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Study of 100 cases of Chronic Diarrhoea to find out prevalence of Celiac Disease, in Rajasthan

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Abstract: *Celiac disease (CD) is a syndrome which is distinguishes by damage of the small intestinal mucosa caused by the gliadin fraction of wheat gluten and similar alcohol-soluble proteins (prolamines) of barley and rye in genetically susceptible subjects. Total 100 cases were selected, having diarrhea of more than two weeks duration were enrolled in the study. All the patients having clinical suspicion would be subjected to following special investigations beside the routine investigations like stool examination done for pH, presence of fecal reducing substances (Benedict's test), occult blood (Benzidine test), microscopy and cultured. Anti - IgA TTG antibodies were assessed by indirect solid Phase immunometric assay (ELISA).Patients with `positive anti-IgA tTG, whose parents provided consent, underwent upper GI endoscopy under topical anesthesia. Four biopsies were taken from the second portion of the duodenum and histopathological grading done according to a modification of the Marsh classification.The prevalence of celiac disease is upcoming in our country also and it is around 10% in this study of chronic diarrhoea. In the country like ours where endoscopic biopsy not easily available in remote hospitals, patients with high index of clinical suspicion and higher Anti tTG titer must be subjected for the gluten free diet.*

Keywords: *Anti tTG titer, Celiac disease, Chronic diarrhoea, Gluten, GFD-Gluten free diet.*

I. Introduction

Celiac disease (CD) is a chronic autoimmune disease, characterized by an inflammatory T-cell response to the storage proteins in wheat (gliadin), rye (secalin) and barley (hordein) which are collectively called as "gluten." This aberrant response to dietary gluten in genetically susceptible individuals results in typical auto antibodies and histological alterations of the small bowel mucosa and can be associated with diverse systemic consequences [1,2]. Originally recognized in children presenting with diarrhoea and malabsorption, we now understand that it often affects adults, that may present with non-gastrointestinal manifestations including anaemia, arthropathy, osteoporosis and growth retardation. So what we see clinically is the tip of an iceberg that threatens to grow bigger. The diagnosis of celiac disease is now made with serological tests which may capture those at risk as well as those with actual disease. While small bowel mucosal biopsy is considered essential to the diagnosis of disease, there is now increasing recognition that even a positive serological test is associated with increased risks for vascular disease. Genetic, immunological and environmental factors are necessary for the expression of the disease. In the past decade, due to increasing number of Indian Papers in the area of coeliac disease, it can be inferred that there is a considerable interest in the epidemiology of CD in India [3-6]

CD occurs largely in Caucasians. The disease has been well documented in Asians from India, Pakistan, and Iran [7]. A high index of suspicion for CD should be maintained in all developing countries for patients who present with chronic diarrhoea or iron-deficiency anemia [6]. Screening studies have shown that CD is severely under diagnosed with a prevalence of 0.5 to 1% among the population [8,9]. Digestive symptoms are more common in infants and young [10]. Gastrointestinal symptoms include abdominal bloating and pain, chronic diarrhea, vomiting, constipation, foul-smelling for fatty stool, weight loss, malabsorption of nutrients can result such as; failure to thrive in infants, delayed growth and short stature, delayed puberty, and dental enamel defects of the permanent teeth. Adults are less likely to have digestive symptoms and may have unexplained iron-deficiency anemia, fatigue, bone or joint pain, bone loss or osteoporosis, depression or anxiety, tingling numbness in the hands and feet, seizures, missed menstrual periods, infertility or recurrent miscarriage, an itchy skin rash called dermatitis herpetiformis.CD is easily diagnosed in children with symptomatic malabsorption syndrome, but most of the children with CD do not have malabsorption and theclinical picture at presentation is very variable. Not allCD patients' presentation is equal. While some develop CD veryearly in life, others may eat gluten for many yearsbefore the disease becomes apparent.

II. Material And Methods

The Cases were selected from department of paediatrics/ medicine / skin from april 2012 to march 2013. The Patients having diarrhea of more than two weeks duration were enrolled in this study. Consent were taken and privacy of the patients were maintained. The enrolled patients were subjected to detailed history and physical examinations. All patients with clinical suspicion were subjected to investigations like complete Stool examination including macroscopic, microscopic and culture & sensitivity and, IgA tissue transglutaminase antibody (TTG) were assessed by indirect solid Phase immunometric assay (ELISA). Among patients with positive anti-IgA tTG, four biopsies were taken from the second part of the duodenum under topical anesthesia thorough Upper GI scopy.

Stool examination was done by Microbiologist and biopsies were interpreted by senior histo-pathologist and graded according to a modified Marsh classification. Patients with positive serology were put on Gluten free diet (GFD) and followed-up regularly. Clinical response to gluten free diet was assessed after 3, 6 & 9 months of the GFD. Those who showed unequivocal response to GFD were taken as having celiac disease.

III. Observations

Th.e observations made during the study are as follows:

Fig.3.1: Age Distribution in these Study Group Patients.

