

Frequency of Celiac Disease Diagnosed on Endoscopic Duodenal Biopsy in Patients of Functional Dyspepsia

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ABSTRACT

Objective: To determine the frequency of celiac disease diagnosed on endoscopic duodenal biopsy in patients presenting with functional dyspepsia.

Methods: This was a cross-sectional study was conducted at the Department of Gastroenterology and Hepatology, Shalamar Medical and Dental College, Lahore. A total 160 patients of either gender, aged 20-70 years and diagnosed with functional dyspepsia were included. The study was conducted during a period of six months from September 2021 to February 2022. The informed consent of patients was obtained. All the basic demographic information of each patient was noted and all the patients underwent endoscopic duodenal biopsies and specimens were sent to the department of histopathology for the histopathological assessment of celiac disease. The collected data were analyzed statistically by using SPSS version 12.

Results: Average age of male and female patients was 45.61 ± 14.41 and 39.83 ± 14.91 years. Among 160 patients 60(37%) were male and 100(63%) were females. There were 90(56.3%) patients who had dysmotility like dyspepsia, 54(33.8%) patients diagnosed with an ulcer like dyspepsia and 16(10%) patients were having unspecified dyspepsia. According to the Marsh classification, 140 patients were diagnosed with type-0, 7 patients with Type-1, 2 patients with type-2, 9 patients with type-3a and 2 patients with type-3b. Celiac disease was diagnosed with the help of Modified Marsh classification. Among 160 patients 13(8%) were diagnosed with celiac disease.

Conclusion: The results of the current study show a high frequency of celiac disease in patients with functional dyspepsia. Keeping this fact in mind, silent/subclinical CD should be kept in mind as a cause of functional dyspepsia during clinical activities

Keywords: Celiac disease, Endoscopic duodenal biopsy, Functional dyspepsia

INTRODUCTION

Dyspepsia is the commonest gastrointestinal conditions associated with clinical practice.¹ This common clinical illness is characterized by discomfort or pain of the upper abdomen, abdominal distension and bloating, belching, early satiety and nausea.² According to the criteria of Rome IV, functional dyspepsia is characterized by one or more symptoms of the following: a bothersome early sanitation or postprandial fullness, a bothersome burning of epigastrium and/or pain of the epigastrium without structural disease evidence, along with the administration the upper endoscopy (if required), based on the patient's age, previous history, or the occurrence of alarm symptoms.^{3,4} Although the actual proportion of dyspepsia is unknown in the general population, although estimable it is believed that up to 25% to 40% of individuals will suffer from dyspepsia symptoms in a given year.⁵ Individuals with severe or recurrences of upper gastrointestinal (dyspeptic) problems are frequently subjected to a series of tests in order to rule out structural or metabolic irregularities as a cause of their symptoms. Nevertheless, it is very uncommon for a thorough evaluation to discover no substantial organic findings, leading to the diagnosis of functional dyspepsia.⁶ Celiac disease (CD) is a hereditary, inflammatory digestive condition brought on by the gluten-containing food consumption, that causes damage to the small intestine and prevents nutrients from being absorbed. Celiac disease includes a wide range of symptoms, including some that are caused by nutritional malabsorption. Symptoms include stomach bloating and pain, persistent diarrhea, weight loss, constipation, vomiting, and the development gastrointestinal carcinoma development. It affects both children and adults, although it affects women more than males. CD is detected in around 0.5 to 2% of the dyspeptic patients, that is 2 to 9 times greater than population without dyspepsia.^{7,8} Although, the choice to undertake numerous duodenal biopsies among cases of dyspepsia is based on insufficient evidence.⁷ Individuals having dyspepsia had a 2-fold higher risk of CD compared with the general population. On other hand also reported that the celiac disease prevalence dyspeptic patients were found to be many times higher in contrast to the general population.^{9,10} Several

international studies have used serological tests to assess the frequency of celiac disease amongst individuals having functional dyspepsia, but there is insufficient data in local populations to establish the incidence of celiac disease using endoscopic duodenal biopsies. If celiac disease is not early detected, it can cause severe complications such as ulcerative jejuno ileitis, autoimmune illness and malignancy. Among serological tests anti-tissue transglutaminase antibody (anti-Ttg) is generally evaluated, but anti-tTG may be higher because of raised age and/or dyspepsia. Even in some cases, IgA is absent and anti-tTG cannot predict CD in such patients. Its accuracy is also limited, and it has the potential to misdiagnose celiac disease. Although this study has been done to find out the frequency of celiac disease among patients of functional dyspepsia at Shalamar Medical and Dental College Lahore.

