randomized studies (MINORS) criteria were used to evaluate the methodological quality of the included studies. A meta-analysis was conducted to calculate the odds ratio (OR) with the 95% confidence interval (CI) for dichotomous variables and mean difference (MD) with 95% CI for continuous variables. Both fixed and random-effects models were used to pool the data according to the observed heterogeneity.

RESULTS: Thirty-five studies were included in the final qualitative analysis. Twenty-two of these studies were included in the risk factors meta-analyses. The mean quality score of the included studies was 12.4±1.9 (range, 8-16) points, based on the MINORS criteria. The level of evidence was low for many risk factors. Overall, 1,266 (17.2%) patients acquired ASD following lumbar fusion, and 6108 (82.8%) patients did not develop ASD, within a follow-up ranging between 20.5-165.6 months. Four clinical variables were found to have statistically significant risk factors for ASD, including higher preoperative body mass index (BMI) (mean difference [MD] = 1.97 kg/m²; 95% confidence interval [CI] = 1.49, 2.45; P < 0.001), floating fusion as compared to lumbosacral fusion (Odds ratio [OR] = 1.78; 95% CI = 1.32-2.41; P <0.01), superior facet joint violation (OR = 10.43; 95% CI = 6.4-17.01; P <0.001), and depression outside fusion construct (OR = 1.72; 95% CI = 1.25-2.37; P <0.001). Other factors that were analyzed and were not found to be risk factors for ASD included age (OR = 0.17 years; 95% CI = 0.60-0.94; P = 0.67), gender (OR = 0.91; 95% CI = 0.75-1.11; P = 0.36), smoking (OR = 1.26; 95% CI = 0.94-1.68; P = 0.12), diabetes (OR = 0.73; 95% CI = 0.51-1.05; P = 0.09), hypertension (OR = 1.33; 95% CI = 0.86, 2.06; P = 0.20), osteoporosis (OR = 1.00; 95% CI = 0.64,1.57; P = 0.99), fusion approach (OR = 1.28; 95% CI = 0.65,2.51; P = 0.48), number of levels (OR = 0.87; 95% CI = 0.50,1.51; P = 0.62), intraoperative blood loss (MD = 12.39; 95% CI = 2.17,26.95; P = 0.10), and operative time (MD = 5.29; 95% CI = -0.15,10.74; P = 0.06).