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OCCURRENCE OF CELIAC DISEASE IN PATIENTS SUFFERING FROM TYPE-1 DIABETES

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ABSTRACT:

Objectives: *Celiac disease (CD) is a disease of auto-immunity showing impatience to gluten. Some research works display that CD was twenty times more common in the patients of Type-1 diabetes in comparison with the healthy persons. The aim of this research work is to assess the occurrence of the CD among the adults suffering from Type-1 diabetes.*

Methodology: *This research work was carried out in Allied / DHQ Hospital Faisalabad from March 2018 to April 2019. This research work contained four hundred and eighty-two patients of Type-1 diabetes visiting the OPD of diabetes clinic. SPSS V. 10.5 was in use for the statistical analysis of the collected information. Student's T test was in use for the comparative analysis of various variables. We considered the P value of lower than 0.05 as significant.*

Results: *There were four hundred and eighty-two patients of Type-1 diabetes were the part of this research work. Total 57 patients among them did not go under evaluation for the positivity of the endomysium antibody. Total 15 patients were available as positive for the anti-endomysia antibody (3.50%). The occurrence of the CD as proved by biopsy was 2.30% (10 out of 425 patients). We found no important disparity between positivity of endomysia antibody & negative groups with respect to age, gender and total duration of the complication.*

Conclusion: *This research work confirms the fact that CD is very much frequent in the patients of Type-1 diabetes. Since a very small amount of the patients of CD are symptomatic, there should be a screening of this complication in the patients of Tpe-1 diabetes with anti-endomysium antibody.*

KEYWORDS: *Type-1 Diabetes, CD, Occurrence, Prevalence, Antibody, Symptomatic, Biopsy.*

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INTRODUCTION:

CD (Celiac Disease) is a disease of autoimmunity showing intolerance to gluten. This complication can lead to the epithelium of the intestines. The emblematic type of the disease is present in only 30% to 40% patients [1]. Recent research works utilizing the antibodies with the verification of biopsies, state rates 1: 120 to 1: 300 in most of the normal populations of many countries of the world [2-4]. In our country Pakistan, the occurrence of celiac disease was 1: 87 (1.20%) [5]. Diagnosis of the celiac disease with the Type-1 diabetes carried out in 1969 for the very first time [6]. After the diagnosis many research works shows the association between the celiac disease and Type-1 diabetes. Current research works discovers that from 1% to 8.0% patients of Type-1 diabetes have celiac disease [7-9]. Some research work also stated that celiac disease was twenty times more common in the patients of Type-1 diabetes [10-11].

A research work conducted in our country discovered the prevalence of CD in young patients of Type-1 diabetes as 6.0% [12]. It was observation that about half amount of the patients was asymptomatic [13]. Serological screening was the only way for the diagnosis of the patients of celiac disease who were silent clinically. There was an estimation that this disease is much common & sometimes it appears with uncommon signs & symptoms as IDA (Iron Deficiency Anemia), patient's infertility, complications of malignancy or some or neurological anomalies [14]. Many research works carried out to assess the effectiveness of the screening of celiac disease in the patients of Typ-1 diabetes. The professionals should be suspicious for the identification of the celiac disease. Anti-endomysium antibodies can be used for the screening of the suspected patients. About 5% to 10% patients of Type-1 diabetes were present as positive for the antibodies of EMA and an important amount were available with the abnormalities on intestine biopsies [15]. But a significant amount of the patients of Type-1 diabetes was negative in the initial screening of celiac disease and they were available as positive later [8].

So, we can say that a single time screening is not effectual for celiac disease. The positivity of the antibody has no ability to increase the danger of the anomalies on biopsies. For both healthy as well as patients of diabetes with positivity of the antibody, the frequencies of the abnormalities of the biopsy were as 75.0% [16]. In recent times, there is recommendation of the screening of all patients suffering from Type-1 diabetes for the positivity of antibody for identification and availability of the symptoms. Furthermore, the examination of the positive antibody patients should be necessary to confirm the diagnosis of the disease [15]. The aim of this research work is to assess the occurrence of the CD in the patients of Type-1 diabetes.

