Prevalence of celiac disease among different age groups in Tobruk area. Eastern Libya

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ABSTRACT: Celiac disease (CD) is a multifactorial disorder which has an autoimmune omponentcharacterised by the occurrence of disease specific autoreactive antibodies against the enzyme tissue transglutaminase (tTG), aim of this study to investigate in celiac disease in Tobruk ,Libya.

In this study will recognize the most common causes and symptoms of celiac disease and the most age group is exposed to this disease in Tobruk, where collect data from abnrachd lab they were tested positive Anti-TTG IgGA ≥ 1.2, 167 total of patients only in 2021 (88 male & 79 female).

The most causes children with a genetic predisposition for celiac disease, that eat more gluten in early childhood have a greater risk for celiac disease, but mostly in adults associated autoimmune disorders, and the adult most affected diagnoses by diarrhea. fatigue. weight loss, bloating and gas, abdominal pain, nausea and vomiting, constipation. In this study males most affected than females. Further studies are required to confirm these findings.

Keywords: Celiac disease, CD, Anti-TTG IgGA, age related, Tobruk.

1. INTRODUCTION

Celiac disease (CD) is a genetically predisposed autoimmune illness characterized by an unique serological and histological profile caused by gluten consumption. Gluten is the general term for alcohol-soluble proteins present in various cereals, including wheat, rye, barley, spelt, and kamut (Fasano, A., &Catassi, C.2012). Recently years, there have been significant changes in the diagnosis, pathogenesis, and natural history of this condition (Volta, U., 2014), with CD undergoing a true 'metamorphosis' due to the steady increase in the number of diagnoses identified, even in geriatric patients (Volta, U., 2014).

Although coeliac disease (CD) can present at any age, including the elderly, typical cases often manifest in early childhood, mostly in adults, can indeed be observed in children or adolescents, e.g. reduced bone mineral density, neurological problems and associated autoimmune disorders (Fasano, A., &Catassi, C, 2005)

When serious symptoms such as abdominal discomfort, diarrhea, and weight loss emerge despite a strict gluten-free diet, celiac disease complications such as small intestine adenocarcinoma, refractory sprue, and enteropathy-associated T-cell lymphoma must be checked out(Green, P. H., &Cellier, C. 2007) .

This has been attributed primarily to the increased availability of sensitive and specific screening tests, which allow identification of CD risk groups and have resulted in a significant increase in diagnoses globally (Volta, U., 2014;Van den Broeck, H. C, et al 2010). Several ideas have proposed that the globalization and widespread distribution of "false" or "extreme" versions of the Mediterranean diet,

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which include very high gluten consumption (up to 20 g/day), has resulted in an increase in the prevalence and incidence of CD (Volta, U., et al 2013 ; de Lorgeril, M., &Salen, P, 2014). Furthermore, the quality of the gluten itself could be a factor. Indeed, the development of new grain variants for technological rather than nutritional reasons might have impacted the recent increase in the number of CD diagnoses (de Lorgeril, M., &Salen, P, 2014; Van den Broeck, H. C, et al 2010). These possibilities, however, have yet to be validated, and the true explanation of the risk in CD diagnosis is unknown. Furthermore, the epidemiological finding that similar 'epidemics' for other autoimmune illnesses have been observed in the Western hemisphere . (Bach, J. F.,2018) shows that environmental variables other than gluten may be at play. According to studies, most CD cases go undetected in the absence of serological screening due to a variety of symptoms and/or a lack of disease awareness. In Western countries, the prevalence of CD is rising. Between 1975 and 2000, the prevalence of CD in the United States increased fivefold for reasons that are currently unknown (Catassi, C., et al, 2010). CD is more common in first-degree CD relatives (10–15%) and other at-risk groups, such as patients with Down syndrome, type 1 diabetes, or IgA deficiency. Women are diagnosed with CD at a higher rate than men, with a female-to-male ratio of 2:1 to 3:1 (Fasano, A., &Catassi, C.2012; Volta, U., 2014). The real female-to-male ratio is 1.5:1 (Ditah, I. C., et al, 2015), according to serological tests. The condition can strike anyone at any age, from infancy to old age, and has two peaks of onset: one just after gluten weaning in the first two years of life, and the other in the second or third decades. CD diagnosis can be difficult due to the wide range of symptoms (Fasano, A, 2003).

