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 risks 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. 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

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