METHODOLOGY:

This research work was carried out in Allied / DHQ Hospital Faisalabad from March 2018 to April 2019. There were four hundred and eighty-two patients in this research work in which two hundred and sixty-four were males and two hundred and eighteen were females. The patients with the following traits were the part of this research work:

1. Patients with the age of 15 to 80 years,
2. The start of the diabetes before thirty year of age,
3. Past history of diabetes,
4. No broken record of the treatment of insulin from the time of diagnosis.

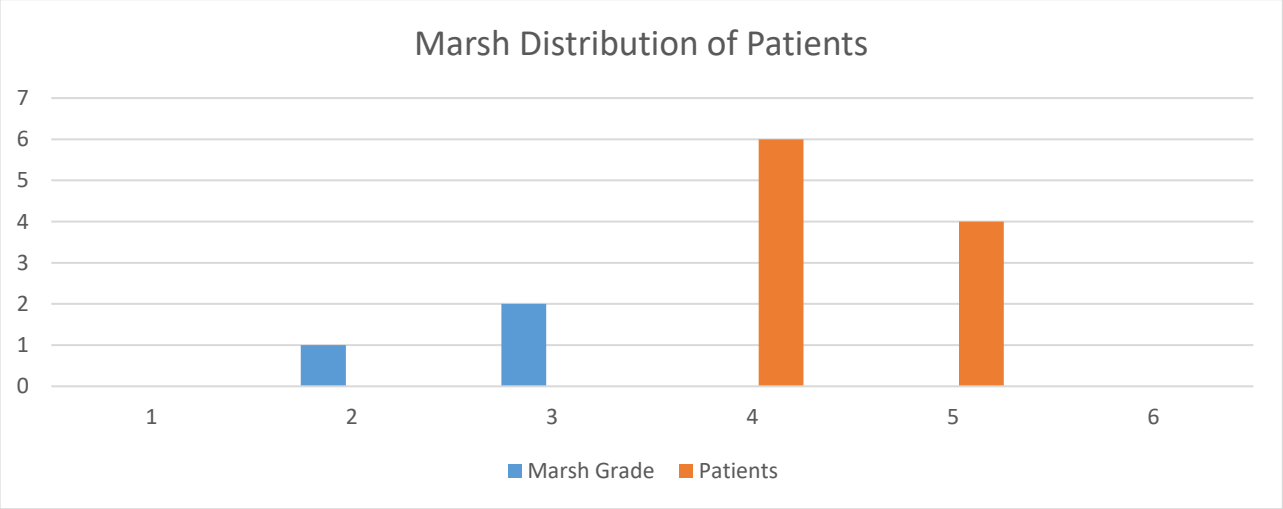
We assessed the records of the all the patients. The determination of the anti-endomysium antibodies or Anti-EMA carried out with the utilization of the immune-florescence antibody testing. The well-known point of cutoff for positivity was five U/ml. We informed the patients about the result who were positive in anti-EMA. We also referred these patients to gastroenterology department for upper GI endoscopy. We took the six biopsies from the 2nd portion of the duodenum after scoped from Fujinon CV-160 video gastro-scope then we sent all these biopsies for the histopathological assessment. Marsh standard was in use for the pathological assessment of the endoscopic biopsies [17]. SPSS V. 10.5 was in use for the statistical analysis of the collected information. Comparative analysis carried out with the help of T test.

RESULTS:

Total 57 patients out of 482 did not undergo for anti-EMA positivity [15]. Four hundred and twenty-five patients were present as positive for anti-endomysia antibody (3.50%). Symptoms of CD were present in one female but she was not positive for anti-EMA positive. Upper GI endoscopy carried out for 14 patients. We found the morphologic alterations as consistent with CD in only ten patients. The biopsy of duodenal of those patients discovered Grade 3a in six patients & 3b in four patients 4 patients in accordance with the classification of the Marsh (Table-1).