The widespread use of serological tests has resulted in an upsurge in CD diagnoses over the last 20 years. CD-related antibodies can be used to identify people who have been diagnosed with the disease, which can then be verified through histological examination. Volta, U., et al. 2008; Volta, U., et al. 2010). Currently, the serological diagnosis of CD is based on tests that are highly predictive and هwidely validated, including EmA, anti-tTG, and DGP (Caio, G., & Volta, U.2012).

CD-related antibodies are classified as IgA or IgG, however only IgA antibodies are highly sensitive and specific for CD (Caio, G., & Volta, U.2012) . Because of the large number of false positives, IgG markers (excluding DGP) are often deceptive, and their use should be limited to patients with IgA deficiency (Villalta, D., et al, 2010).

When evaluated in third-level laboratories by skilled operators, EmA is the antibody test with the highest diagnostic accuracy (Volta, U., at al. 1995; Stern, M., 2000). Anti-tTG IgA has a higher sensitivity than EmA IgA (97 percent vs. 94 percent), but its specificity (91 and 99 percent, respectively) is much lower (Volta, U., et al,2008). Antibody titers are typically low in false positives for anti-tTG (less than twice the cut off). Anti-tTG IgA positive has been documented in patients with type 1 diabetes at the time of commencement, but it has not been linked to duodenal mucosal injury, and the antibodies have disappeared within 6 months of their discovery (Salardi, S., 2008).

DGP (Volta, U., et al,2008) represents another serological marker for CD. The deamidation of gliadin by tTG makes the modified gliadin peptides more immunogenic than native peptides. Initial investigations found that CD had a high sensitivity and specificity (Volta, U., et al,2008), however later research found that diagnostic accuracy has decreased (Zucchini, L.,et al, 2018)]. IgG DGP are particularly useful in detecting CD in children under the age of two years (Volta, U., at al. 1995). IgA DGPs have been demonstrated to be ineffective in diagnosing CD

and are therefore not advised for usage in this setting (Amarri, S., et al, 2013). Anti-tTG IgA, as well as total IgA, should be tested in adults with CD. A duodenal biopsy can be conducted without evaluating EmA if anti-tTG IgA is positive at a high titer with normal total IgA levels. EmA IgA testing is required if the anti-tTG IgA titer is low, and if positive, a duodenal biopsy is essential to confirm the CD diagnosis.

Although the absence of gA anti-tTG antibodies does not reflect the regrowth of intestinal villi, it is the most routinely used test to assess CD patients during follow-up (Amarri, S., et al 2013 ; Dipper, C. R., et al. 2009).

Aim of this study to investigate in celiac disease in Tobruk ,Libya, In terms of symptoms, causes, and more affected among men and women, in addition the age group most affacted

MATERIAL AND METHOD

samples

Celiac patients data were collected from Ibn Rushd Medical Laboratory, Tobruk, Libya in 2021, where they were tested positive Anti-TTG IgGA ≥ 1.2, 167 total of patients only in 2021 (88 male & 79 female) as shown in Table 1.

TABLE 1.

Gender	Age	Anti-TTG IgGA
Male 88	≤ 15 43	≤ 3 99
	16 to 39 88	
Female 79	≥40 36	≥3.1 68
Total 167		

Test

A tissue transglutaminase IgA (tTg-IgA) test is used to help doctors diagnose celiac disease. In this autoimmune disorder, the immune system mistakenly thinks that gluten — a protein in wheat, barley, rye, and oats — is a foreign invader. It makes antibodies that attack an enzyme in the intestines called tissue transglutaminase (tTG). Antibodies (also called immunoglobulins) are proteins that recognize and get rid of germs.

