
Using a nationally representative sample of stroke admissions data from Nationwide Inpatient Sample 2000 to 2010, Moradiya et al performed a retrospective, serial cross-sectional cohort study to compare the rate of thrombolytic use for ischemic stroke in US hospitals with neurology residency (NR) with those of other teaching and nonteaching (NT) hospitals. Of 712,433 patients from 6,839 hospitals, patients with stroke in NR hospitals were more likely to receive thrombolytics (3.74±0.24% SE) than in other teaching (2.28±0.11%; P<0.0001) and NT hospitals (1.44±0.06%; P<0.001), even after adjusting for covariates (odds ratio [OR], 1.51; 95% confidence interval, 1.44–1.59 [NR versus other teaching], and OR, 1.82; 95% confidence interval, 1.73–1.91 [NR versus NT]). This disparity was greater with increasing age. Other significant factors associated with higher thrombolytic rates in multivariate regression analyses were male sex (OR, 1.10–1.18), white race (OR, 1.67–1.89), private insurance (OR, 1.14–1.26), urban setting (OR, 1.31–1.53), higher hospital stroke case volume (OR, 3.53–6.01), and more recent calendar year (OR, 1.20–1.22).

The Joint Commission Primary Stroke Center certification was also independently associated with increased thrombolytic use during 2006 to 2010 (OR, 1.62; 95% confidence interval, 1.54–1.70; P<0.0001). These findings were consistent with previous studies that had reported a 27% increase in the adjusted odds of thrombolytic treatments in teaching hospitals compared with NT hospitals.1 However, this study was the first to determine the effect of NR on thrombolysis rates. The strengths of this study include large sample size, representing 64.5% of all stroke cases between 2000 and 2010. However, the study has the inherent limitations of administrative data sets, including lack of detailed clinical elements such as time of symptom onset and stroke severity. In addition, hospitals from the 17 states that suppressed patient identifiers were excluded from the analysis. The use of International Classification of Diseases, Ninth Revision coding could also introduce ascertainment biases. Future studies may explore the factors responsible for higher thrombolysis use in NR hospitals and identify barriers to treatment in other teaching and NT hospitals.


Mallick et al performed a prospective, population-based study to determine the incidence of childhood ischemic stroke, presenting symptoms, and risk factors among children 29 days to <16 years old residing in southern England from 2008 to 2009. All children were treated in the National Health Service of United Kingdom and were identified by pediatricians, pediatric neurologists, and others (radiologists, physiotherapists, neurosurgeons, parents, and surveillance from the Pediatric Intensive Care Audit Network). Cases were confirmed by study researchers who reviewed clinical records. In this population, the annual crude incidence of childhood ischemic stroke was 1.60 per 100,000 (95% confidence interval, 1.30–1.96). Incidence was the highest in children <1 year old (4.14 per 100,000 per year, 95% confidence interval, 2.36–6.72) compared with those 1 to 5 years (2.42, 1.78–3.22), 6 to 10 years (0.56, 0.27–1.03), or 11 to 15 years old (1.22, 0.78–1.84). There were no sex differences in incidence. Stroke risk were higher in Asians (relative risk, 2.14; 95% confidence interval, 1.11–3.85; P=0.017) and blacks (2.28, 1.00–4.60; P=0.034) compared with whites. Focal neurological deficits (85%) and hemiparesis (72%) were the most common symptoms at presentation. Seizures were more common in younger children (<1 year), and headache was more common in older children (>5 years; P<0.0001). Major pathogeneses of stroke included acute systemic disorders (31%), arteriopathy (29%), chronic systemic disease (25%), cardiac disorders (23%), and acute head/neck trauma or infection (19%). Only 2% had conventional adult atherosclerotic risk factors. The reported incidence rate for childhood ischemic stroke from this study is consistent with another European population-based study of 1.33 (95% confidence interval, 1.16–1.52) per 100,000 person-years.2 In contrast with previous studies that had shown higher stroke incidence in boys, this study did not find significant sex differences. The strengths of this study were selection of radiographically confirmed ischemic stroke cases and use of a robust ascertainment process validated by capture-recapture analyses. These factors may have produced one of the more accurate estimates of true incidence of childhood ischemic stroke. Nevertheless, findings from this study should be interpreted with caution because demographics in southern England might not be generalizable. Further studies are needed to investigate children of different ages and in different geographical regions to improve our understanding of arterial ischemic stroke in children.

References