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PhD Dissertation Defense

Entitled

CELIAC DISEASE PREVALENCE AND THE CHARACTERISTICS OF CELIAC PATIENTS IN THE UNITED ARAB EMIRATES, TWO CENTERS STUDY

by

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Venue: Yanah Theatre, College of Medicine and Health Sciences

Virtual venue: Join with ZOOM or 851 7198 3178

Abstract

Introduction: Celiac disease (CD) is a chronic autoimmune gastrointestinal disorder caused by genetic susceptibility to gluten and affects around 1% of the population worldwide. CD can occur at any age and is diagnosed by detecting specific serological biomarkers and histopathological changes in the duodenal biopsy. In the United Arab Emirates, there is a lack of studies describing CD in children or adults; this thesis aimed at researching the epidemiology of celiac disease in among the populations in the United Arab Emirates. *Methods*: Two studies were conducted to achieve the research objectives, study one was conducted in Cleveland Clinic Abu Dhabi (CCAD) and study two was conducted in AlJalilah Children's Specialty Hospital. Study one used data based on electronic medical records of the patients who attended CCAD for CD screening between Jan 1st 2015 to Dec 31st 2020. Patients who were screened for CD (screening tests: tTG IgA, tTG IgG, DGP IgA and DGP IgG) and had no previous history of the disease were included in the study. Prevalence of positive cases was calculated, and differences were assessed between patients with CD compared to 165 controls who are free from the disease. Study two was based on electronic medical records of children who were screened for CD at Al Jalilah hospital between Jan 1st 2018 to June 30th 2021. All children who had no previous history of CD were included in the study. Celiac disease confirmation was based on the ESPGHAN criteria. Information collected for patients in both study sites included demographics, laboratory findings, clinical presentation and associated co-morbidities. *Results*: Study one: Of the 6,239 adult patients screened at CCAD, 2.9% were seropositive to Anti-TtG-IgA. Of the biopsy-screened patients (n=300), 38.7% (1.9% of the total patients screened) were confirmed with CD. The majority of CD patients (>80%) were younger than 45 years and females were 72.4% of the cases. When compared the 165 unmatched controls (who are free from the disease) with those with CD, the patients with CD were more likely to be Emirati (OR:2.72, CI 1.41-8.17), having anaemia (OR:1.75 CI 1.08-2.84) and having a higher probability of other autoimmune diseases (OR:9.27 CI 3.02-40.4). The highest sensitivity was for tTG IgA with 89.7% followed by DGP IgG with 87.9%. Study two: Among the 851 children screened for CD at AlJalilah children's hospital, 23 children were found to have confirmed celiac disease yielding a prevalence of 2.7%. Of the 23 diagnosed with CD, 10 patients had no gastrointestinal symptoms. The prevalence of CD among children with autoimmune thyroiditis was 12.5% and among children with diabetes type 1 was 6.5%. *Significant contributions*: The main empirical findings showed that CD prevalence among our population (adults and children) was higher than the global prevalence Another major finding is that 10% of adult CD patients would have gone undiagnosed and thus untreated if only the most commonly used test (tTG IgA) was relied upon for the diagnosis. Almost half of the children diagnosed had no gastrointestinal symptoms (asymptomatic), suggesting that clinicians have a high index of suspicion of CD in children with associated comorbidities even when asymptomatic. *Gap filled*: Studies have shown that the prevalence of celiac disease in developed countries ranges from 0.5% to 1%, with higher rates in certain populations such as those of European descent. In contrast, studies in some developing countries have reported a lower overall prevalence, ranging from 0.1% to 0.5%. However, it is generally believed that the increasing availability of diagnostic tools and greater awareness of CD in developing countries may lead to a higher rate of diagnosis in the future. Thus, this research contributes to the available data and body of knowledge in the field of CD prevalence and the characteristics of newly diagnosed patients in the UAE. Furthermore, this Ph.D. thesis also measured for the first time the accuracy of the four commonly used biomarkers for CD screening.

Keywords: Celiac Disease, gastroenterology, Cleveland Clinic, Enteropathy, Al Jalilah Hospital, UAE, transglutaminase, serology biomarkers.