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Frequency of celiac disease in patient with irritable bowel syndrome

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***Abstract*---**Background: One of the most prevalent functional gastrointestinal illnesses is irritable bowel syndrome (IBS), which causes a variety of gastrointestinal symptoms, including changed bowel habits and stomach pain or discomfort, without an underlying basis. Objective: To assess the frequency of celiac disease in patient with irritable bowel syndrome. Methodology: This cross sectional study was carried out at the department of gastroenterology, Lady Reading Hospital Peshawar. The duration of study was two years from January 2018 to December 2019. The serological tests for celiac disease like IgA anti TTG and IgG anti TTG was determined. Biopsies were taken on upper gastrointestinal endoscopy. Data was collected in a specialized proforma for our research. All the data collected was

analyzed by employing IBM SPSS version 23. Results: In our study, a total of 240 patients with irritable bowel syndrome were enrolled. Gender wise distribution shows that there were 132 (55%) male patients while the female patients were 108 (45%). The mean age of patients (SD) was 26.72 (± 2.27) years. The frequency of celiac disease based on serological testing was 20 (8.33%). The frequency of celiac disease based on histological findings was 15 (6.25%). The overall frequency of celiac disease based on both serological and histological finding was 10 (4.17%). Conclusion: Our study concludes that the frequency of celiac disease is quite high in patients with irritable bowel syndrome. Patients with irritable bowel syndrome should be treated with a high index of suspicion, particularly if they have non-typical symptoms or fail to respond to standard therapy.

***Keywords*---**frequency, celiac diseases, irritable bowel syndrome.

Introduction

One of the most prevalent functional gastrointestinal illnesses is irritable bowel syndrome (IBS), which causes a variety of gastrointestinal symptoms, including changed bowel habits and stomach pain or discomfort, without an underlying basis [1, 2]. Estimates of the prevalence of this condition range from 1 to 45%, with up to 1 in 10 people afflicted worldwide [3]. The prevalence of illness was found to be 3.5% in a research done in Karachi, Pakistan [4]. According to population-based research, illness are more prevalent in younger populations below 50 years old, despite the fact that irritable bowel syndrome is frequently under-diagnosed in elderly patients [5]. In North America, females are the more adversely impacted gender, with a ratio of about 2:1 [6, 7]. A chronic, complex, immune-mediated disorder of the small intestine is celiac disease (CD). Gluten intake in genetically susceptible persons with HLA histocompatibility antigen HLA-DQ2 and DQ8 is the cause [7-10]. Those with celiac disease who exhibit malabsorption are said to have the "typical" form of the illness, while those who exhibit anaemia, tiredness, abdominal discomfort, or sexual dysfunction are said to have the "atypical" form of the disease, and those who exhibit no symptoms or indications are said to have "silent disease," which may be diagnosed only by serology [11, 12]. Although some of the symptoms of CD resemble those of IBS, many CD patients are overlooked and treated as functional illnesses. The differential diagnosis of IBS must include CD. Many studies have been conducted to determine the prevalence of CD in IBS patients across the globe, and they have found that the incidence of CD is about 1% in Europe, with varying percentages in other regions around the globe [13-18].

Irritable bowel syndrome (IBS) is a condition with a high prevalence. Using common diagnostic techniques like the Rome II criteria, it is observed in 10%-20% of people [19]. In order to rule out organic disorders that manifest symptoms similar to those of suspected IBS, limited testing must be conducted after eliciting symptoms that meet certain criteria [20]. Clinically, IBS and adult-onset celiac disease (CD) may sometimes be hard to separate from one another [21-26]. Untreated CD may be accompanied by a wide range of symptoms and signs. In point of fact, a significant number of individuals, particularly those who present in maturity,

exhibit few or atypical symptoms [26-28]. The recent advent of extremely sensitive and precise CD serologic tests has enhanced awareness that the condition is more prevalent than previously thought [29-31]. This supports the issue that some people who have been diagnosed with IBS really have CD. Data in the literature on the prevalence and association between CD and IBS is limited in Pakistan. This study was carried out with the objective of determining the frequency of celiac disease in patients with irritable bowel syndrome.

Materials and Methods

This cross sectional study was carried out at the department of gastroenterology, Lady Reading Hospital Peshawar. The duration of study was two years from January 2018 to December 2019. The ethical and research committee of the hospital approved our study. The total sample size in the current study was 240 patients based on the WHO sample size calculator.

Inclusion criteria

The inclusion criteria of the current study were all the patients of both the gender having age 18-60 years, patients who fulfill ROME IV criteria [32], patients previously not diagnosed with celiac disease, chronic hepatic and renal problems and patients willing to participate in our study.

