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"The impact of health insurance coverage, race, and prenatal diagnosis on pediatric cardiac surgical outcomes"

BACKGROUND: Over the past decade the mortality rate for pediatric cardiac surgeries has decreased significantly. However, data from surgical centers has revealed continued disparities based on insurance status. This pilot study analyzed the relationships between several predictors and outcomes, including mortality, in patients of a private outpatient pediatric cardiology clinic which is in the unique position of being able to refer patients to various surgical centers based on lesion complexity.

METHODS: This was a retrospective chart review of patients referred for congenital heart surgery between 2014 and 2019 from a private practice, not associated with a surgery center, using the practice's surgical database. Predictor data points included: race, ethnicity, sex, insurance status, surgical center volume, procedure STAT category (as determined by categories in the Society of Thoracic Surgeons Congenital Heart Disease Database), and the presence of prenatal diagnosis of the lesion. Outcomes included: length of stay, number of readmissions within 30 days of surgery, number of reoperations within 90 days of surgery, mortality within 30 days of surgery, and presence of post-operative residual lesion. Relationships were analyzed with independent t-tests and chi-square analyses, as appropriate.

RESULTS: Primary analyses showed no significant relationships between predictors (race, ethnicity, sex, insurance status, surgical center volume) and outcomes (readmissions, reoperations, length of stay, mortality, and residual lesions), with two exceptions. First, the presence of a prenatal diagnosis was related to more readmissions, more reoperations, and longer length of stay. Second, lower STAT categories had fewer reoperations and shorter length of stay.

Secondary analyses did show some relationships amongst predictors. Both insurance status and STAT category were related to prenatal diagnosis, such that children with private insurance or higher STAT category lesions were more likely to be diagnosed prenatally. In addition, race was related both to surgical center volume and to insurance status. Black children were more likely to be referred to medium volume centers and to have government-funded insurance; however, race was not related to being diagnosed prenatally nor to STAT category.

DISCUSSION: Our study did not find a difference in outcomes related to health insurance, race, or surgical center volume. Power analysis suggested that our sample size lacked the power to detect effects. One explanation for the difference seen in race distribution by surgical center volume is the Medicaid policy that prevents patients from being sent out of state without prior approval, thus limiting the surgical center options of these patients. Follow up studies will address factors that contribute to the lack of prenatal diagnosis in patients with government-funded insurance.