

Topiramate for Migraine Prophylaxis

Migraine is a significant problem for many children. Topiramate is a newer anticonvulsant and is useful for prophylaxis of adult migraine. This study was conducted to assess efficacy and tolerability of topiramate in pediatric migraine. Topiramate was found to be effective and well-tolerated drug for prophylaxis of pediatric migraine.

Key words: Child, India, Migraine, Prophylaxis, Topiramate.

Migraine affects 10% of the world population [1]. An Indian study showed that migraine affects 14% of girls and 9% of boys in 11-15 year age group [2]. Most preventive pharmacotherapies have limited efficacy and are effective in less than half of the total cases [4].

Topiramate is a neuromodulatory compound with neuron stabilizing properties and is approved for the preventive treatment of migraine in several countries [5]. Several small and large trials have reported good efficacy and safety of topiramate in migraine prophylaxis in adults [6]. The present study was done to study the role of topiramate in migraine prophylaxis in children who either failed to respond to or were intolerant to other prophylactic medications used for migraine.

Twenty-two patients, attending the Neurology outpatients of a tertiary care hospital and having at least a 6-month history of migraine with 3-12 attacks per months were enrolled for the study. The patients were recruited if they met the International Headache Society (IHS) criteria for diagnosis of migraine and were excluded if they experienced headache other than migraine, had late onset migraine or renal stones. Patients were also excluded if they had more than 15 attacks of migraine per month or were given topiramate for any other indications. A wash out period of 14 days was given during which rescue analgesics of NSAID class (e.g. ibuprofen 6mg/kg) was allowed.

Patients were prescribed tablet topiramate 15 mg/day and titrated over 8 weeks to 2 mg/kg or maximum tolerated dose, whichever was less. The patients were asked to report after third month. A responder was defined as a patient who achieved at least 50% reduction in monthly migraine attacks.

Headache severity was graded on a 4 point scale

ranging from grade 3, severe, requiring rest in bed; grade 2 moderate reduced capacity; grade 1, mild but not interfering with working capacity; and, grade 0, none, able to work or function normally. The primary efficacy was judged by reduction in mean migraine frequency across 12-weeks study period. Baseline (0 day) and endpoint assessment (3 months) of the patients was done. Headache Intensity was rated on a 10-point Visual Analogue Scale where 0 represented no pain and 10 represented the most severe pain (**Table I**). Patients were asked to keep a daily diary of their migraine attacks and associated symptoms like nausea, vomiting and aura. Safety was assessed by observing the treatment emergent side effects. Patients and parents were encouraged to report any treatment related side effects or report any new symptom following drug intake.

Baseline (0 day) routine hematological investigations (total and differential leukocyte count), urine analysis (microscopic), blood urea, creatinine, and liver function tests were done. Fisher Exact test and Chi square tests were used for statistical analysis with $P < 0.05$ considered as significant.

Four patients were lost to follow up. Fourteen out of 18 patients (M:F 4:14 mean age 11.2 years, mean migraine duration: 1.2 years) had statistically significant reduction in severity of headache and migraine associated symptoms. Side effects reported were mild and included anorexia in 2, and paresthesia and impaired concentration in 1 each. None of the patient opted out of the study due to side effects.

In the present study, 77.7% of 18 children had significant pain relief, and reduction in severity of

TABLE I SEVERITY OF MIGRAINE SYMPTOMS BEFORE AND AFTER TOPIRAMATE ($n=18$)

	Baseline	After 3 months
Frequency mean \pm (SD)	5.3 (1.5)	1.0 (0.3)*
Severity	18	14 (77.77%)
Nausea, n (%)	12 (66.6)	4 (22.2)
Vomiting, n (%)	10 (55.5)	2 (11.1)
Aura, n (%)	5 (27.7)	1 (5.5)

n =number of patients, * $P < 0.05$

headache and migraine associated symptoms. In a prospective case series of 24 children diagnosed with migraine refractory to prophylactics and treated for 4 months with topiramate as the only prophylactic drug [7], the drug was found to be safe and effective. In another similar study [8] severity and duration of headache were also reduced. Headache disability improved, with a reduction of PedMIDAS scores.

