

ORIGINAL ARTICLE

Prevalence of Celiac Disease Amongst Patients with Chronic Diarrhea: A Cross Sectional Study

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ABSTRACT

Background: An autoimmune disease called celiac disease (CD) causes intolerance of gluten in genetically predisposed individuals. Celiac disease may exhibit a variety of clinical signs, making it difficult to diagnose based purely on symptoms.

Objective: To find out the prevalence of celiac disease amongst chronic diarrhea patients

Methodology: The current study was cross sectional carried out at the department of Medicine, Khalifa Gul Nawaz Teaching Hospital, Bannu Medical College Bannu from August 2022 to January 2023. All the laboratory examination like blood smear, stool routine examination serum calcium and serum albumin was done. The serological tests for celiac disease like IgA anti TTG and IgG anti TTG was also determined. All the data was documented in a proforma designed for this study. All the data collected was analyzed by employing IBM SPSS version 23.

Results: Amongst total 140 patients, the male patients in our study were 67 (47.86%) whereas female patients were 73 (52.14%). The mean age (SD) in the current research was 34 (7.12) years. The overall celiac disease prevalence amongst chronic diarrhea patients was 18 (12.86%).

Conclusion: Our study concludes that the prevalence of celiac disease amongst chronic diarrhea patients is very high.

Keywords: Prevalence; celiac disease; chronic diarrhea

INTRODUCTION

An autoimmune disease called celiac disease (CD) causes intolerance of gluten in genetically predisposed individuals¹. Grains including wheat, barley, rye, kamut and spelt all contain gluten¹. In those with CD, gluten may lead to decreased weight, bloating, diarrhoea, and stomach discomfort¹. The small intestine mucosa is damaged by CD, which results in crypt hyperplasia and villous atrophy and promotes malabsorption². Malabsorption may lead to deficiencies in micronutrients like iron, fat soluble vitamins, vitamin B12 and folic acid². Inflammatory injury might cause diarrhea which raises solute and water outflow³. An estimated 7% to 14% of people have chronic diarrhoea⁴. Irritable bowel syndrome, inflammatory bowel disease, celiac disease, malabsorption syndromes, persistent infections, endocrine disorders, food allergies, and medications are some of the most prevalent causes of chronic diarrhoea⁵. CD may exhibit a variety of clinical signs, making it difficult to diagnose based purely on symptoms. Although being non-specific, "iron deficiency anaemia and irritable bowel syndrome" are the most common clinical signs^{6,7}. According to Barada et al., the prevalence of CD ranged from 6.5-21% among patients who suffered from chronic diarrhoea in the Middle East and North Africa⁸. Gastrointestinal symptoms were the most prevalent manifestation of the condition. Rampertab et al. observed that, whereas diarrhoea was present in 46.7% of their sample, this proportion was decreasing with time⁹. Classical celiac disease that is characterized by predominantly gastrointestinal symptoms, such as diarrhoea, malnutrition, weight loss, steatorrhea, and edema due to hypoalbuminemia¹⁰⁻¹². Nonclassical celiac disease that is characterized by predominantly gastrointestinal symptoms, such as abdominal discomfort, gastroesophageal reflux symptoms, vomiting, constipation, irritable bowel syndrome-like symptoms, distension and bloating sensations¹³. In contemporary practice, the occurrence of a positive celiac disease-specific serology and the concurrent diagnostic intestinal biopsy are required for diagnosing celiac disease¹⁴. Although no local research has been conducted to date regionally in this area, the findings of this study will assist us to emphasize the local scale of celiac disease amongst patients with chronic diarrhoea. The literature revealed that the severity of celiac disease might vary, thus the study findings will be compared with

existing worldwide data. Based on the comparison, we can make recommendations for future research projects.

MATERIALS AND METHODS

The current study was cross sectional carried out at the department of Medicine, Khalifa Gul Nawaz Teaching Hospital, Bannu Medical College Bannu. The study duration was six months from August 2022 to January 2023. The study approval was taken from the IRB of the hospital. The overall sample size based on calculator of WHO was 140. The inclusion criteria were all the patients of both the gender having age from 18-60 years presenting with chronic diarrhea whereas the exclusion criteria were all the patients already diagnosed with celiac disease, patients not fit for Upper gastrointestinal endoscopy and patients not willing to participate in our study. Informed consent was obtained in written from all the enrolled individuals. All the data including history of diarrhea and duration was documented. All the laboratory examination like blood smear, stool routine examination serum calcium and serum albumin was done. The serological tests for celiac disease like IgA anti TTG and IgG anti TTG was also determined. Biopsies were taken on upper gastrointestinal endoscopy. One biopsy sample was taken from duodenal bulb and four biopsy samples were taken from second part of duodenum. The samples were then sent to the histopathology laboratory of the hospital for celiac disease confirmation. All the data was documented in a proforma designed for this study. All the data collected was analyzed by employing IBM SPSS version 23. For gender and frequency of celiac disease, frequencies and percentage were determined while for age mean and standard deviation was determined.

RESULTS

Totally 140 patients with chronic diarrhea were included in the current study. The male patients in our study were 67 (47.86%) whereas female patients were 73 (52.14%). (Figure 1) The mean age (SD) in the current research was 34 (7.12) years. In the current study, 28 (20%) patients were 18-30 years in age, 35 (25%) patients were 31-40 years, 30 (21.42%) were in age group 41-50 years while 25 (17.86%) patients were 51-60 years old.

