Prevalence of Celiac Disease in Patients with Dyspepsia

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Abstract: **Background and purpose:** Celiac disease is a disorder primary affecting gastrointestinal tract causing chronic inflammation to the mucosa and a permanent state of intolerance to gluten. This study was conducted to detect the prevalence of celiac disease among patients with dyspepsia. **Study design:** Cross sectional study. **Subjects:** Eighty patient complaining of dyspepsia and coming for upper GIT endoscopy. **Place:** Internal medicine department, Kasr Alainy University Hospital. **Method**: Eighty patients complaining of dyspepsia and coming for upper GIT endoscopy. The patients were of both sexes and any age. **Assessment:** The assessment was carried out by obtaining full personal history and history of dyspepsia (upper abdominal discomfort, epigastric pain) that did not respond to H2 blockers or proton pump inhibitors. Laboratory work was done in the form of assessment of anti-tissue transglutaminase antibody as a predictor marker for celiac disease. Also upper GIT endoscopy with biopsy from the duodenum as biopsy is considered the gold standard in diagnosis of celiac disease. The gained measures were analyzed by using SPSS program, t-test and chi-square were used to compare between groups. **Conclusion:** Celiac disease is under diagnosed in patients with dyspepsia. Anti-tissue transglutaminase is of value in diagnosis of celiac disease. Upper GIT endoscopy and duodenal biopsy is indicated for more confirmation of celiac disease.
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1. Introduction

Celiac disease is an inflammatory small bowel disease caused by intolerance to ingestion of gluten found in cereal grain. Classical symptoms of the disease in children are failure to thrive and malabsorption, while in adults it usually presents with abdominal cramps, abdominal distention and chronic diarrhea or constipation or both **[1]**. Dyspepsia is one of the most common gastrointestinal disorders to be faced in clinical practice, with prevalence up to 40% in population-based study. Dyspepsia is a term that includes a heterogeneous group of symptoms including postprandial symptoms, early satiety and epigastric pain and burning **[2]**. Many population studies indicate that a large portion of celiac disease remain undiagnosed. The prevalence of celiac disease among dyspeptic patients has been investigated; with results ranging from 0.5% to 2%. Celiac disease diagnosis requires histological evaluation of villous atrophy on duodenal biopsies specimens. Screening for celiac disease in dyspeptic patients and routinely performing of biopsies during upper gastrointestinal endoscopy may be useful as part of the diagnostic flow-chart of these patients. Anti-tissue transglutaminase antibodies test has a high specificity for celiac disease but endoscopy remains the gold standard for celiac disease diagnosis **[3]**. The treatment of dyspepsia is usually unsatisfactory so if we reach a definitive cause it will help in the management **[4]**. This study was conducted to detect the association of celiac disease and dyspepsia.

2. Patients and Methods

This is a cross sectional study included eighty patients complaining of dyspepsia and coming for upper GIT endoscopy in internal medicine department, Kasr Alainy Hospital. These patients were of both sexes and any age. The assessment was carried out by obtaining full personal history and history of dyspepsia (upper abdominal discomfort, epigastric pain) that did not respond to H2 blockers or proton pump inhibitors. Laboratory work was done in the form of assessment of anti-tissue transglutaminase antibody as a predictor marker for celiac disease. Also upper GIT endoscopy with four biopsies from the second part of the duodenum as biopsy is considered the gold standard in diagnosis of celiac disease. The gained measures were analyzed by using SPSS program, comparing quantitative variable using t-test and qualitative variable using chi-square.

3. Results:

This study included 80 patients diagnosed as dyspepsia with mean age 36±9.6 for 45% male and 55% female. Full history was taken, clinical examination, ant-tissue transglutaminase antibody and upper GIT endoscopy with 4 biopsies taken from the second part of the duodenum.

As regard serum TG, there are 70 patients 87.5% have serum TG >20 IU/ml, 10 patients 12.5% have serum TG level < 20 IU/ml. The pathological finding of endoscopic biopsy in the patient is either, normal villous pattern in 50 patients 62.5% or subtotal villous atrophy 30 patients 57.5%.

There were 4 patients 3 males and 1 female classified as not having coeliac disease i.e.: negative titer of TG, normal villous pattern in endoscopic biopsy as illustrated in table **(1):**

Table (1) Transglutaminase level and pathological finding of endoscopic biopsy in patients with dyspepsia.

