Pediatric arterial ischemic stroke: a single center's experience

M.A.N. Ferilli[1], G. Tiralongo[2], G. Monte[1], A. Carboni[3], L. Lucignani[3], D. Longo[3], G. Gandolfo [3], M. Valeriani[1]
1- Developmental Neurology Unit, Bambino Gesù Children Hospital IRCCS, Rome
2- Department of Pediatrics, Tor Vergata University Hospital of Rome, Rome
3- Imaging Department, Bambino Gesù Children Hospital IRCCS, Rome

Background and Aim: Pediatric arterial ischemic stroke in children (AISc) is an uncommon but important cause of neurologic morbidity, with consequences including hemiparesis, intellectual disabilities, and epilepsy. The causes of AISc are unique to those typically associated with stroke in adults. The aim of our study is to present our single-center case series data of patients with AISc.

Methods: We conducted a retrospective analysis from 2006 to 2024 of all AISc evaluated at our Pediatric Neurology III-Level Center. Children with age of onset between 28 days-of-life and 18 years were included and hemorrhagic strokes were excluded. Epidemiological, clinical, biochemical, neuroradiological and therapeutic data were collected by consulting our hospital database

Results: Our case-series included 45 children: the onset mean age is 6.6 years (range: 9 months to 17 years), 20/45 have onset within the first 5 years of life (M/F:1,1). The cause was identified in 73% of patients: a predisposing genetic condition was found in 9 patients, cerebral vasculitis in 9, cardiogenic stroke in 8, 2 with arterial dissection and 2 intra-infective. The most frequent onset symptoms were hemiplegia or monoplegia (36/45), seizures (12/45) or amnesic-confusion state (13/45), while constitutional symptoms were present in 12 patients. None of our patients showed overt abnormalities of routine blood tests, except for patients with sickle cell anemia. CSF analysis was conducted in 17/45 and only in 2 case were suggestive of cerebral infections. On neuroradiological scans, the ACM territory was the most affected (35/45), while in 13 patients the lesions were present in the posterior regions. 29/45 were treated with antiplatelet drugs, 13 with low-molecular-weight heparin and 12 with steroids. 12/45 received a combined treatment with at least 2 drugs and 15/45 patients underwent interventional procedures including 5 cardiovascular 4 decompressive craniectomy. Only 4 patients presented with relapsing strokes.

Features	*Value*
Total patients (n)	**45**
M:F	**24:21**
Median age at onset (Q1-Q3)	**6.6 years (2.75-10)**
Onset < 5 years (%)	**20 (44.4)**
Aetiological rate (%)	**73**
Symptoms at onset	
Hemiplegia/monoplegia	**36 (80%)**
Seizures	**12 (26.6%); focal 10**
Amnesic-confusional state	**13 (28.8%)**
Constitutional symptoms	**12 (26.6%)**
Vascular distribution	
Anterior territory	**32 (71%)**
Posterior territory	**7 (15%)**
Both	**6 (13%)**
Treatment	
Antiplatelets	**29 (64.4%)**
Anticoagulants	**13 (28.8%)**
Steroids	**12 (26.6%)**
Symptomatic drugs (es. AED, ATB)	**24 (53.3%)**
Relapsing Stroke	**4 (8.8%)**

Discussion and conclusions: We confirm that most AISc occur within the first 5 years of life. Our diagnostic-etiologic yield rate is high (73%), although not yet in line with international standards (80%), presenting, however, a high prevalence of vasculitis and low for cardiogenic and sickle-cell-related-stroke, unlike the literature. The onset with focal neurological deficits is the most frequent, followed by seizures. Most AISc occur in the anterior circulation territory, whereas the posterior circulation failure is rarer (71%; 15%). Treatments vary according to the individual patient's risk factors, although antiplatelet therapy alone or add-on to steroid and/or anticoagulant is the most common. The time of the first neurological examination and the time of diagnosis (24.7; 28.7 h) were the most critical issues. A multi-centers-cohort study should be led to better known the profile of AISc and its best management..

24-28 Ottobre 2025
Padova Congress
55° CONGRESSO SOCIETÀ ITALIANA DI NEUROLOGIA