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## RESEARCH ARTICLE

### ASSOCIATION BETWEEN CELIAC DISEASE AND GASTRITIS; HOW COMMON IS IT IN PAEDIATRIC AGE GROUP?

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#### ABSTRACT

**Background:** Celiac disease (CD) has been associated with multiple forms of gastritis in adult and pediatric patients. Gastritis types include chronic active gastritis (CAG), chronic inactive gastritis (CIG), or lymphocytic gastritis (LG). The objective of the study is to evaluate the incidence of different forms of gastritis in celiac patients. **Methods:** A retrospective chart review was done for confirmed celiac patients in a tertiary care center in Jeddah, Saudi Arabia, from January 2012 to December 2019. A total of 450 celiac patients. All patients with gastric in addition to duodenal biopsies taken were included. All biopsies were reviewed by a gastrointestinal pathologist. SPSS Version 2.2 and the chi-square test were used for the Statistical analysis. **Results:** A total of 366 patients their biopsies were identified, other 84 patients were excluded because they are adults, above the age of 18 years. Age 2-40 years with 65% males. About half of patients, 177 patients had normal gastric biopsies (48.4%). The other 189 (51.6%) patients had different types of gastritis. Nine patients had lymphocytic gastritis (2.5%). Helicobacter pylori gastritis is seen in 87 (23.8%) patients with different types of gastritis including CA (19.7%), CIG (2.5%), and chronic atrophic gastritis (1.6%). **Conclusion:** Celiac disease is commonly associated with different types of gastritis. Lymphocytic gastritis was surprisingly lower than usual in our data (2.5%), incidence usually of 5%. Our incidence of helicobacter pylori gastritis is higher than most previous pediatric cohorts. More data is needed to assess the effect of a gluten-free diet on gastritis.

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#### INTRODUCTION

Celiac Disease is gluten-sensitive enteropathy, a chronic systemic autoimmune disorder induced by gluten. It is considered a systemic disease that affects many parts of the body in conjunction with alimentary tract (Qari, 2002). The prevalence varies between 0.7-2%, more common in Europe. The gluten-free diet is the treatment of choice, poor adherence to diet therapy may lead to several nutritional deficiencies typically severe iron deficiency anemia (Ayyub et al., 2007; Seerat, 2016; Qari, 2014; Al-Hussaini, 2019; Asraf, 2020). Eventually, it affects the health and life quality of the human being (Ayyub et al., 2007; Ayoub et al., 2016; Abbas, 2019). The adverse effects also include the increased risks of cancer and other concerning diseases (Darwish, 2018; Hussain, 2018; Hamza, 2017; Obesity, 1995). According to the usual observations, the patients suffering from the Celiac disease complain about the dyspeptic symptoms however it is

universally recorded that these symptoms appear very less as an overall rate (Asraf et al., 2020; Zhang, ; Hershko et al., 2005). There is often Mucosal damage in the gastric mucosa<sup>15</sup>. For these reasons the CIG (and chronic inactive gastritis) LG (lymphocytic gastritis), CAG (chronic active gastritis) are considered to be common in the patients of Celiac Disease (Darwish, 2018; Hussain, 2018; Obesity, 1995; Zhang). Being more specific to the type of gastritis, Lymphocytic gastritis has the major link with Celiac Disease (Asraf et al., 2020) while a strong correlation can be found via the severity of the duodenal lesions (Abbas et al., 2019; De Giacomo, 1994). Perhaps the particular area of study has gained the significant attention of the researchers while as for its background, the particular field has been studied from the mid 90s (De Giacomo, 1994; Vogelsang, 1996; Stancu, 2001). Many of the regions in the world have these disorders common while which eventually enhances the rate of the gastric erosion or tumor (Jevon, 1999; Wu, 1999; Drut, 2004). This study is aimed to identify and evaluate the incidence of different forms of gastritis in celiac patients and find if it is common in the region of Jeddah, Saudi Arabia.

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## METHODOLOGY

The study took place in the tertiary care center in Jeddah, Saudi Arabia. The data of the patients were extracted from the retrospective chart for the patients who were confirmed for the Celiac disease. The time duration of the data extraction was from January 2012 to December 2019. According to the charts total n=450 participants' data were reviewed while 366 Patients with gastric in addition to duodenal biopsies taken were included. All the Statistical analyses were calculated by SPSS Version 2.2 and the chi-square test.

