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VARIABLE PRESENTATION OF CELIAC DISEASE IN PAKISTAN: A RURAL HOSPITAL BASED STUDY

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ABSTRACT:
Objective: To determine the frequency of variable presentation of celiac disease in patients presented at rural based hospital.

Material and methods: An observational study was conducted from April 2022 to April 2023 at gastroenterology department CAT-B hospital Malakand Dargai KP, Pakistan on 20 patients presented with celiac disease. Frequency of variable presentation of celiac disease was determined.

Results: The mean age was 24.30±12.410 years. Majority of the patients were females. The most common presentation of celiac disease was chronic diarrhea 55% followed by microcytic hypochromic anemia 35%, osteoporosis 20% and infertility 15%.

Conclusion: From our study we conclude that the most common presentations of celiac disease were chronic diarrhea and microcytic hypochromic anemia followed by osteoporosis and infertility.

Keywords: Celiac disease, variable presentation, chronic diarrhea, pediatrics, adults

INTRODUCTION:

Celiac disease (CD) is an autoimmune disorder initiated by eating gluten in those who already have a predisposition to the disease due to their genes. Gluten is the umbrella term for a group of alcohol-soluble proteins found in many different cereal grains [1]. CD has undergone a significant variation as the number of diagnoses has steadily increased, especially in senior individuals, reflecting recent developments in the diagnosis, etiology, and natural course of this disorder [2]. The increased availability of sensitive and specific diagnostic assays has been credited with this dramatic increase in CD diagnoses all throughout the world [3].

Globalization and the widespread dissemination of 'false' or 'extreme' versions of the Mediterranean diet, especially the intake of very high amounts of gluten (up to 20 g/day), have been hypothesized to contribute to a rise in the rate and prevalence of CD. It's also possible that gluten quality is a contributing factor. Indeed, the observed rise in CD diagnosis in recent years may have been driven by the manufacturing of novel grain types due to technological instead of dietary factors [4, 5].

The possibility of a shift in the typical presentation of celiac disease has been recognized in recent years. It often manifests in ways that were not previously thought to be indicative of the disease [6]. Most gastroenterologists recognize the larger scope of the disease and its rising prevalence, but most primary care physicians still view it as an unusual condition during childhood or infancy, with symptoms mostly involving the digestive tract and suggesting malabsorption [7, 8].

The failure of clinicians to include this disease in the initial differential diagnosis once patients appear with non-classic symptoms is a cause for concern [9]. Non-diarrheal manifestations, also known as "silent" celiac disease, are becoming more common than diarrheal presentations [10].It is crucial to identify celiac disease at an early stage. Many people with coeliac disease are not diagnosed until they have developed serious, yet preventable, problems including cancer [11, 12].

One of the most recent explanations for malabsorption syndrome is celiac disease. Celiac disease has been increasingly common in both children and adults around the globe. There is a paucity of inclusive investigations on celiac disease variables presentations in both children and adult population, particularly from the Asian region. Therefore, this study is carried to determine the variable presentation of celiac disease in our local health setup

MATERIAL AND METHODS:

This observational study was conducted at gastroenterology department CAT=B hospital Dargai Malakand KP, Pakistan from April 2022 to April 2023 after taking ethical approval from the hospital. We enrolled 20 celiac disease patients using non probability consecutive sampling, having age between 5 to 50 years of both genders. Patients were screened for celiac disease using serologic tests and small bowel biopsy. All the data regarding basic demographics and variable presentation were noted on a predesigned proforma.

We calculated the sample size using openepi sample size calculator taking previous frequency of Dermatitis herptiformis 1.9%[13], margin of error 6% and confidence interval 95% which yielded a sample size of 20. Data was analyzed using IBM SPSS 24. Categorical variables were assessed using frequencies and percentages while numerical values were assessed using mean and standard deviation. Chi Square test was applied for association between categorical variables keeping P value ≤ 0.05.