Table-I: Patients Distribution According to Marsh Criteria

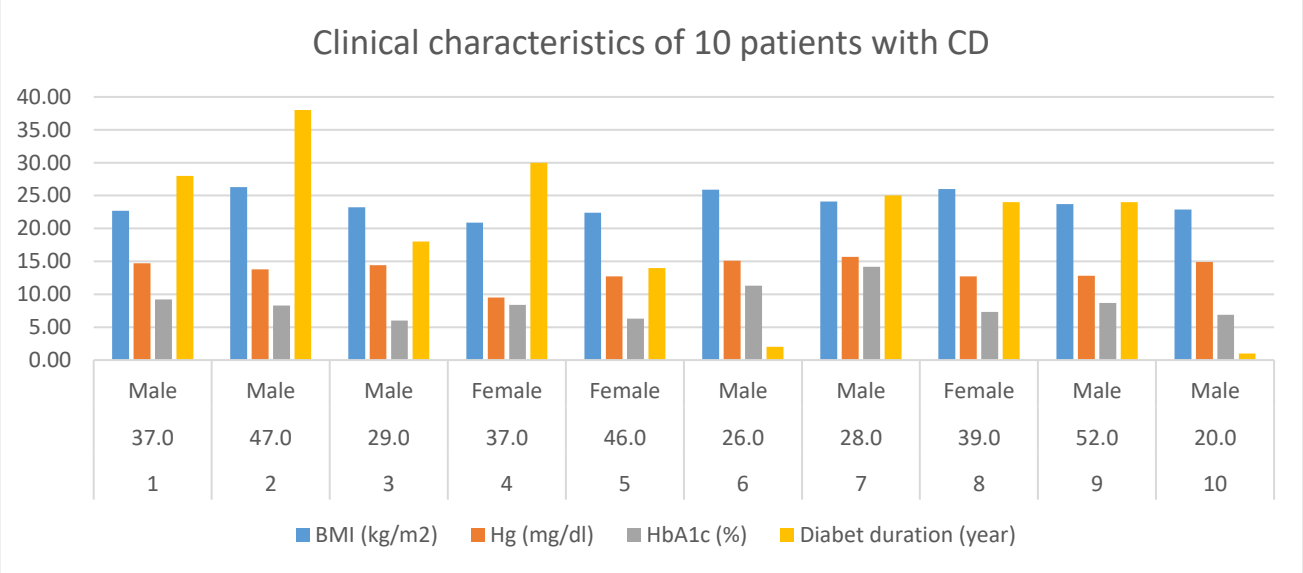
Marsh Grade	Patients
0	-
1	-
2	-
3a	6.0
3b	4.0
3c	-



The occurrence of the CD proven by biopsy was 2.30%. The clinical as well as para-clinical traits of the patients suffering from CD are available in Table-2.

Table-II: Clinical Characteristics of 10 Patients with CD

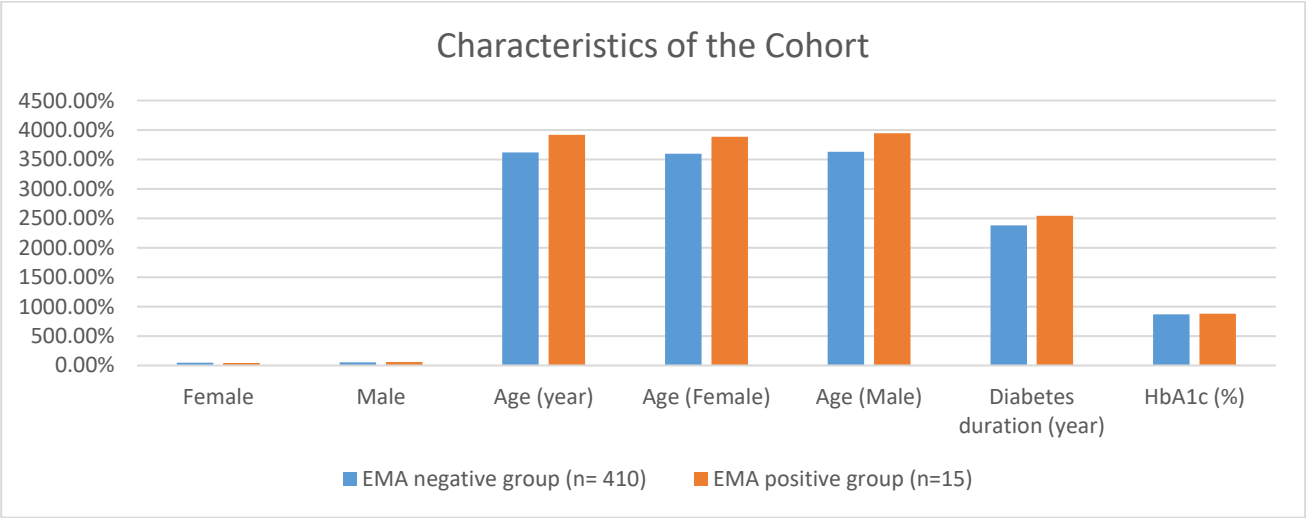
Patients	Age (year)	Sex	BMI (kg/m2)	Hg ($^{m}g/dl$)	HbA1c (%)	Diabetes duration (year)	Marsh Classification
1	37.0	Male	22.70	14.70	9.20	28.0	3b
2	47.0	Male	26.30	13.80	8.30	38.0	3a
3	29.0	Male	23.20	14.40	6.00	18.0	3a
4	37.0	Female	20.90	9.50	8.40	30.0	3b
5	46.0	Female	22.40	12.70	6.30	14.0	3a
6	26.0	Male	25.90	15.10	11.30	2.0	3a
7	28.0	Male	24.10	15.70	14.20	25.0	3a
8	39.0	Female	26.00	12.70	7.30	24.0	3a
9	52.0	Male	23.70	12.80	8.70	24.0	3a
10	20.0	Male	22.90	14.90	6.90	1.0	3b



