

GENDER PREVALENCE IN CELIAC DISEASE

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ABSTRACT

Objective: There is no data showing which gender is predominantly affected by celiac disease (CD) available from Pakistan. This study was aimed to determine which gender is more affected by celiac disease.

Material and methods: This cross sectional study was performed at Fatima Memorial Hospital, Lahore-Pakistan. 121 patients were recruited in the study according to the inclusion and exclusion criteria. Every patient went through upper gastrointestinal endoscopy, as duodenal biopsy is the gold standard of the diagnosis. Histopathological evaluation was done according to Modified Marsh classification.

Results: Out of 121 patients, 14 were diagnosed to have celiac disease. Out of 14 patients 11 (78.5%) were females and 3 (21.5%) were males.

Conclusions: Females are predominantly associated with celiac disease with female to male ratio of 3.6:1.

Keywords: Celiac disease, biopsy, gender

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INTRODUCTION

Celiac disease (CD), also known as celiac sprue or nontropical sprue, is an autoimmune disease affecting small intestine in genetically susceptible population. It is the only immune-mediated disease which can be fully cured upon establishment of precise diagnosis¹. CD is precipitated by consuming food which contains gluten. It initiates an inflammatory response which causes activation of the humoral pathway which eventually resulting in release of autoantibodies such as those against endomysium and tissue transglutaminase².

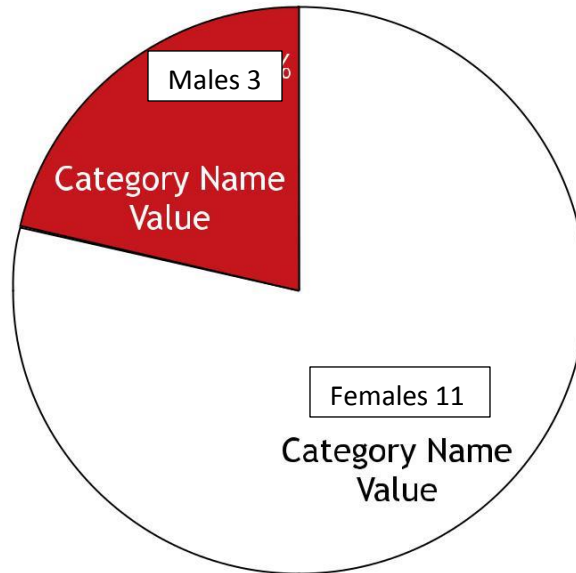
The prevalence of CD is becoming significantly higher than that recognized 20 years ago. The number of diagnosed cases of CD outnumbers the cases which remain undiagnosed. Therefore epidemiology of CD has characteristics of that of an iceberg—(undiagnosed cases -below the waterline) than diagnosed cases (above the waterline). Mostly females are affected by CD with a female-to-male ratio 2:1. In up to 17% of the patients a clinically severe onset has been reported during pregnancy or during the puerperium. Globally the prevalence of celiac disease is 1%, but huge variations among countries have been reported³. The prevalence rate of CD in general population in Europe, USA and Australia is different. According to some studies its prevalence

varies from 2-13%⁴.

We conducted a cross sectional study in the department of gastroenterology, Fatima Memorial Hospital Shadman, Lahore, Pakistan from March 2014 to October 2014. 121 patients suspected of celiac disease were recruited into the study including both genders and ages ranging from 5 to 60 years. Extremes of ages, having any other comorbid conditions such as malabsorption syndromes, irritable bowel disease etc., and previously diagnosed celiac patients were excluded from the study. Formal consent from each patient or guardian, in case of children, was taken before inclusion into the study. The whole study was performed according to Ethical Principles for Medical Research outlined in the Helsinki Declaration in 1975 (revised in 2000). It was approved by the ethical review board of Khyber Medical University, Peshawar, Pakistan.

Small bowel biopsies and blood samples were taken from these patients at the endoscopic unit of department of Gastroenterology. Histopathology examination was conducted at hospital's pathologic unit and serological tests i.e. anti-EMA test and total IgA etc. were carried out in a community based laboratory. Data including age, gender, complete clinical history and mode of presentation were collected.

Patients Suffering from Celiac Disease



Pie Chart showing females are predominantly affected by CD

Table 1 Number of males & females affected from CD

Total Celiac Disease Patients	Females	Males
14	11	3

For every case, duodenal biopsy samples were placed in clearly labeled, separate specimen collection jars. Duodenal biopsy specimens were fixed in buffered formalin and embedded in paraffin wax. Standard 3-5 μ m thick sections were stained with hematoxylin and eosin and the slides were examined by two independent pathologists blinded to the serology reports of those patients. No inter-observer variation was reported. Villous atrophy and crypt hyperplasia were documented according to the modified Marsh classification. CD3 marker was used for visualization of intraepithelial lymphocytes.

In our research of 121 patients, 14 patients were found to have celiac disease. Out of the 14 celiac patients, 11 (78.5%) were females and 3 (21.5%) were males (Table 1). According to our study the ratio with which females are associated with celiac disease is documented at 3.6:1, females to male ratio.

We have seen that females are predominantly af-

ected by this disease. The fact that females are more affected by CD than males is already been documented in many studies. Efforts have been made to explain this predominance in female gender. Firstly, the female body undergoes menstrual cycle and pregnancy. These challenges usually lead to anemia which can make the signs and symptoms of CD more prominent. Secondly, females usually go to hospital more than males go. Therefore investigations for etiology of anemia are made. These investigations may lead to diagnosis of CD. Owing to these challenges the presentation of CD in females is more severe and rapid than in males. In addition to these, immune disease are commoner in females than males overall.

Diagnosis of CD in Pakistan and other developing countries where there is very low level of awareness and limited facilities is a big challenge. The diagnostic facilities (i.e. immunological assays and intestinal biopsies) are restricted to only big cities with no nation-

al standardizations. Significant steps are needed to be taken including setting up diagnostic centers throughout the country with national standardization in clinical diagnosis, serology and histopathology etc. As these screening techniques are not very cheap, so a debate can be started whether to restrict screening to high risk population (i.e. first degree relatives of patients of CD, type I DM, autoimmune thyroiditis etc) or expand it to general population with anyone having typical or atypical clinical presentation suggestive of CD.

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