RESULTS:

We conducted this study on 20 patients presenting for celiac disease having mean age 24.30±12.410 years. Majority of the patients were female patients 11 (55%) while 9 (45%) were male patients. Regarding age distribution 4 (20%) patients were in the age group of 5 to 15 years, in the age group of 16 to 25 years there were 8 (40%) patients, in the age group of 26 to 35 years there were 5 (25%) patients and 3 (15%) were above the age of 35 years.

Regarding the variable presentation, we observed that 11 (55%) patients were presented with chronic diarrhea, microcytic hypochromic anemia was seen in 7 (35%) of the patients, infertility was seen in 3 (15%) patients, dermatitis herptiformis was seen in one patient, osteoporosis was seen in 4 (20%) patients, peripheral neuropathy was seen in 2 (10%) patients and celiac hepatitis was seen in only one patients.

Furthermore we assessed the association of variable presentation with gender and found out that there was no statistical significant between variable presentation with gender.

Graph 1 Gender distribution

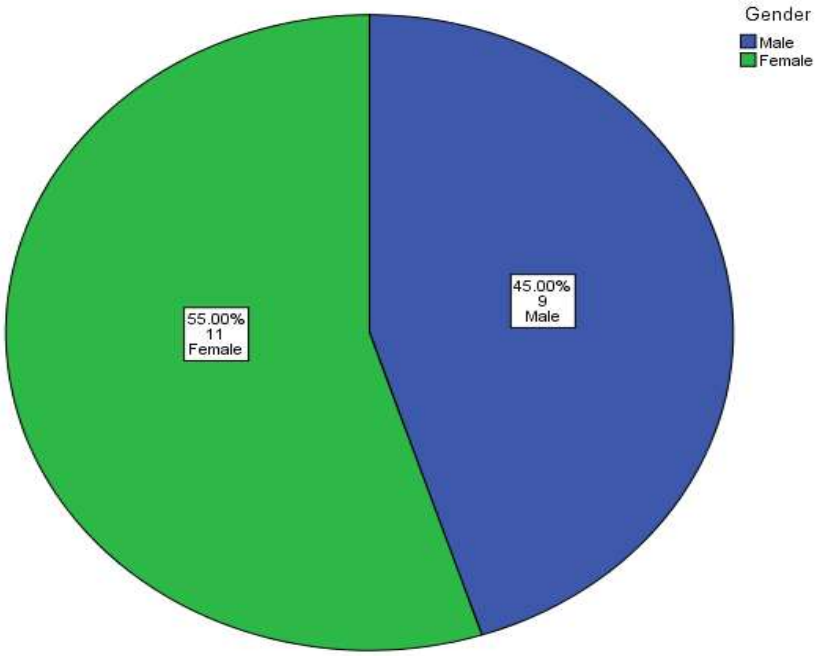

Table 1 Variable presentation of the patients

Variable presentation		Frequency	Percentage
Chronic diarrhea	Yes	11	55.0%
	No	9	45.0%
Microcytic hypochromic anemia	Yes	7	35.0%
	No	13	65.0%
Infertility	Yes	3	15.0%
	No	17	85.0%
Dermatitis herptiformis	Yes	1	5.0%
	No	19	95.0%
Osteoporosis	Yes	4	20.0%
	No	16	80.0%
Peripheral neuropathy	Yes	2	10.0%
	No	18	90.0%
Celiac hepatitis	Yes	1	5.0%
	No	19	95.0%

Table 2 Association of variable presentation with gender

		Gender				P value
		Male		Female		
		Frequency	Percentage	Frequency	Percentage	
Chronic diarrhea	Yes	4	36.4%	7	63.6%	0.39
	No	5	55.6%	4	44.4%	
Microcytic hypochromic anemia	Yes	3	42.9%	4	57.1%	0.88
	No	6	46.2%	7	53.8%	
Infertility	Yes	1	33.3%	2	66.7%	0.66
	No	8	47.1%	9	52.9%	
Dermatitis herptiformis	Yes	0	0.0%	1	100.0%	0.35
	No	9	47.4%	10	52.6%	