Treatment

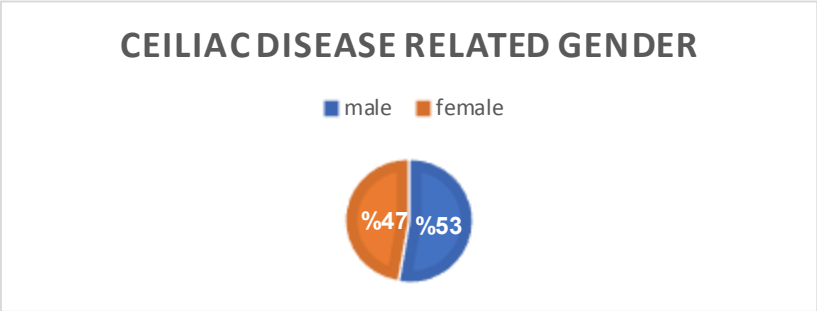
The only effective treatment for CD currently available is a lifelong strict Gluten-free diet , which results in the elimination of intestinal and extraintestinal symptoms, the absence of autoantibodies, and the rebuilding of intestinal villi.

Statistical analysis

Data analyze by IBM SPSS (Statistical Package for the Social Sciences Statistics) version 23, in addiotion for Excel to organize data and modify the graph.

Results And Discussion

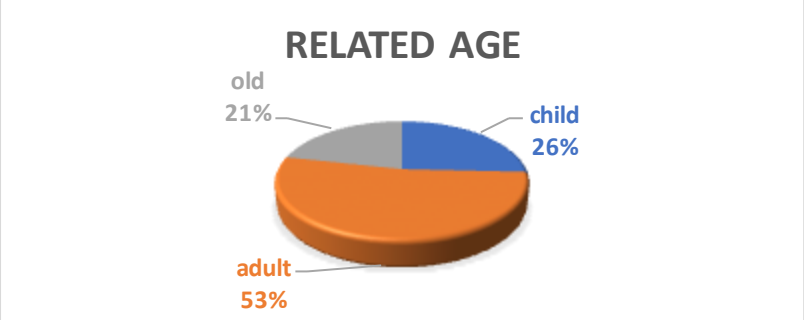
There Aim of this study ro investigated the realatiomanbout diabetes and kidney and Diabetic kidney The aim of study investigated in celiac disease in Tobruk ,Libya, In terms of symptoms, causes, and more affected among men and women, in addition the age group most affected, where they were tested positive Anti-TTG IgGA ≥ 1.2, 167 total of patients only in 2021 (88 male & 79 female) as shown in figure 1



Graph.1 celiac disease related gender.

The men were more affected then female where males 53% and females 47% .

The age related had divided into three group, child group 1-15 years, adult 16- 39 years and old age more than 40. As shown fiure 2.

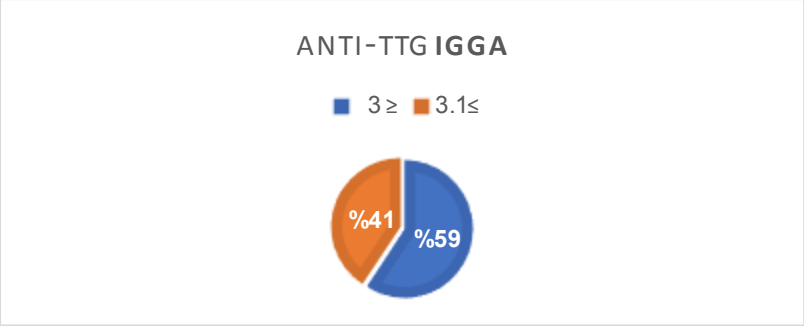


Graphic 2 celiac disease related age.

Conclude from the figure that related to age that the adult group is most affected by the disease as percentages of 53% as percentages of , then chilid and old (26%,21%), respectively.

A tissue transglutaminase IgA (tTg-IgA) test is used to help doctors diagnose celiac disease, where they were tested positive Anti-TTG IgGA ≥ 1.2divided the analysis value into two groups, the group less

than 3 and the group greater than 3.1 as shown figure 3.



Graphic 3 Blood test by Anti-TTG IgGA.

Where the analysis value less than 3 is the most as precentage of 59% .