MATERIAL AND METHODS

This was a cross-sectional survey, conducted at the department of Gastroenterology and Hepatology, Shalamar Medical and Dental College Lahore, during the six months from September 2021 to February 2022. Individuals having functional dyspepsia of either gender, ranging in age from 20 to 70 years, were enrolled in the study. All the patients having a history of heart failure, malignancy, pregnant women, diabetes mellitus and renal impairment were excluded. After taking the demographic information, medical history, patients were labeled to be suffering from functional dyspepsia, if they had a 12-week history (which need not to be consecutive) of either: ulcers like dyspepsia, was characterized by upper abdomen pain as the predominant symptom, dysmotility like dyspepsia, characterized by the commonest symptoms including early satiety, fullness of upper abdomen, nausea or bloating without center or upper abdominal pain; and unspecified dyspepsia, where symptoms that do not fit the criteria for ulcers or dysmotility, such as dyspepsia. After obtaining informed consent, each patient underwent endoscopic duodenal biopsy by single gastrointestinal consultant at Shalamar Hospital Lahore. The sample was then sent to the histopathology department, for the assessment of celiac disease. All these data were entered into a

pre-designed study proforma. The collected data were analyzed statistically by using SPSS version 26.

RESULTS

The average age of male and female patients was 45.61 ± 14.41 and 39.83 ± 14.91 years. Among 160 patients 60(37%) were male and 100(63%) were females. There were 90(56.3%) patients had dysmotility like dyspepsia, 54(33.8%) patients diagnosed with ulcer like dyspepsia and 16(10%) patients had unspecified dyspepsia. According to the type of dyspepsia 90 had dysmotility like dyspepsia, 54 were diagnosed with ulcer like dyspepsia and 16 cases were diagnosed with unspecified dyspepsia.

Celiac disease was diagnosed with the help of Modified Marsh classification. Among 160 patients 13(8%) patients were diagnosed with celiac disease. According to the Marsh classification, 140 cases were diagnosed with Type-0, 7 individuals with Type-1, 2 subjects with type-2, 9 cases with Type-3a and 2 cases with Type-3b. Table 2

There was no significant association between gender and type of dyspepsia. i.e. (p-value=0.372). Table 3.

Table-1: Distribution of patients as per age, gender and types of dyspepsia n=160

Variables		Statistics
Age (average)		42.0±14.95 years
Gender	Male	60(37.0%)
	Female	100(63.0%)
Types of dyspepsia	Dysmotility like Dyspepsia	90(56.3%)
	Ulcer like Dyspepsia	54(3.8%)
	Unspecified	16(10.0%)

Table 2: Marsh type diagnosed on endoscopic duodenal biopsy n=160

Modified Marsh classification		Frequency	Percentage	
Celiac Disease	No	0	140	87.5%
		1	7	4.37%
	Yes	2	2	1.25%
		3a	9	5.62%
		3b	2	1.25%
Total		160	100%	

Table 3: Type of dyspepsia in relation to gender n=160

Dyspepsia	Male	Female	p-value
Dysmotility like Dyspepsia	35(58.3%)	55(55%)	0.372
Ulcer like Dyspepsia	17(28.3%)	37(37%)	
Unspecified	8(13.3%)	8(8%)	
Total	60(100%)	100(100%)	

DISCUSSION

Apart from the normal symptoms of diarrhea, anaemia, and weight loss, celiac disease can manifest in atypical manifestations like bowel syndrome irritability and the functional dyspepsia. In recent decades, the introduction of very sensitive serological testing, combined with an increased suspicion of the disease, has resulted in a significant increase in CD diagnosis.¹¹ It was recently discovered that dyspeptic individuals celiac disease is more common in them than in the normal population, with 30 percent to 40 percent of CD patients having dyspeptic symptoms. Such findings recommended that biopsies of the descending duodenum should be performed independently of the endoscopic aspect of the mucosa in participants undergoing esophago-gastro-duodenoscopy (EGD).¹²⁻¹⁴ CD was once regarded to be a European ailment, but in recent years, gluten intolerance CD has become a major public health problem worldwide in both the risk populations and general population in developing nations, as well as the Middle East. Despite this, only a small minority of CD patients today suffer from classic malabsorption syndrome. Most of these individuals are oligosymptomatic, meaning they have a moderate or silent version of the disease, which experts refer to as "celiac iceberg." The "Celiac iceberg" indicates persons who are