Exclusion criteria

All the patients previously diagnosed with celiac disease, chronic hepatic and renal problems, age above 60 years, patients with chronic diarrhea and patients not willing to participate in our study. A written informed consent was signed from all the enrolled patients. Detail history was taken from all the patients. 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. Data was collected in a specialized proforma for our research. 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

In our study, a total of 240 patients with irritable bowel syndrome were enrolled. Gender wise distribution shows that there were 132 (55%) male patients while the female patients were 108 (45%). (Figure 1) The mean age of patients (SD) was 26.72 (± 2.27) years. Age wise distribution shows that 192 (80%) patients were in age group 18-40 years whereas 48 (20%) patients were age group 41-60 years. (Figure 2) Distribution based on disease duration of irritable bowel syndrome shows that disease duration was 1-12 months in 144 (60%) patients while it was 13-30 months in 96 (40%) patients. (Figure 3) The frequency of celiac disease based on serological testing was 20 (8.33%). The frequency of celiac disease based

on histological findings was 15 (6.25%). The overall frequency of celiac disease based on both serological and histological finding was 10 (4.17%). (Table 1)

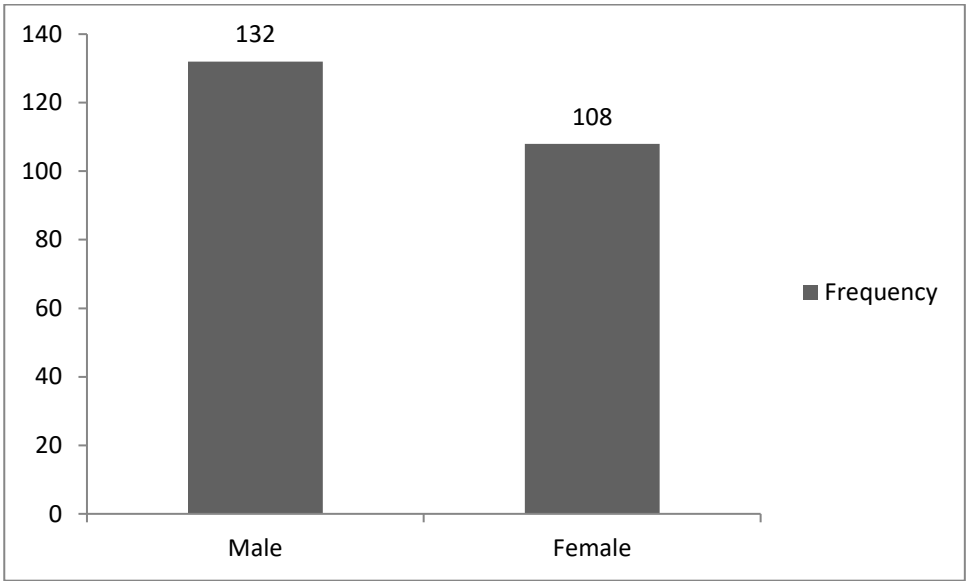

Figure 1: Distribution of participants on the basis of gender

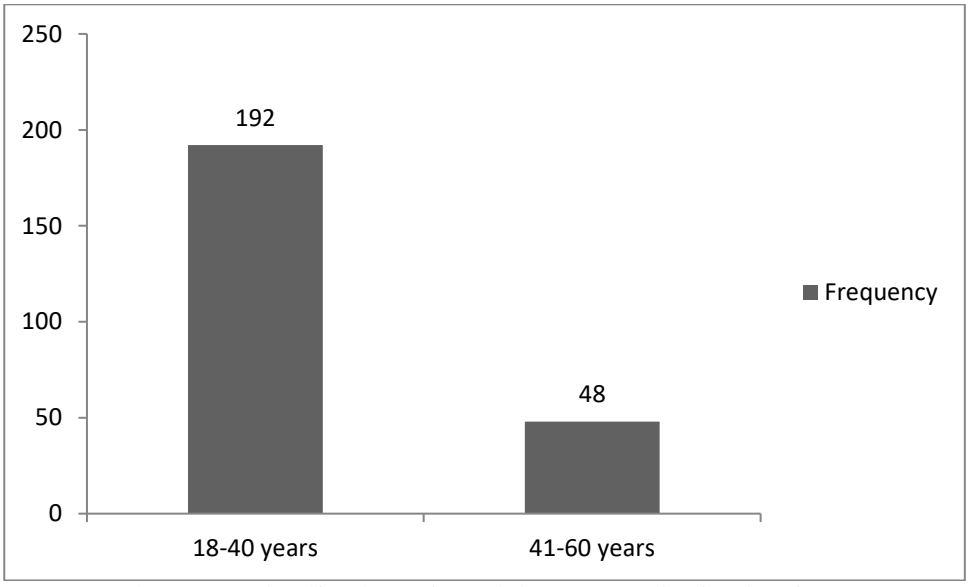

Figure 2: Distribution of participants on the basis of age

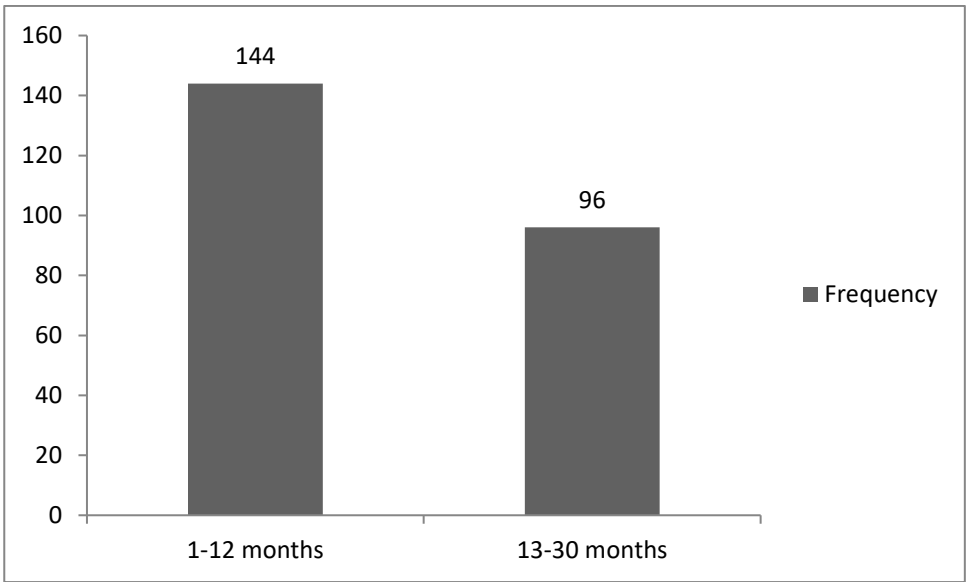

Figure 3: Distribution of participants on the basis of duration of irritable bowel syndrome

Table 1: Serological, histological and overall frequency of celiac disease

Parameter	Sub category	Frequency
Serological	Yes	20
	No	220
Histological	Yes	15
	No	225
Both	Yes	10
	No	230

Discussion

With IBS and CD, there is a similarity in symptoms and triggering events. This resemblance causes the CD to be often misinterpreted as IBS, which raises its morbidity [33]. Recent population - based studies from North America found that the frequency of CD varied between 0.5% and 1% [34-36]. According to studies conducted in Europe, CD may affect up to 1% of the adult population [29]. CD is seen as unusual among non-Western societies, in contrast to its great incidence in Western nations. Recent research from the Middle East, Africa, and India, though, revealed a frequency of up to 7.6% [37-39].

