

EDITORIAL

Pediatric neurology is still in its infancy in India. A survey of pediatric neurology done by us a few years ago revealed that there are only a few trained pediatric neurologists in our country.¹ Most neurological disorders in children are being dealt with by pediatricians (with or without an interest in pediatric neurology), and may never be seen by pediatric neurologists. Some childhood neurological problems are managed by neurologists essentially trained in adult neurology. The neurologists in India are themselves overburdened.² Training of pediatric neurology is also not formalized and there is limited formal exposure to childhood neurological problems during postgraduate training. Although technological advances have made facilities for investigations particularly neuroimaging and to some extent neurophysiology, more accessible, this has not been matched by a proportionate increase in professionals who are well versed in proper use and interpretation of these tests. There is a recent awareness and a palpable interest in the field evidenced by the increasing numbers of workshops, meetings and symposia dedicated to pediatric neurology as well as the number of trainees who wish to undertake further training in the subject. It is anticipated that the growth curve of pediatric neurology will see a steep rise in the years to come.

The sheer magnitude of neurological disorders in children in our country would require an enormous number of qualified physicians to deal with them and the shortage of child neurologists will continue for quite some time. Though there are few epidemiological studies of neurological disorders from India and hardly any dedicated to children, a community based study of neurological disorders from Bangalore, found crude and age-adjusted prevalence rates of 3,126 and 3,355 per 100,000 population, respectively and the prevalence of neurological disorders in children was estimated as 2653 per 100,000 population.³ Overall the most frequent disorders were headache, epilepsy, febrile convulsions, cerebrovascular disorders, and mental retardation. The pattern in children is somewhat similar; however epilepsy, infections of the central nervous system and neurodevelopmental disorders constitute a greater proportion. These are important causes of morbidity and mortality and are an enormous burden to the health care system.

For most children with neurological disorders, the first point of contact, and often the only one, in most developing countries including ours is the pediatrician. Even in developed countries such as USA and Canada, there is a shortage of child neurologists,^{4,5} and it is

recognized that non complicated cases are best dealt with by pediatricians.⁶ It is therefore imperative that pediatricians keep abreast of the important advances in the field. A symposium on pediatric neurology in the Indian Journal of Pediatrics is therefore of great importance.

Advances in child neurology can be viewed in different ways. There are a number of disorders that have been traditionally considered disorders of adults and are well studied in adults but not so well in children. Stroke and migraine represent two such conditions.

The recognition that stroke is not uncommon in children⁽⁷⁾ and actually has different etiologies and at times different presentation as compared with adults has led to focused research on pediatric stroke. It is hoped that there will be evidence based management protocols in the near future. The article by Vijeya Ganesan highlights these issues. Similarly, the increasing recognition that migraine is quite common in children and may not necessarily "fit in" with the classification for adults has actually led to modifications in the old classification and a proposal for further modification.⁸ A variety of newer drugs are now available for treatment and for prophylaxis of migraine. The concept of migraine as a channelopathy has prompted researchers to target ion channels for preventive migraine treatment. Prof Mac Gregor has summarized all these aspects of childhood migraine in a simple yet exhaustive way.

Exciting developments in the area of traumatic brain injury are on going and guidelines have been proposed recently for management; there is even more happening beyond the guidelines which includes reappraisal of old therapies such as hypothermia, advances in neuromonitoring, as well as the use of biomarkers of brain injury. The article by Prof. Kochanek and Dr Bell provides an excellent state of art overview of the topic.

Raised intracranial pressure is the most important cause of mortality and morbidity not only in the context of traumatic brain injury but even more frequently in children with non traumatic conditions particularly CNS infections. Insight into the complexities of cerebral perfusion and the ability to guide fluid therapy according to new information on optimal cerebral perfusion pressure is emerging as the way forward in the management. Prof S Singhi has summarized these newer developments along with the traditional methods of management of raised intracranial pressure in a very practical way.

Pratibha Singhi

Demyelinating disorders are not uncommon in children – their recognition depends mainly on the availability of MRI scans and thus they are under recognized in our country. A series of children with acute disseminated encephalomyelitis from North India brings to fore the importance of recognizing these.⁹ Demyelinating disorders are still in the process of evolution – their etiology, progression, predictors of recurrence – all these are being researched and constantly being modified. Potential of treatment and availability of immunomodulatory agents makes this subject extremely interesting and relevant to clinical practice. Dr Tenenbaum highlights both current concepts as well as controversies in this field.

Movement disorders in children are often baffling and are confused with epilepsy and other conditions. A review of these by Emilio Fernandez will hopefully provide a simplified approach to their management

Neurocysticercosis is widely recognized as the commonest cause of acquired epilepsy in tropical countries¹⁰ and is a major economic burden in our country. The disease has been known for ages, yet many controversies surround its diagnosis and particularly its management - the role of cysticidal therapy, steroids, anti-epileptics –their duration – all are frequently asked questions. While debate continues on some issues, answers to others based on series of randomized controlled trials can be found in our article.

The ever expanding field of neurogenetics is beyond the reach of most pediatricians and even neurologists. The articles by Prof IC Verma and his team have been especially included to sensitize the readers with various new discoveries and the practicality of using some of these.

I am confident that the topics covered in this symposium will provide a wealth of knowledge that is both state of the art as well as of practical importance. Not all the topics could be included in this symposium-epilepsy and neurodevelopmental disorders being vast areas in themselves have been deliberately not included

and will hopefully form subjects for exclusive symposia.

I am indebted to the contributors - all of whom are internationally recognized experts and have, in spite of their extremely busy schedules readily agreed to spare their valuable time to enrich this symposium with their excellent inputs.

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REFERENCES

1. Singhi PD, Singhi S. Survey of Pediatric Neurology in India. In: Velickovic PM, ed. *New developments in child Neurology*. Italy, 1998; 761-766.
2. Khadilkar SV, Wagh S Practice patterns of neurology in India: fewer hands, more work. *Neurol India* 2007; 55: 27-30.
3. Gourie-Devi M, Gururaj G, Satishchandra P, Subbakrishn DK. Prevalence of Neurological Disorders in Bangalore, India: A Community-Based Study with a Comparison between Urban and Rural Areas. *Neuroepidemiology* 2004; 23: 261-268.
4. Polsky D, Weiner J, Bale JF Jr, Ashwal S, Painter MJ. Specialty care by child neurologists: a workforce analysis. *Neurology* 2005; 64: 942-948.
5. Werner RM, Polsky D. Comparing the supply of pediatric subspecialists and child neurologists. *J Pediatr* 2005; 146 : 20-25.
6. Keene DL, Humphreys P. Inventory of pediatric neurology "manpower" in Canada. *Can J Neurol Sci* 2005; 32 : 306-310.
7. Amlie-Lefond C, Sébire G, Fullerton HJ. Recent developments in childhood arterial ischaemic stroke. *Lancet Neurol* 2008; 7 : 425-435.
8. Hershey AD, Winner P, Kabbouche MA, Gladstein J, Yonker M, Lewis D, Pearlman E, Linder SL, Rothner AD, Powers SW Use of the ICHD-II criteria in the diagnosis of pediatric migraine. *Headache* 2005; 45 : 1288-1297.
9. Singhi P, Ray M, Singhi S *et al*. Acute disseminated encephalomyelitis in North Indian Children. *J Child Neurol* 2006; 21: 851-857.
10. Jallon P. Epilepsy in developing countries. *Epilepsia* 1997; 38 : 1143-1151.