Osteoporosis	Yes	1	25.0%	3	75.0%	0.36
	No	8	50.0%	8	50.0%	
Peripheral neuropathy	Yes	0	0.0%	2	100.0%	0.86
	No	9	50.0%	9	50.0%	
Celiac hepatitis	Yes	0	0.0%	1	100.0%	0.35
	No	9	47.4%	10	52.6%	

DISCUSSION:

More and more adults and older people are being diagnosed with celiac disease, which has a wide range of symptoms and related conditions.[14] In 2013, the Oslo definitions came out, which gave terms for putting these different clinical forms into groups. It is now known that people with celiac disease can have either symptomatic disease, which includes both gastrointestinal and extra-intestinal symptoms, or silent disease, which means they do not have any symptoms or signs that would make a doctor think they have the disease.[15] Classical celiac disease and non-classical celiac disease are two types of celiac disease that have symptoms. Classical disease is any case with impairment, and non-classical disease is any other case.[15]

People who are labeled with celiac disease are getting older and their symptoms are getting milder. People think that this change is due to more people knowing about it, better diagnostics, earlier discovery through serologic testing, and environmental factors like more people eating wheat.[14] Classical, symptomatic disease used to be the most common way for the disease to show up. While this is still a common way for the disease to show up, subclinical and non-classical cases now make up about 30% and 40% to 60% of new cases, respectively[14]. The demographics of newly identified cases seem to be changing as well, with the median age at diagnosis rising to the 30s and 40s. However, the high ratio of women to men, which is about 3:1, has stayed the same over time. The distribution of body mass index among newly diagnosed patients has also changed. About 40% of them are overweight or obese when they are first identified. The symptoms also seem to be different for men and women of different ages, with constipation, bloating, and iron deficiency anemia being more common in women who are identified at a younger age.[16] Also, women are more likely to be affected than men.

More than half of people will have stomach problems and lose weight when they first get sick. Even though it has become much less common over time, diarrhea is still the most common stomach symptom that people notice when they go to the doctor.[13] Other gastrointestinal complaints include bloating, aphthous stomatitis, changing bowel habits, constipation, and gastroesophageal reflux disease, in order of how often they happen. Some of the less common digestive signs are persistent vomiting and constant stomach pain. But gastrointestinal symptoms are common in the general population, and there is not much of a link between having common gastrointestinal symptoms and having celiac disease that has not been identified.[17]

Our study was conducted was 20 patients presenting with celiac disease. The mean age of the patients at presentation was 24.30±12.41 years. We observed that majority of the patients were females as compared to male patients, similar findings have been observed by a study which reported that among the patients presented with celiac disease majority in their study were female patients[13], while a systematic review also reported similar findings of female predominance among celiac disease patients.[18]

As discussed above the most common presentation of celiac disease in our study was chronic diarrhea which was presented in 55% of the patients. Second leading presentation was microcytic hypochromic anemia which was seen in 35% of the patients while infertility was observed in 15% of the patients. The other presentations were dermatitis herptiformis 5%, osteoporosis 20%, peripheral neuropathy 10% and celiac hepatitis 5%. The aforementioned study[13] reported that chronic diarrhea was the most common presentation of celiac disease followed by iron deficiency anemia. Another

study reported that dermatitis herptiformis was found in 4% of the patients in their study which is also similar to our findings[4]. Osteoporosis has been reported from 10% to 50% in various studies in celiac disease patients[4,19].

CONCLUSION:

From our study we conclude that the most common presentations of celiac disease were chronic diarrhea and microcytic hypochromic anemia followed by osteoporosis and infertility. We also conclude that celiac disease is more common in the female gender as compared to male. Serological screening tests for coeliac disease should be routinely included in the examination of patients with iron deficiency anemia or gastrointestinal symptoms that cannot be accounted for by other causes, as well as in those who are at elevated risk for celiac disease.