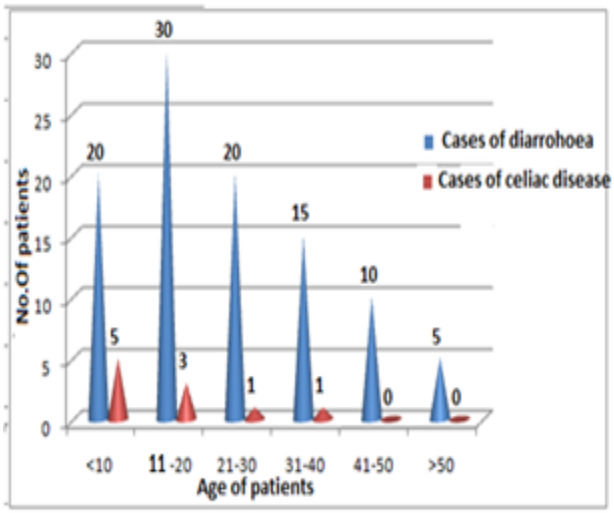


Fig.3.2: Sex Distribution in these Study Group Patients.

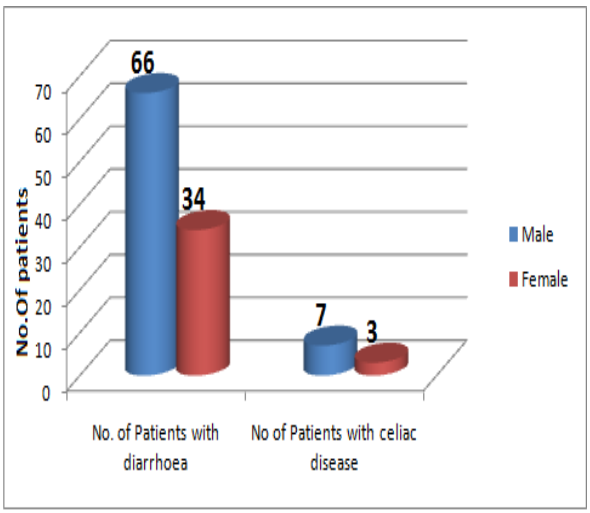


Fig.3.3: Clinical Manifestations Other than Diarrhoea.

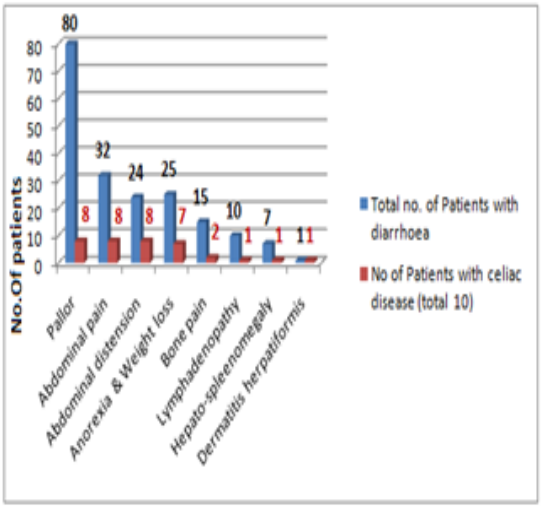


Fig.3.4: Stool Culture Findings in Study Group Patients.

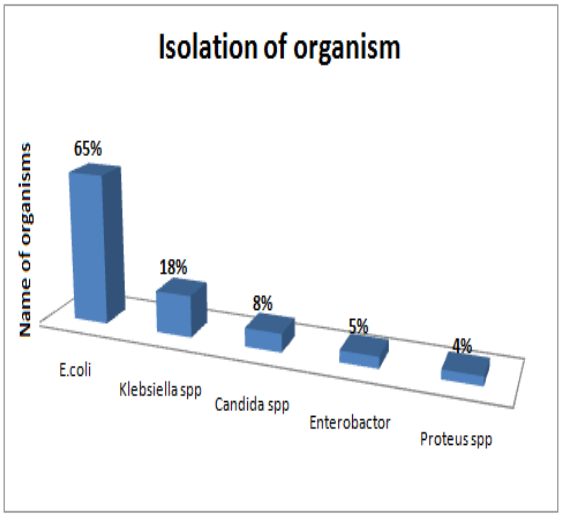
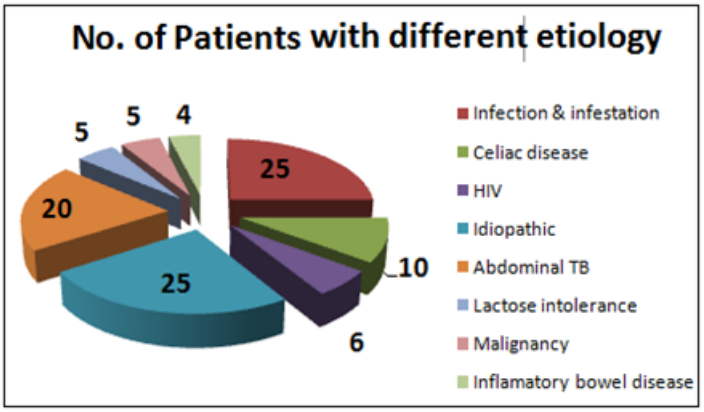


Fig.3.5:Etiology of Chronic Diarrhoea in Study Group Patients.