In our study, a total of 240 patients with irritable bowel syndrome were enrolled. Gender wise distribution shows that there were 132 (55%) male patients while the female patients were 108 (45%). The mean age of patients (SD) was 26.72 (± 2.27) years. Age wise distribution shows that 192 (80%) patients were in age group 18-40 years whereas 48 (20%) patients were age group 41-60 years. Distribution based on disease duration of irritable bowel syndrome shows that disease duration was 1-12 months in 144 (60%) patients while it was 13-30 months in 96

(40%) patients. The frequency of celiac disease based on serological testing was 20 (8.33%). The frequency of celiac disease based on histological findings was 15 (6.25%). The overall frequency of celiac disease based on both serological and histological finding was 10 (4.17%).

In accordance with our study, a previous study done by M A Saif Ullah et al. reported serological, histological and both prevalence of celiac disease in 9%, 6.7% and 3.8% respectively. In their study males were predominant which was also in line with our study [40]. Another study done by Cash et al. reported similar prevalence of celiac disease but females were dominant in their study which is not in line with our study [41]. Another study carried out by KU khan reported celiac disease in 17.65% suspected IBS patients which is not in accordance with our findings [42]. Another study carried out by Akhondi et al. reported comparable findings with our study. They reported that the overall celiac disease prevalence was 3.2% in irritable bowel syndrome patients [43]. A increasing prevalence is seen farther into the Arab world, with Saudi Arabia having 9.6% of IBS patients with Celiac disease [44]. Whereas our closest neighbors, India and Bangladesh, have incidence rates of 6.1% and 9%, correspondingly [17, 18]. This wide variation across research is presumably caused by racial makeup, eating habits, the accessibility of services for diagnosis, and genetics. However more research is urgently required to look into the matter and find the original frequencies.

Conclusion

Our study concludes that the frequency of celiac disease is quite high in patients with irritable bowel syndrome. Patients with irritable bowel syndrome should be treated with a high index of suspicion, particularly if they have non-typical symptoms or fail to respond to standard therapy.

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