**AHA/ASA Scientific Statement**

# Management of Stroke in Neonates and Children

## A Scientific Statement From the American Heart Association/American Stroke Association

*The American Academy of Neurology affirms the value of this statement as an educational tool for neurologists.*

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those in adults. The most common symptoms include hemiparesis and hemifacial weakness in 67% to 90%, speech or language disturbance in 20% to 50%, vision disturbance in 10% to 15%, and ataxia in 8% to 10%. Children present with nonlocalizing symptoms such as headache in 20% to 50% and altered mental status in 17% to 38%. Seizures at stroke onset are more common in children than adults, affecting 15% to 25%, especially in those <6 years of age.[12–14,16,64–67] Clinical presentation varies according to age, setting (inpatient versus emergency department [ED]), and stroke subtype.

Seizure < 1% in adults
(Cheng et al, 2018)

NEONATES



documented thrombophilia or complex congenital heart disease (not including patent foramen ovale [PFO]).[36,37]

Hyperacute stroke therapies (thrombolytics and mechanical thrombectomy) are rarely considered in neonates with AIS because there is no evidence for their use. Although endovascular procedures such as mechanical thrombectomy are sometimes used in older children with an arterial occlusion,[35,38,39] the small artery size of neonates precludes the use of current endovascular devices in these individuals.[35]

Rarely considered
MT and IVT

for children potentially feasible.[80,94] A study describing the use of thrombolytics in a large, international pediatric stroke cohort[95] provided the impetus to design and initiate the prospective TIPS study (Thrombolysis in Pediatric Stroke).[96] TIPS was an NIH-funded phase 1 clinical trial to determine the safety and pharmacokinetics of intravenous tPA in children 2 to 18 years of age within 4.5 hours of AIS if vascular obstruction was diagnosed on MRI.[96] Although the study was closed because of low patient enrollment, the multidisciplinary TIPS investigators succeeded in establishing systems for the evaluation and care of a child with hyperacute AIS.[96] In the absence of clinical trial data, a consensus opinion has suggested that when intravenous tPA is considered in children, the adult dose of 0.9 mg/kg be used, which would likely be a conservative dose because developmental differences in plasminogen levels may actually make the effective dose for children higher.[35]

TIPS trial (2-18 yo)
**0.9 mg/Kg t PA may** be considered