## RESULTS

The data was collected from the records of the healthcare center while according to the data, total numbers of participants were 450 while their further demographics and records are described, only 366 patients included for age up to 18-year-old, tables 1. The results elaborated in table 1 states that the number of male patients was relatively greater than the female patients while out of 450 patients of Celiac disease, 366 were included in analysis. However, as per the division of the cohort, the participant lies in different types of gastritis. According to data extraction, 7.4 % of participants had CAG, HP negative, 15.5 % of participants were CIG, HP negative, whereas, 19.7 % of the participants were CAG HP positive and 2.5 % of participants had CID HP positive. Furthermore, according to the data analysis, lymphocytic gastritis (LG) was found in 2.5 % of the participants, Chronic atrophic gastritis, HP-ve in 0.8 % of participants and Chronic atrophic gastritis, HP +ve in 1.6 % of the participants. Moreover, 1.6 % of the participant has Follicular gastritis and the other 48.4 percent were Normal. The data was collected in a raw form while sorted and analyzed in the tools including MS excel and SPSS 2.2. The overall results of the study advert that Celiac disease is associated with different types of gastritis. Lymphocytic gastritis was lower than the usual incidence of 5%. Our incidence of helicobacter pylori gastritis is higher than most previous pediatric cohorts.

**Table 1. Demographics and Celiac disease with different types of gastritis**

Characteristics	N (%)
<b>Gender</b>	
Male	293 (65)
Female	157 (35)
<b>Type of gastritis</b>	
CAG, HP -ve	27 (7.4)
CIG, HP -ve	57 (15.5)
CAG, HP +ve	72 (19.7)
CIG, HP +ve	9 (2.5)
LG	9 (2.5)
Chronic atrophic gastritis , HP-ve	3 (0.8)
Chronic atrophic gastritis, HP +ve	6 (1.6)
Follicular gastritis	6 (1.6)
Normal	177 (48.4)

## DISCUSSION

According to the results of the particular research, celiac disease is considered common in the pediatric age group followed by gastritis. The results elaborate all the observations that were found from the records while the information was further verified by the previous researches that are already obtained in the relevant field.

The research is based on the theoretical backgrounds of previous researches which justify that, Celiac disease can be counted as one of the common disorders in humans while numbers of its patients are children. As per the researches obtained in the region of Arab countries, they exhibit the rising trend in a particular disorder, however, the data present on the field is quite limited from the perspective of clinical presentation and diagnostic evaluation of CD in Saudi Arabia. In many of the researches, the Celiac disease traditionally can be called a disorder of late infancy and early childhood due to its large appearance in the group of children<sup>13</sup>. However, further studies also exhibit that this disease is not limited to any age group. The older children usually suffer from the non-classical celiac disease while the infants and young children at a little age tend to suffer from the classical celiac disease more. The classical CD is usually seen in infants and toddlers whereas non-classical type is more often discovered in older children. In our study, the mean age was not determined since it depends upon the fixed time frame, and the aim of the study is the association of gastritis with CD.

The theoretical background of the research also elaborate the CD with the basic concept, a safe intervened lymphocytic reaction connected to gluten happens in the gastric epithelium, like that found in the small digestive tract of patients with CD. It has been proposed that in any event, a subset of instances of CD may include a diffuse T cell lymphocytic enteropathy happening because of gluten. In this way, celiac related LG may be the less colorful gastric likeness the little intestinal reaction to gluten. In our study various types of gastritis were observed, HP positive was the commonest type (23.8%); chronic active gastritis 19.7%, chronic inactive 2.5%, and chronic atrophic gastritis 1.6%. This figure is above the previously reported rate.

This observation needs further investigation at the society level to estimate the real incidence of *helicobacter pylori* gastritis. The second common gastritis type is chronic inactive gastritis, HP negative, 15.5% while chronic active gastritis was 7.4%. Surprisingly, lymphocytic gastritis was one of the lowest type, 2.5%. Previous data showed an incidence of 5% which almost double what we observed as one would expect to look at lymphocytes rule in CD pathophysiology. Therefore, the results with the support of the literature enhance the information on Celiac and gastritis also exhibit the connection of two. This study concludes the types and severity of the CD while the connection of patients with gastritis is analyzed in further study. As per the research objective, it is common on a significant level while the studies still lack in terms of the advancements.

## Conclusion

According to the results obtained from the research, different types of gastritis can be triggered by the Celiac disease. While as per the data analysis of the particular cohort, the Lymphocytic gastritis was lower than the usual incidence of 5%. Our incidence of helicobacter pylori gastritis is higher than most previous pediatric cohorts. Since the cohort is limited and provides information about the particular area, the research can be advanced for generalized outcomes by increasing the numbers of participants and use the relevant evidence for that.

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**Conflict of Interests:** The authors have no conflicts of interest to declare.

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