REFERENCES:

1. Bascuñán KA, Vespa MC, Araya M. Celiac disease: understanding the gluten-free diet. Eur J Nutr. 2017;56(59):449-59.
2. Krauthammer A, Guz-Mark A, Zevit N, Marderfeld L, Waisbourd-Zinman O, Silbermintz A, et al. Age-Dependent trends in the celiac disease: a tertiary center experience. J Pediatr Gastroenterol Nutr. 2021;72(6):894-9.
3. Caio G, Volta U, Sapone A, Leffler DA, De Giorgio R, Catassi C, et al. Celiac disease: a comprehensive current review. BMC Medicine. 2019;17(1):1-20.
4. Volta U, Caio G, Tovoli F, De Giorgio R. Non-celiac gluten sensitivity: questions still to be answered despite increasing awareness. Cell Mol Immunol. 2013;10(5):383-92.
5. de Lorgeril M, Salen P. Gluten and wheat intolerance today: are modern wheat strains involved?. Int J Food Sci Nutr. 2014;65(5):577-81.
6. Riznik P, De Leo L, Dolinsek J, Gyimesi J, Klemenak M, Koletzko B, et al. Clinical presentation in children with coeliac disease in Central Europe. J Pediatr Gastroenterol Nutr.. 2021;72(4):546-51.
7. Fueyo-Díaz R, Magallón-Botaya R, Masluk B, Palacios-Navarro G, Asensio-Martínez A, Gascón-Santos S, et al. Prevalence of celiac disease in primary care: the need for its own code. BMC Health Serv Res. 2019;19(1):1-9.
8. Singh P, Singh AD, Ahuja V, Makharia GK. Who to screen and how to screen for celiac disease. World J Gastroenterol. 2022;28(32):4493.
9. Kowalski K, Mulak A, Jasińska M, Paradowski L. Diagnostic challenges in celiac disease. Adv Clin Exp Med. 2017;26(4):729-37.
10. Fasano A. Celiac disease: how to handle a clinical chameleon. N Engl J Med. 2003;348(25):2568-70.
11. Koskinen I, Hervonen K, Pukkala E, Reunala T, Kaukinen K, Collin P. Cancer incidence and factors associated with malignancies in coeliac disease during long-term follow-up. Gastro Hep. 2021;3(2):107-15.
12. Walker MM, Ludvigsson JF, Sanders DS. Coeliac disease: review of diagnosis and management. Med J Aust. 2017;207(4):173-8.
13. KHAN D, REHMAN AU, REHMAN S. Celiac Disease: Clinical, Endoscopic and Histological Profile. Infertility. Pak J Med Health Sci.2013;4:7
14. Dominguez Castro P, Harkin G, Hussey M, et al. Changes in presentation of celiac disease in Ireland from the 1960s to 2015. Clin Gastroenterol Hepatol 2017; 15(6):864–71.
15. Ludvigsson JF, Leffler DA, Bai J, et al. The Oslo definitions for coeliac disease and related terms. Gut 2013;62(1):43–52.
16. Schosler L, Christensen L, Hvas C. Symptoms and findings in adult-onset celiac disease in a historical Danish patient cohort. Scand J Gastroenterol 2016;51(3): 288–94.
17. Choung R, Rubio-Tapia A, Lahr B, et al. Evidence against routine testing of patients with functional gastrointestinal disorders for celiac disease: a populationbased study. Clin Gastroenterol Hepatol 2015;13(11):1937–43.

18. King JA, Jeong J, Underwood FE, et al. Incidence of Celiac Disease Is Increasing Over Time: A Systematic Review and Meta-analysis. Am J Gastroenterol 2020; 115(4):507-25.
19. Schosler L, Christensen L, Hvas C. Symptoms and findings in adult-onset celiac disease in a historical Danish patient cohort. Scand J Gastroenterol 2016;51(3): 288–94.