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

1. 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.
2. Shivpuri D, Rajesh MS, Jain D. Prevalence and characteristics of migraine among adolescents: a questionnaire survey. Indian Pediatr. 2003;40:665-9.
3. Buchanan TM, Ramadan NM. Prophylactic pharmacotherapy for migraine headaches. Semin Neurol. 2006; 26:188-98.
4. Goadsby PJ, Lipton RB, Ferrari MD. Migraine-current understanding and treatment. N Engl J Med. 2002;346:257-69.
5. 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
6. 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.
7. Campistol J, Campos J, Casas C, Herranz JL. Topiramate in the prophylactic treatment of migraine in children. J Child Neurol. 2005;20:251-3.
8. Hershey AD, Powers SW, Vockell AL, LeCates S, Kabbouche M. Effectiveness of topiramate in the prevention of childhood headaches. Headache. 2002;42:810-8.
9. Silberstein SD. Topiramate in migraine prevention. Headache. 2005;45 Suppl 1:S57-65.
10. 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, bi-pedal edema and / or mid arm circumference <11.5 cm)

between April 2010 to February 2011. Children with known chronic medical or surgical disorders and known celiac serology or HIV status were excluded. After informed consent they were screened for celiac disease (ELISA based anti tissue transglutaminse {tTG} with a kit sensitivity of 95% and specificity of 96%), HIV and tuberculosis. Ethical clearance was taken from the institutional ethical committee. All patients with positive celiac serology were subjected to endoscopy and duodenal biopsy. Histopathology was expressed according to Marsh classification [8]. Subjects were diagnosed as CD when both Anti tTG was positive and biopsy showed partial or total villous atrophy along with increased intraepithelial lymphocytes [5].

Out of a total 76 children enrolled (42 male and 34 female) CD was diagnosed in 10 (13.1%; 95% CI 6.49 - 22.87) subjects. Mean age of presentation of patients with CD was 36.3±16 months with male to female ratio of 2.3:1. The mean weight for height (W/Ht) Z score of the subjects with CD was -4.5±1.7 and the height for age (Ht/age) Z score was -2.4±2.5 as compared to –4.5±1.0 and -3.8±1.9, respectively in SAM children without CD. 7 (9.3%) had TB (pulmonary TB 4, tubercular meningitis 2, disseminated TB 1) and 3 (4%) had positive HIV serology. The clinical features of SAM children with CD and without CD are highlighted in ***Table* 1**. Clinical features of both group were similar except for abdominal distension (*P*=0.04). Our study highlights higher prevalence of CD in SAM as compared to reported prevalence of CD around 1% in general population. Further distinction between celiac and non-celiac patients was difficult on clinical grounds; with abdominal distension being the only parameter higher in CD patients.

Our study has the limitation of a small sample size, being conducted in a tertiary hospital and included extremely malnourished children with W/H below –4 SD. Further studies with adequate number of cases from community will be needed to document the true association. Considering that there is no previous similar study our results highlight importance of identifying this subset of SAM, as the management for this subset of patients has to be gluten-free diet-based nutritional rehabilitation.

PRAVEEN KUMAR, KIRTISUDHA MISHRA, PREETI SINGH AND KIRAN RAI

From Department of Pediatrics, Kalawati Saran Children's Hospital, Lady Hardinge Medical College, New Delhi 110001, India.

kumardrpraveen@rediffmail.com

TABLE I COMPARISON OF DEMOGRAPHIC, CLINICAL AND BIOCHEMICAL FEATURES BETWEEN PATIENTS WITH CELIAC DISEASE AND REST OF THE STUDY GROUP

Characteristics	*SAM* with CD† (n=10)*	*SAM without CD (n=66)*	*P value*
Male, Female (ratio)	7, 3 (2.3:1)	35, 31 (1.1:1)	
Persistent/chronic diarrhoea	7(70%)	36(54.5%)	0.36
Acute diarrhoea	4(40%)	14(21.2%)	0.19
Abdominal distension	4(40%)	9(13.6%)	0.04
Vomiting	5(50%)	37(56.1%)	0.72
Loss of appetite	7(70%)	50(75.8%)	0.69
Exclusive BF‡ till 6 months	4(40%)	33(50%)	0.56
Age of introduction of CF§			0.46
6 months	1(10%)	16(24.2%)	
7-9 months	5(50%)	16(24.2%)	
9-12 months	4(40%)	15(22.7%)	
Not started	0	18(27.3%)	
Anemia (Hb<10g/dL)	8(80%)	37(56.1%)	0.15
Mean (SD) Hb (g/dL)	8.8(1.7)	9.4(2.9)	0.56

**SAM= Severe Acute Malnutrition;†CD= Celiac Desease; ‡BF=Breast feeding; §CF=Complementary Feeding.*

REFERENCES

1. International Institute for Population Sciences. National Family Health Survey 3, 2005-6. Mumbai. India: International Institute of Population Sciences, 2006.
2. Garcia-Manzanares A, Lucendo AJ. Nutritional and dietary aspects of celiac disease. Nutri Clin Pract. 2011;26:163-73.
3. Sood A, Sood N, Midha V, Avasthi G, Sehgal A. Prevalence of celiac disease among school children in Punjab, North India. J Gastroenterol Hepatol. 2006;21:1622-5.
4. Patwari AK, Anand VK, Kapur G, Narayan S. Clinical and nutritional profile of children with celiac disease. Indian Pediatr. 2003;40:337-42.
5. Yachha SK. Celiac disease: India on the global map. J Gastroenterol Hepatol. 2006; 21:1511-3.
6. Poddar U, Thapa BR, Nain CK, Prasad A, Singh K. Celiac disease in India: are they true cases of celiac disease? J Pediatr Gastroenterol Nutr. 2002;35:508-12.
7. Kumar M, Yaccha SK, Naik SR. Celiac disease in children. Indian J Gastroenterol. 1993;12:15.
8. Oberhuber G, Granditsch G, Vogelsang H. The histopathology of celiac disease: time for a standardized report scheme for pathologists. Eur J Gastroenterol Hepatol. 1999;11:1185-94.