This is consistent with earlier studies [7,9,10]. We used the maintenance dose of 2 mg/kg/day as earlier described [10]. These authors reported a 75% of greater reduction in mean migraine frequency in 32% of the 160 children studied. Higher response rate in our study could be due to small sample size or because we defined a responder as the patient having 50% or more reduction.

Topiramate was found to be a safe, efficacious and well tolerated drug in migraine prophylaxis in children.

Funding: None; *Competing interests:* None stated.

KS ANAND, VIKAS DHIKAV AND JOYTI AGGARWAL

*Department of Neurology,
Dr. Ram Manohar Lohia Hospital,
New Delhi 110 001, India.
Kuljeet_anand@rediffmail.com*

REFERENCES

- Leonardi M, Steiner TJ, Scher AT, Lipton RB. The global burden of migraine: measuring disability in headache disorders with WHO's Classification of Functioning, Disability and Health (ICF). *J Headache Pain*. 2005; 429-40.
- Shivpuri D, Rajesh MS, Jain D. Prevalence and characteristics of migraine among adolescents: a questionnaire survey. *Indian Pediatr*. 2003;40:665-9.
- Buchanan TM, Ramadan NM. Prophylactic pharmacotherapy for migraine headaches. *Semin Neurol*. 2006; 26:188-98.
- Goadsby PJ, Lipton RB, Ferrari MD. Migraine-current understanding and treatment. *N Engl J Med*. 2002;346:257-69.
- Bussone G, Usai S, D'Amico D. Topiramate in migraine prophylaxis: data from a pooled analysis and open-label extension study. *Neurol Sci*. 2006; Suppl 2:S159-63
- Rapoport A, Mauskop A, Diener HC, Schwalen S, Pfeil J. Long-term migraine prevention with topiramate: open-label extension of pivotal trials. *Headache*. 2006;46:1151-60.
- Campistol J, Campos J, Casas C, Herranz JL. Topiramate in the prophylactic treatment of migraine in children. *J Child Neurol*. 2005;20:251-3.
- Hershey AD, Powers SW, Vockell AL, LeCates S, Kabbouche M. Effectiveness of topiramate in the prevention of childhood headaches. *Headache*. 2002;42:810-8.
- Silberstein SD. Topiramate in migraine prevention. *Headache*. 2005;45 Suppl 1:S57-65.
- Winner P, Pearlman EM, Linder SL, Jordan DM, Fisher AC, Hulihan J; Topiramate Pediatric Migraine Study Investigators. Topiramate for migraine prevention in children: a randomized, double-blind, placebo-controlled trial. *Headache*. 2005;45:1304-12.

Should We Screen Children with Severe Acute Malnutrition for Celiac Disease?

The clinical features of severe acute malnutrition (SAM) often overlap with the common manifestations of celiac disease. In this observational pilot study, 76 children fulfilling the case definition of SAM were investigated for celiac disease, tuberculosis and HIV. Celiac disease was diagnosed in 13.1% of SAM children while tuberculosis and HIV were diagnosed in 9.3% and 4%, respectively.

Key words: Severe acute malnutrition, Celiac disease

Severe acute malnutrition (SAM) afflicts nearly 6.4% of children below 60 months of age in India [1]. Celiac disease is an immune-mediated enteropathy that occurs in genetically susceptible individuals. The clinical features of CD such as diarrhea, failure to thrive, vomiting, abdominal distension, anaemia and weight loss overlap with the common manifestations of children with SAM

[2]. Considering the increasing reports of high prevalence of CD among the children of North India, it could also be a major contributor or co-morbid condition in children with SAM [3-7]. The diagnosis of CD has management implication as SAM with CD will need gluten free foods during rehabilitative phase. There is little information currently available regarding the prevalence of CD among children with SAM.

This study was a prospective observational study which included 76 consecutive children of either gender, aged 9–59 months admitted in pediatric ward of a tertiary care hospital and meeting the case definition of severe acute malnutrition (weight-for-length/height <-3 SD and/or, bipedal edema and / or mid arm circumference <11.5 cm)