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A Rare Association of Three Concurrent Autoimmune Diseases in One Patient

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Case Report

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Abstract

Introduction: Celiac disease is a treatable gluten-induced disease that often occurs concurrently with other autoimmune diseases. It is commonly associated with a number of extra gastrointestinal manifestations which makes it a systematic disease. Here we report a case of in which three concurrent autoimmune disease including celiac disease, autoimmune hepatitis, and inflammatory bowel disease are present.

Case report: A 9 years old girl was evaluated for growth retardation and unexplained elevation of aminotransferase enzymes. Serological tests revealed that she suffers from celiac disease, liver biopsy was indicative of autoimmune hepatitis, and colonoscopy proved active colitis.

Conclusion: Individuals with autoimmune diseases are required to be regularly investigated for a panel of autoantibodies in a longitudinal study design. These approaches not only provide information about the prevalence and different kinds of diseases that are commonly associated with celiac disease but also define the chronology of events for each individual. Without this information, the project of logical screening strategies will be impossible.

Keywords: Autoimmune Diseases; Celiac; Inflammatory Bowel Diseases.

Introduction

Celiac disease is a treatable gluten-induced disease that often occurs concurrently with other autoimmune diseases. The main cause of celiac disease is the gluten-containing diet in individuals that are genetically susceptible; this disorder is commonly observed with other autoimmune diseases. Celiac disease is often presented with clinical manifestations, serum antibody response, and damage to mucous membrane. HLADQ2 (90-95%) and DQ5 (5-10%) are associated with celiac disease, and in the continuous presence of gluten, the disease will turn into a self-perpetuating form [1-4]. Celiac disease (CD) is commonly associated with a number of extra gastrointestinal manifestations that makes it a systematic disease as well. This can be explained with the fact that celiac disease belongs to a group of autoimmune diseases [5]. In the following paragraphs, it is attempted to report a patient with three concurrent autoimmune diseases: celiac disease, autoimmune hepatitis, and IBD (inflammatory bowel disease).

Case Report

A 9 years old girl who was evaluated for growth retardation and unexplained elevation of aminotransferase enzymes (AST: 105, ALT: 68) since she was two months old. Her mother mentioned persistent gastrointestinal symptoms as well. Due to lack of weight gain and presence of gastrointestinal symptoms, serological tests of celiac disease were performed for her which turned to be positive(anti-endomysial antibody IgA= 225, TTG = 18.8). Due to elevated serological markers, endoscopic biopsy was performed which was indicative of celiac disease so the patient undergone gluten-free diet treatment, though she did not respond to this diet and continued to complain of abdominal pain and gastrointestinal symptoms. Additionally, her serological markers and serum aminotransferases remained elevated. Liver biopsy was done searching for the reason of elevated aminotransferase enzymes which was suggestive for autoimmune hepatitis. Moreover, colonoscopy revealed active colitis.

Discussion

There is a wide genetic overlap between celiac disease and other autoimmune diseases. The current genetic risk profiling does not have the capability of accurate prediction of the disease progress; however, the number of referrals with other autoimmune disorders in coeliac patients is higher (~5%) compared with healthy individuals [6]. The unusual immune response induced by the proteins derived from gluten is likely to produce a number of different antibodies that can ultimately affect different systems [7]. Hepatitis is commonly associated with celiac disease, yet it remains undiagnosed in clinics or brings about other diseases such as fatty liver disease. Some studies suggest that more than 10% of the patients suffer from celiac disease with an unexplained increase of alanine aminotransferase (ALT) and aspartate transaminase (AST). Moreover, in almost half of the individuals with celiac disease, an increased level of liver function enzymes have been observed [8-10]. In comparison to healthy people, patients with celiac disease are more likely to suffer from autoimmune hepatic disorders including autoimmune hepatitis and primary biliary cirrhosis [11]. Studies have indicated that celiac disease can be present in 2-4 % of type 1 and 2 autoimmune hepatitis [12,13]. Moreover, in a multicentric study conducted on 140 children suffering from autoimmune hepatitis, the prevalence of celiac disease is reported to be 16.4% [14]. The changes made in celiac-induced hepatitis commonly disappear after treatment with a gluten-free diet [15,16]. However, in patients with celiac disease, autoimmune hepatitis gives inconsistent responses, and in some cases, it does not even respond to this diet [17]. Celiac disease and inflammatory bowel disease (IBD) are the inflammatory disorders of the gastrointestinal system; they have genetic factors such as immunity and environmental factors in the course of the disease. A number of studies have indicated that the increased risk of inflammatory bowel disease ((IBD) in celiac patients is 5-10 times higher than general population [11]. In a cohort study, Dorottya Kocsis et al. reported the prevalence of IBD in celiac patients to be 3.2%. Genetic studies have identified four common chromosomal risk factors (PTPN2, IL18RAP, TAGAP, and PUS10) in these two autoimmune diseases [18]. In the study conducted by Cheng SX et al, it was discovered that ulcerative colitis is more prevalent than Crohn's disease in celiac patients [19]. In the present study, we have reported a rare association of three autoimmune diseases including autoimmune celiac, autoimmune hepatitis, and IBD in a nine-year-old girl which is the first case of three concurrent autoimmune disorders in one patient up to our knowledge.

Conclusion

Individuals with autoimmune disease are required to be regularly investigated with a longitudinal study design in terms of a group of antibodies. These approaches not only provide information about the prevalence and different kinds of disease that are commonly associated with celiac disease, but also define the chronology of events for each individual. Without this information, the project of logical screening strategies will be impossible.

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