Most common causes were children with a genetic predisposition for celiac disease,that eat more gluten in early childhood have a greater risk for celiac disease, but mostly in adults

associated autoimmune disorders in Tobruk while most common symptoms that diagnosed by doctors in Tobruk were Diarrhea. Fatigue. Weight loss, Bloating and gas, Abdominal pain, Nausea and vomiting, Constipation.

Fasano, A., &Catassi, C.(2012) conducted studies with Celiac disease (CD) is a genetically predisposed autoimmune illness characterized by an unique serological and histological profile caused by gluten consumption. (Fasano, A., &Catassi, C.2012). Agreed with this study

Fasano, A., &Catassi, C, (2005) conducted with coeliac disease (CD) can present at any age, including the elderly, typical cases often manifest in early childhood, mostly in adults, can indeed be observed in children or adolescents associated autoimmune disorders (Fasano, A., &Catassi, C, 2005). Agreed with study , but in this study the adult is most affected.

Green, P. H., &Cellier, C. (2007) conduct with (CD) symptoms such as abdominal discomfort, diarrhea, and weight loss (Green, P. H., &Cellier, C. 2007). Agreement with this study , in addition were diarrhea. Fatigue, bloating and gas, abdominal pain, nausea and vomiting, constipation.

Fasano, A., &Catassi, C.(2012); Volta, U., (2014)conducted study with Women are diagnosed with CD at a higher rate than men, with a female-to-male ratio of 2:1 to 3:1 (Fasano, A., &Catassi, C.2012; Volta, U., 2014). Not agreement where im this study males more than females.

Conclusion

The aim of study investigated in celiac disease in Tobruk ,Libya, In terms of symptoms, causes, and more affected among men and women, in addition the age group most affected. Celiac disease (CD) is a genetically predisposed autoimmune illness characterized by an unique serological and histological profile caused by gluten consumption. Can present at any age, including the elderly, typical cases often manifest in early childhood, mostly in adults.

Most common symptoms were Diarrhea. Fatigue. Weight loss, Bloating and gas, Abdominal pain, Nausea and vomiting, Constipation, treatment for CD currently available is a lifelong strict Gluten-free diet. Further studies are required to confirm these findings.

Acknowledgement

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نسبة انتشار مرض حساسية النعمة بين مختلف الاعمار في مدينة طبرق شرق ليبيا

المستخلص: مرض الاضطرابات الهضمية هو اضطراب متعدد العوامل مرتبط مع المناعة الذاتية يتميز بحدوث أجسام مضادة ذاتية التأثير ضد مرض إنزيم ترانسجلوتاميناز (tTG) ، وتهدف هذه الدراسة إلى التحقيق في مرض الاضطرابات الهضمية في طبرق ، ليبيا.

في هذه الدراسة سوف تتعرف على الأسباب والأعراض الأكثر شيوعًا لمرض الاضطرابات الهضمية وأكثر الفئات العمرية التي تتعرض لهذا المرض في طبرق، حيث تم جمع البيانات من معمل أبن رشد كانوا حوالي 167(88 ذكر و 79 أنثى) إجمالي المرضى عام 2021 الذين كانت تحاليلهم موجبة TTG IgGA ≥ 1.2.

من اكثر أسبابه الأطفال الذين لديهم استعداد وراثي للإصابة بمرض الاضطرابات الهضمية، والذين يتناولون المزيد من الغلوتين في مرحلة الطفولة المبكرة، لديهم مخاطر أكبر للإصابة بمرض الاضطرابات الهضمية، ولكن في الغالب عند البالغين يرتبط باضطرابات المناعة الذاتية، ويشخص البالغون الأكثر تضررًا بالإسهال. إعياء. فقدان الوزن، الانتفاخ والغازات، آلام البطن، الغثيان والقيء، الإمساك. في هذه الدراسة، يتأثر الذكور أكثر من الإناث. هناك حاجة لمزيد من الدراسات لتأكيد هذه النتائج.

كلمات البحث: مرض الاضطرابات الهضمية، العلاج طبيعي، Anti-TTG IgGA، طبرق، ليبيا.

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