JJM Medical College and
**Bapuji Child Health Institute and Research Center,*
Davangere, Karnataka, India.
sandeep_ram21@yahoo.co.in

REFERENCES

1. Edmond KM, Zandoh C, Quigley MA, Amenga-Etego S, Owusu-Agyei S, Kirkwood BR. Delayed breastfeeding initiation increases risk of neonatal mortality. Pediatrics. 2006;117:e380-6.
2. Evidence for the ten steps to successful breastfeeding. Geneva: World Health Organization;1998.
3. Infant and Young Child Feeding: A tool for assessing national practices, policies and programmes. Available from: http://whqlibdoc.who.int/publications/2003/9241562544.pdf. Accessed on 2012 October 17.
4. Nakao Y, Moji K, Honda S, Oishi K. Initiation of breastfeeding within 120 minutes after birth is associated with breastfeeding at four months among Japanese women: A self-administered questionnaire survey. Int Breastfeed J. 2008;3:1.

Childhood Moyamoya Disease: A Clinical and Angiographic Study from Eastern India

Moyamoya disease (MMD) is a rare cerebrovascular disease of childhood with majority of cases from Japan. This is a case series of 14 children diagnosed on the basis of characteristic angiographic findings. Various clinical features and chief angiographic findings were analyzed.

Moya moya disease is a rare cerebrovascular disease of unknown etiology. We herein present a case series of 14 children (7 males and 7 females, mean age: 6.89; age range: 2-14 years) identified among 241 diagnostic cerebral angiographies performed over a period of two years. Majority (*n*=11) presented with ischemic stroke; and only one with hemorrhagic stroke. Ten patients had recurrent TIA; weakness of 1 or more limbs was seen in 7; headache in 6 and seizures in 4 patients. Cerebral ischemic symptoms including cognitive defect, speech and sensory disturbances were present in 2, 3, and 3 children, respectively. The only child who presented with hemorrhagic stroke had thalessemia major, and the history of antecedent head trauma was present in one child. None had positive family history of the disorder. Ancillary laboratory tests including blood glucose, serum electrolytes, complete hemogram with peripheral blood smear for sickle cells, and serum lactate levels were normal in all study subjects. The patient with thalessemia major showed a hypercoagulable state.

Cerebral angiographies showed obstruction or stenosis of the supraclinoid portion of the ICA and the proximal portions of anterior and middle cerebral artery with a typical fine network of vessels at the base of brain with hazy, puff of-smoke appearance, and development of transdural and leptomeningeal anastomoses in all children. Bilateral abnormalities were present in majority (11/14). Two angiographies showed stenosis in posterior circulation also.

Hemorrhagic stroke in pediatric Moxamoya disease is reportedly uncommon. In the present case, it is believed to be as a result of hypertension which occurs due to vasopressive substances provided by multiple transfusions [1]. Apart from stroke, headache was another consistent feature in our series which is presumed to be closely related to cerebral hypoperfusion [2].

Cognitive decline as initial manifestation signifies the need to consider Moyamoya disease in children presenting with such symptoms in absence of typical findings. The unilateral disease can progress to bilateral disease [3] thus requiring long term follow-up later. Involvement of posterior circulation indicating rapid progression of disease, is in accordance with other recent studies from India [4,5].

ANUJ GUPTA, DEEP DAS, BIMAN KANTI ROY AND GOUTAM GANGULY
Department of Neurology
Bangur Institute of Neurosciences
Kolkata 700 025, India.
coolanujg@gmail.com

REFERENCES

1. Wasi P, Na Nakorn S, Pootrakul P, Sonakul D, Piankijagum A, Pacharee P. A syndrome of hypertension, convulsion, and cerebral haemorrhage in thalassaemic patients after multiple blood-transfusions. Lancet. 1978;2: 602-604.
2. Matsushima Y, Aoyagi M, Niimi Y, Masaoka H, Ohno K. Symptoms and their pattern of progression in childhood moyamoya disease. Brain Dev. 1990;12:784-789.
3. Kelly ME, Bell-Stephens TE, Marks MP, Do HM, Steinberg GK. Progression of unilateral moyamoya disease: A clinical series. Cerebrovasc Dis. 2006;22:109-15.
4. Singhi P, Choudhary A, Khandelwal N. Pediatric moyamoya disease: clinical profile, literature review and sixteen year experience from a tertiary care teaching institute. Indian J Pediatr. 2013 Mar 24. [Epub ahead of print]
5. Chinchure SD, Pendharkar HS, Gupta AK, Bodhey N, Harsha KJ. Adult onset moyamoya disease: Institutional experience. Neurol India. 2011;59:733–8.