Total 6 were male and 4 were female patients. The average age of the patients was 36.10 ± 10.30 years. Diarrhea and nausea were complains as told by one patient. All other patients were without symptoms. Only one patient was available with IDA. We found no important disparity between the participants of two groups regarding age, gender, total duration of the disease. Clinical features were present in Table-3.

Table-III: Characteristics of the Cohort

Characteristics	EMA negative group (n= 410)	EMA positive group (n=15)	P value
Female	45.80 % (n=188)	40.00 % (n=6)	Not Sig
Male	54.20 % (n=222)	60.00% (n=9)	Not Sig
Age (year)	36.17 ± 11.030	39.200 ± 8.660	Not Sig
Age (Female)	35.990 ± 11.250	38.830 ± 4.07	Not Sig
Age (Male)	36.320 ± 10.860	39.44 ± 10.99	Not Sig
Diabetes duration (year)	23.800 ± 11.860	25.400 ± 10.040	Not Sig
HbA1c (%)	8.700 ± 2.120	8.770 ± 2.440	Not Sig



DISCUSSION:

The occurrence of the celiac disease was 1.0% in our country [18]. In this transverse research work, we concluded the complete occurrence of CD among the patients of Type-1 diabetes was about 2.30%. One single patient was available with symptoms & all other patients were available with no symptoms. The occurrence of the CD in the patients of Type-1 diabetes was same in accordance with the range of occurrence 1% to 7.80% in many countries of the Europe [9]. In many countries of the Middle East, the range of the occurrence of the celiac disease was from 3.50% to 15.0% [19]. A research work carried out in our country discovered the occurrence of the celiac disease in patients of Type-1 diabetes was 6.0% [12]. Similar to many other research works, all the members of this research work were available with no confirm CD due to the deficiency of the symptoms like loss of weight, distension of abdomen cavity & diarrhea [13, 19-20]. This is well aware that in patients suffering from Type-1 diabetes, there were no symptoms of CD [21]. A suspicious behavior was the need for the diagnosis of the celiac disease.

The sensitivity of EMA was about 90.0% & specificity was about 100% [22]. We obtained the confirm diagnosis of celiac disease by the biopsies of the small intestines. Up to 5% to 10% of patients with Type-1 diabetes were available with positive EMA antibodies & about 75.0% patients were present with anomalies in the biopsies of the small intestines [15]. Most of the participants were available with having diabetes & then celiac disease as there should be a continue screening for up to 6 years [22, 23].

CONCLUSION:

This research work confirms that the prevalence of CD is very common among the patients suffering from Type-1 diabetes. The occurrence of the CD in the populations with low risks was from 1% to 1.30%. There are were low amount of patients of CD are symptomatic, there is a strong need of the screening of patients of Type-1 diabetes for incidence of CD by anti-endomysium antibody.

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