TG level	**Pathological finding of endoscopic biopsy**				**Total**	**P-value**
	Normal villous pattern		Subtotal villous atrophy			
	No	%	No	%		
Less than 20 IU/ml	4	8	6	20	10	0.11
More than 20 IU/ml	46	92	24	80	70	
Total	50	100	30	100	80	

As regard of age patients with normal villous pattern with mean 36.4±9.7, while those with subtotal villous atrophy with mean value 37.6±9.5 which is statistically non-significant with p-value 0.57, as regard to serum TG: patients with normal villous pattern with mean value 44±20.8 while those with subtotal villous atrophy with mean value 51.2±23.3 which is statistically non-significant with p-value 0.15 as shown in table **(2):**

Table (2): Age and Transglutaminase level in both normal and subtotal villous atrophy in studied group

	Pathological finding of endoscopic biopsy				**P-value**
	Normal villous pattern		Subtotal villous atrophy		
	X'	SD	X'	SD	
Age	36.4	±9.721	37.67	±9.528	0.57
Serum TG	44.06	±20.877	51.27	±23.39	0.15

As regard of pathological finding number of females with normal villous pattern are 27 patients 54% and those with subtotal villous atrophy 17 patients 56.7% and males with normal villous pattern 23 patients 46% while 13 males with subtotal villous atrophy 43.3% showing non-significant relation with p-value 0.8 shown in table **(3):**

Table (3): Sex distribution in both normal and subtotal villous atrophy in studied group

Sex	**Pathological finding of endoscopic biopsy**				**Total**	**P-value**
	Normal villous pattern		Subtotal villous atrophy			
	No	%	No	%		
Female	27	54	17	56.7	44	0.8
Male	23	46	13	43.3	36	
Total	50	100	30	100	80	

Table (4): Sex distribution in normal villous, villous atrophy and celiac disease in studied group

	Sex				**Total**	
	Female		**Male**			
	No	**%**	**No**	**%**		
Normal villous pattern	**1**	**25**	**3**	**75**	**4**	**100**
Villous atrophy	**31**	**59.6**	**21**	**40.4**	**52**	**100**
Celiac disease	**12**	**50**	**12**	**50**	**24**	**100**
Total	**44**	**55**	**36**	**45**	**80**	**100**

According to the collecting data the net result is:

4 patients, 1 female 25%, 3 males 75% are normal.

52 patients, 31 females 59.6%, 21 males 40.4% appear to have either villous atrophy or serum TTG> 20 IU/ml.

24 patients, 12 females 50%, 12 males 50% proved to have celiac disease. As shown in table **(4):**

After removing those with normal results 4 patients as regard serum TG level, patients with villous atrophy or serum TG >20 IU/ml with mean 43±20 and those with coeliac disease with mean value 59±18 showed significant difference between them with p-value 0.001.

Results show that serum tissue-transglutaminase can differentiate between patients of coeliac disease and those with villous atrophy or serum TG> 20 IU/ml. As it has high sensitivity and specificity (79% & 94%).

4. Discussion

Celiac disease is an inflammatory small bowel disease caused by intolerance to ingestion of gluten found in cereal grain. The aim of this study was to detect the association between dyspepsia and celiac disease. As the management of patients with dyspepsia is usually unsatisfactory and if we reach a definitive cause it will help in the management [3].

In the current study 70 patients from the 80 patient (87.5%) was diagnosed with celiac disease by anti-tissue transglutaminase antibody test (more than 20 IU/ml) but the biopsy results were compatible with the histological findings of celiac disease in (37.5%) of patients. ***Bardella et al*** [5] prospectively enrolled 517 patients suffering from dyspeptic symptoms. All patients were submitted to upper gastrointestinal endoscopy, and six were diagnosed to be celiac (1.2%). Interestingly three patients (50%) had a normal duodenal endoscopic pattern and five of the six celiac patients were young women aged between 20 to 37 years. The authors suggest performing serological screening for celiac disease especially in young women suffering from dyspepsia. ***Lima et al*** [6] reported a CD prevalence of 1.4% in a small series of patients with dyspepsia; both were young women, aged 19 and 25 years respectively. In the paper of ***Ozaslan et al*** [7] among the 196 investigated patients three were diagnosed to be celiac (1.5%). All were female younger than 52 years, and only two showed abnormal endoscopic findings.

In the paper of ***Giangreco et al*** [8] the role of upper gastrointestinal endoscopy in CD diagnosis was evaluated in patients suffering from FD. The prevalence of CD was 2% higher than the general population. Among the 15 CD patients (age ranged 20 to 56): 10 were female and only 8 patients presented endoscopic findings suggestive for CD. ***Keshavarz et al*** [9] investigated the prevalence of CD among 170 patients with FD. Twelve patients suffering form dyspepsia, tested positive for CD related antibodies, however only two of them showed villous atrophy at the histological evaluation. In a recent meta-analysis by Ford et al [10], the authors provided a pooled prevalence of biopsy-proven CD of 1.0% similar to that in the general population, when duodenum biopsy was performed as first-line investigation.

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