(Figure 2) The overall celiac disease prevalence amongst chronic diarrhea patients was 18 (12.86%). (Figure 3)

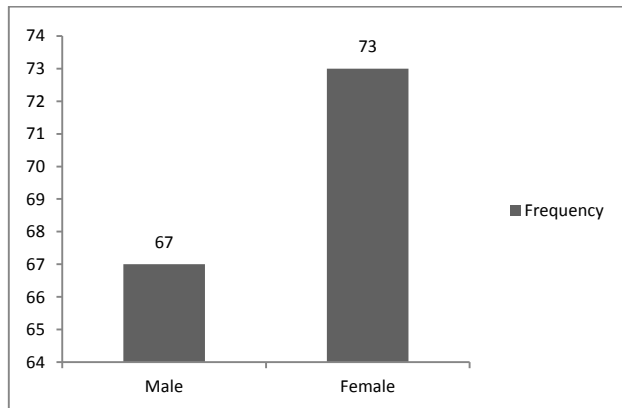


Figure 1: Patients distribution based on gender

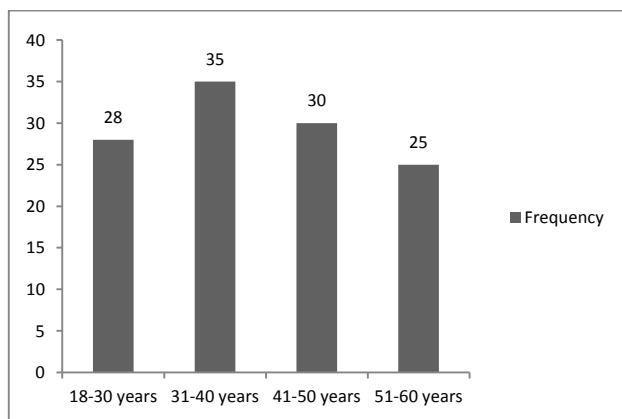


Figure 2: Patients distribution of based on age

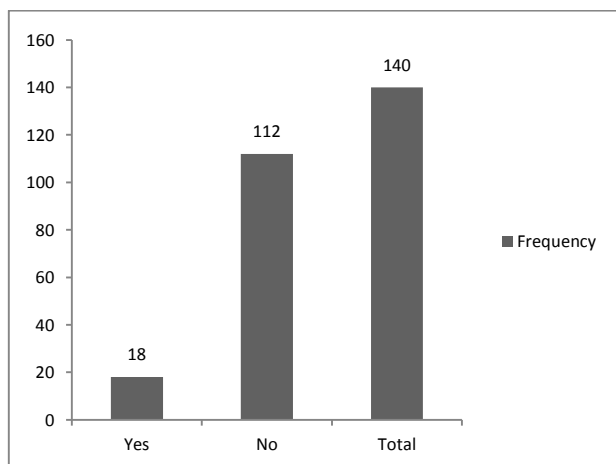


Figure 3: Overall celiac disease prevalence amongst chronic diarrhea patients

DISCUSSION

CD is currently prevalent around the globe ¹⁵, contrary to earlier beliefs that it mainly afflicted White Europeans. In the globe, 0.5–1% of people has CD ¹⁵. There have been reports of CD underdiagnosis in Africa, Middle East, South America and Asia [8]. The use of gluten-containing foods like bread and noodles has increased across Asia as a result of the impact of a Western diet, which may enhance the frequency of CD in the future ¹⁶. The

majority of CD patients had the HLA-DQ2 and HLA-DQ8 genotypes ¹⁵. Due to the exposure of immune cells to these substances, malabsorption and enteropathy of the small intestine mediated by the immune system occur ¹⁶.

In the current study, totally 140 patients with chronic diarrhea were included. The male patients in our study were 67 (47.86%) whereas female patients were 73 (52.14%). The mean age (SD) in the current research was 34 (7.12) years. In the current study, 28 (20%) patients were 18-30 years in age, 35 (25%) patients were 31-40 years, 30 (21.42%) were in age group 41-50 years while 25 (17.86%) patients were 51-60 years old. The overall celiac disease prevalence amongst chronic diarrhea patients was 18 (12.86%). In accordance with our findings, a previous study carried out by Imran et al. reported 10% prevalence of celiac disease in patients with chronic diarrhea ¹⁷. Another study carried out on patients with chronic diarrhea reported 9.2% frequency of celiac disease which is lower than our reported frequency ¹⁸. A study done in Iran reported frequency of celiac disease amongst chronic diarrhea patients in the range of 18.5-21% which is not similar with our findings ¹⁹. Another study reported similar prevalence (15.9%) of celiac disease with our findings ²⁰. Another study carried out by Shahbazkhani B et al. reported 15% prevalence of celiac disease in chronic diarrhea patients which is in accordance with our findings ²¹.

CONCLUSION

Our study concludes that the prevalence of celiac disease amongst patients with chronic diarrhea is very high. Regardless of the serology, patients who exhibit typical malabsorption symptoms should get a duodenal biopsy since celiac disease is more common in these individuals. Serological testing should be carried out in individuals with atypical symptoms, followed by endoscopic biopsy, and regular duodenal biopsy is advised when endoscopic examination is required due to symptoms.

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