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SHARED SUSCEPTIBILITY FOR CELIAC DISEASE AND INFLAMMATORY BOWEL DISEASE?

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We read with interest the study by Leeds et al. assessing the relationship between celiac disease and inflammatory bowel disease (1). In their investigation, they found an increased prevalence of inflammatory bowel disease among celiac disease patients. Interestingly, a recent report suggested that celiac disease and ulcerative colitis might share common genetic risk factors involving tight junction-mediated barrier defects of the bowel (2). Inspired by these facts, we wanted to conduct a large Scandinavian population-based study to test if there is evidence for co-occurrence of celiac disease, inflammatory bowel disease and other autoimmune disorders.

We took advantage of an existing large Scandinavian population-based database which has been described previously(3–5). Briefly, the database includes all lymphoma patients (n=41,179) diagnosed in Sweden (1958–1998) and Denmark (1968–1997); 93,781 population-based controls; and all their linkable first-degree blood relatives (n=371,043) (3–5). Thus, a total of 506,003 individuals were included in the database. Through record-

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Y G and O L had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis.

linkage with the nationwide inpatient registers in Sweden and Denmark, we captured hospital-discharge record data regarding celiac disease and a wide range of 32 other autoimmune and related disorders (4). For lymphoma patients, we restricted the information on celiac disease and other autoimmune disorders to one year prior to the date of lymphoma diagnosis. We used Chi-square statistics to test if celiac disease patients had excess co-occurrence of inflammatory bowel disease and other autoimmune disorders.

In our study, we were able to confirm and extend the results by Leeds et al. (1). First, we defined a total of 253 individuals (prevalence rate ~1 per 2,000) with a hospital-discharge diagnosis of celiac disease. Second, when evaluating the co-occurrence of celiac disease and other autoimmune disorders, we found persons with (versus without) celiac disease to have a higher frequency of ulcerative colitis ($n=8$, $p<0.0001$) as well as Crohn's disease ($n=6$, $p<0.0001$). Also, based on small numbers, we found co-occurrence for other autoimmune conditions (Table 1).

In summary, in this study based on over half a million individuals, we found 253 persons with a hospital-discharge diagnosis of celiac disease. Using a large Scandinavian population-based database, among individuals affected with celiac disease we observed significant co-occurrence of both ulcerative colitis and Crohn's disease, which confirms and expands the clinical-based observations by Leeds et al (1). Our findings support the theory that there might be a shared susceptibility for celiac disease and inflammatory bowel disease (2). Alternatively, one might conjecture that celiac disease, in some cases, could be a precursor state of a subsequent inflammatory bowel disease (1). Future work is needed to better define underlying mechanism of these findings.

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Y G and O L designed the study. K H, L M, M L, G G, and L G obtained data. Y G and O L analyzed data. All authors were involved in the interpretation of the results. Y G and O L wrote the report.

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TABLE 1

Co-occurring hospital-discharge diagnoses of celiac disease and other autoimmune disorders among 506,003 individuals in Scandinavia

Co-occurring autoimmune diseases among 253 hospital-diagnosed celiac disease cases	Observed (n)	P-value [#]
Ulcerative colitis	8	<0.0001
Crohn's disease	6	<0.0001
Pernicious anemia	3	<0.0001
Primary biliary cirrhosis	3	<0.0001
Diabetes mellitus type I	3	0.0954
Rheumatoid arthritis	3	0.3251
Sarcoidosis	2	—*
Myasthenia gravis	1	—*
Hashimoto's thyroiditis	1	—*
Immune thrombocytopenic purpura	1	—*
Systemic sclerosis	1	—*
Sjögren's syndrome	1	—*
Autoimmune hemolytic anemia	1	—*
Rheumatic fever	1	—*
Systemic lupus erythematosus	1	—*
Polymyalgia rheumatica	1	—*
Multiple sclerosis	1	—*
Chronic rheumatic heart disease	1	—*

[#] Chi-square test for individuals with (vs. without) celiac disease and a diagnosis of another autoimmune disorder.

* Not done due to small numbers.

Because we retrieved information on celiac disease and other autoimmune diseases from discharge records, the given dates do not reflect the actual date of diagnosis for these conditions. Therefore, we were not able to calculate risk-estimates.