genetically predisposed to celiac disease. Mean age of patients reported by Altintafi was 39 years with age range 18-70 years.¹⁵ Ozaslan reported mean age of patients as 35 years with age range of 16-63 years.¹⁶ Mean age reported by Giangreco was 39.6 years with age ranges between 18-75 years.⁸ In this study mean age of patients was 42.00 ± 14.95 with age ranges from 20-69 years. These results are in agreement with the mean age and age range of patients as reported by others studies in different regions. Mean age in this study was a bit high as compared to other studies. As in other studies reported mean age was near about 40. While age range was almost similar as other studies have reported. Gender distribution in this study shows female dominance as compared to male patients. i.e. 63% vs. 37%. In patients who were diagnosed with Celiac disease 10 out of 13 were females which also shows female dominance. Female dominance was reported by other studies as well in which dyspepsia patients were screened for Celiac disease.^{8,9} These results are consistent with the results reported by other studies that female present more as compared to male patients with functional dyspepsia. In this study frequency of Celiac disease observed in patients of functional dyspepsia was 8% diagnosed with endoscopic duodenal biopsy. This frequency of Celiac disease in functional dyspepsia patients is consistent with the frequency reported for celiac diseases in different studies in many areas of the world. But it is the upper range as reported frequency in literature varies from 0.5%-8%. Frequency reported by Vivas and Lima was quite less as that of the frequency reported in this study. i.e. 8%. In a population-based serologic screening, came to the opposite observations. 5.9% out of dyspeptic cases and 2.6% out of 78 patients of asymptomatic were serologically positive for TTg. Dickey and Hughes discovered a 1.6 percent frequency of celiac disease among people who had endoscopies for digestive problems using this approach. Ozaslan found a 1.5 percent prevalence of celiac disease. In comparison to the general population, the odds ratio for celiac disease was 2.57%. In a recent study from Turkey, done by Tatar et al. tested an apparently healthy population and a prevalence of biopsy-proven CD was identified in 0.6 percent of blood donors in the same location.¹⁷ Another case control study from Turkey done by Altintas reported that in the dyspepsia group, the celiac disease incidence was 1.45%, while in the control group, it was seen 1.47%.¹⁵ Using diagnostic biopsies from the second half of the duodenum, the Keshavarz study discovered a significant incidence 7% of CD in the patients having functional dyspepsia. Female cases were seen with higher prevalence of CD 83.4%, and 50% of Dysmotility like dyspepsia. Such data imply that a routine diagnostic biopsy in at-high risk individuals (i.e., female functional dyspeptic cases with dominant Dysmotility kind functional dyspepsia) can detect CD early on and prevent more serious life-threatening and lethal consequences.⁸ Prevalence reported by Keshavarz is almost near to the frequency of Celiac diseases among patients of functional dyspepsia in this study. A higher incidence of CD also has been reported in elderly patients classed as functional dyspepsia who did not react to sufficient pharmaceutical therapy, according to recent research. Three other ways have been offered to identify the patients in this community where manifestations are truly related to celiac disease: (1) Biopsies of the descending duodenum should be performed in all the cases having functional dyspepsia undergoing EGDS, even though endoscopy does not discover any lesion typical of the celiac disease; (2) Using magnification techniques or immersion approaches to better characterize the mucosa of duodenum; (3) Assessment for specific antibodies and, if positive, perform EGD with biopsies of the descending duodenum.^{10,18-20} By above reports also suggested that the routine diagnostic biopsies among cases of functional dyspepsia could identify the celiac disease at early stages and prevent more serious life-threatening and lethal consequences. In developing nations, early screening and detection of Celiac disease in high-risk populations can help clinicians become more aware of and sensitive to the varied

clinical manifestations of Celiac disease, allowing them to treat patients appropriately.

CONCLUSION

This study observed a higher frequency of Celiac disease in functional dyspeptic patients is frequently high as per using diagnostic biopsy. The frequency of CD was more prevalent in females and dysmotility type dyspepsia was high as that of Ulcer like dyspepsia. Due to several limitations including small sample size. Further large-scale case control studies are recommended on this subject.

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