

Endovascular Thrombectomy for Treatment of Pediatric Stroke: Safety and Outcome Data from a National Inpatient Sample

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BACKGROUND AND PURPOSE: Evidence regarding the utilization and outcomes of endovascular thrombectomy (EVT) for pediatric ischemic stroke is limited, and justification for its use is largely based on extrapolation from clinical benefits observed in adults.

METHODS: Weighted discharge data from the National Inpatient Sample were queried to identify pediatric patients with ischemic stroke (<18 years old) during the period of 2010 to 2019. Complex samples statistical methods were used to characterize the profiles and clinical outcomes of EVT- treated patients. Propensity adjustment was performed to address confounding by indication for EVT based on disparities in baseline characteristics between EVT-treated patients and those medically managed.

RESULTS: Among 7365 pediatric patients with ischemic stroke identified, 190 (2.6%) were treated with EVT. Utilization significantly increased in the post-EVT clinical trial era (2016–2019; 1.7% versus 4.0%; $P<0.001$), while the use of decompressive hemicraniectomy decreased (2.8% versus 0.7%; $P<0.001$). On unadjusted analysis, 105 (55.3%) EVT-treated patients achieved favorable functional outcomes at discharge (home or to acute rehabilitation), while no periprocedural iatrogenic complications or instances of contrast-induced kidney injury were reported. Following propensity adjustment, EVT treated patients demonstrated higher absolute but nonsignificant rates of favorable functional outcomes in comparison with medically managed patients (55.3% versus 52.8%; $P=0.830$; adjusted hazard ratio, 1.01 [95% CI, 0.51–2.03]; $P=0.972$ for unfavorable outcome). Among patients with baseline National Institutes of Health Stroke Scale score >11 (75th percentile of scores in cohort), EVT-treated patients trended toward higher rates of favorable functional outcomes compared with those treated medically only (71.4% versus 55.6%; $P=0.146$). In a subcohort assessment of EVT-treated patients, those administered preceding thrombolytic therapy ($n=79$, 41.6%) trended toward higher rates of favorable functional outcomes (63.3% versus 49.5%; $P=0.060$).

CONCLUSIONS: This cross-sectional evaluation of the clinical course and short-term outcomes of pediatric patients with ischemic stroke treated with EVT demonstrates that EVT is likely a safe modality which confers high rates of favorable functional outcomes.