3.6 Correelation of gluten free diet with anti-ttgtiter, histopathology and symptomatic improvement.

All 10 patients put on GFD and their therapeutic responses were observed after 3, 6 ,9 months of therapy. After three months of GFD 8 patients showed reduction in Anti-TTG titer, 6 patients improved symptomatically (diarrhoea and weight gain) and out of four patients of endoscopic biopsy, three patients improved histologically from marsh grade 3 villous atrophy to grade 1 infiltration stage but one patient remain in grade 3.

After six months of GFD, rest of two patients (total 10) showed reduction in Anti-TTG titer, another two patients (total 8) patients improved symptomatically (diarrhea and weight gain) and out of four patients of endoscopic biopsy, three patients improve histologically from marsh grade 1 infiltration stage to normal histology but one patient improved incompletely from marsh grade 3 villous atrophy to grade 2 stage.

After nine months of GFD all 10 patients showed further reduction in Anti-TTG titer as well as improved symptomatically (diarrhea and weight gain) and out of four patients of endoscopic biopsy, three patients improve histologically from marsh grade 1 infiltration stage to normal histology but one patient improved incompletely from marsh grade 3 villous atrophy to grade 2.

IV. Discussion

In our study majority of patients 30(30%) were of 10–20 years age followed by 21–30 years (20%), 31–40 years (15%) and < 10 years (20%), respectively. Out of 10 patients of celiac disease maximum 5(50%) patients were < 10 years age, followed by 11–20 years (30%). None of the case has been observed beyond 40 years of age. Rawal et al.[11] also found maximum number of cases of celiac disease in age group of < 5 years .In our study 80 patients were males (66.66%) and 40 patients were females (34%) and Male to female ratio was 2:1. Out of 10 patients of celiac disease 7 patients were males and 3 patients were females. Male to female ratio was 2:1. Male predominance with M: F ratio of 3:2 in patients with celiac disease has also been reported by Rawal et al. and Poddar et al. [11,12]. In our study pallor was the most common finding present in 80 cases (80%), followed by abdominal pain in 32 cases (32%) and dermatitis herpetiformis lastly in 1(1%) patients. Out of 10 patients of celiac disease pallor, abdominal distention and abdominal pain, was present in 8 (80%) of cases. Anorexia and weight loss were in 7 (70%) patients, Bone pain 2 (20%) and Hepatosplenomegaly, Dermatitis Herpetiformis and Lympadnopathy were present in 1 (10%) of patients. In a study by Rawal et al. [11] who diagnosed celiac disease in 134 patients and pallor was present in all 134 patients (100%). Menni et al. [13] first reported a case of Dematitisherpetiformis associated with celiac disease.

In our study Infections (E.coli, Klebsella and Candida) and infestations (giardia, amoebic) were most commonly present in 25% cases, followed by abdominal tuberculosis in 20% cases, HIV in 6% cases, Lactose Intolerance in 5% cases. Malignancy 5% and IBD each were in 4% patients while in 25% patients cause could not be determined and kept as undetermined group. Out of 35 patients who were screened serologically for celiac disease, 10% patients were positive for IgA – tTg while 25% patients cause could not be determined hence kept as diarrhoea of unknown etiology. Infections were the predominant cause in all age groups. This can be attributed to the common prevalence of faulty feeding practices and poor hygiene in our population. Rastogi et al. [14] studied the causes of chronic diarrhoea in 47 patients and classified them into fivegroups namely tropical enteropathy (46.8%), irritable bowel syndrome (10.6%), giardiasis (14.8%), celiac disease (6.8%) and nonspecificdiarrhoea (21.8%). In a study by Yachha et al. [15] common causes of malabsorption syndrome were protracted diarrhoea in 33%, celiac disease in 26%, parasitic infestations in 9%, milk protein intolerance in 6%, and intestinal tuberculosis in 5%. In 13% patients' cause of malabsorption syndrome could not be

determined.Principal causes of chronic diarrhoea in the study by Akinbami FO et al. [16] were post gastroenteritis syndrome in 50%, enteric infections and infestations in 27%, and celiac disease in 13% patients.

V. Conclusion

Infections remain the predominant cause of chronic diarrhoea in all age groups.The prevalence of celiac disease is upcoming in our country hence routine screening for celiac disease must be carried out in all patients of chronic diarrhoea especially of younger age group (<20years).Background of clinical symptomatology of celiac disease and higher AntiTTG titer patient must be subjected for the gluten free diet.

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