Institutionen för medicin

Celiac Disease and Eye Disorders

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ABSTRACT

Background: Celiac disease (CD) is an immune mediated enteropathy, triggered by the ingestion of gluten, in genetically susceptible individuals. CD can develop at any age and the worldwide prevalence of this condition is approaching 1%. The only available treatment today is a life-long gluten free diet. CD is associated with several disorders including malignancies, endocrine disorders and neurological symptoms. So far, there have been no studies examining the association between CD and eye disorders.

Aims: The aim of this thesis was to explore the relationship between CD and eye disorders including decreased visual acuity, cataract, uveitis and diabetic retinopathy. The overall aim was to add new knowledge in the field of CD and its complications, and to identify high-risk groups where screening may be considered.

Methods: This thesis is based on data from Swedish population based registers. In our first study we examined visual acuity in 69 patients with undiagnosed CD, 996 with diagnosed CD and 6850 controls. Data on visual acuity was obtained from the Swedish conscripts register and CD patients were identified from the Swedish national patient register (1964-2003). In studies (II-IV) we defined CD as villous atrophy and data was obtained from all pathology departments in Sweden, from 1969-2008. We identified some 29,000 individuals with CD through biopsy reports. Statistics Sweden selected five reference individuals for each CD case matched for sex, age, calendar period and county resulting in about 140,000 reference individuals. Our outcome variables were identified from the Swedish national patient register according to relevant ICD codes. By using the personal identity number of each patient we were able to link our data and calculate Hazard ratios for the outcomes. In the last study we examined the risk of diabetic retinopathy in patients with type 1 diabetes *and* CD as compared with patients with type 1 diabetes and *no* CD. We used the Swedish national patient register to identify some 40,000 patients with type 1 diabetes (1964-2010).

Results: We found no association between CD and visual acuity in our first study. On the other hand, CD was positively associated with subsequent cataract (HR=1.28; 95% CI=1.19-1.36). In addition, we found a moderately increased risk of uveitis in patients with CD compared to reference individuals (HR=1.32; 95% CI=1.10-1.58). Finally, we found that duration of CD correlates strongly with the risk of diabetic retinopathy in patients with type 1 diabetes. During the first five years of a CD diagnosis among patients with type 1 diabetes we found a low risk of diabetic retinopathy (HR=0.57; 95% CI=0.36-0.91), whereas patients with longstanding CD (≥15 years) had a threefold increased risk of diabetic retinopathy (HR=3.01; 95% CI=1.43-6.32).

Conclusions: This thesis found positive associations between CD and eye diseases. Although the risks were not very high and will by no means encourage screening for CD, clinicians should be aware of these associations and consider them when meeting with CD patients who present with eye symptoms. From the last study in this thesis, we found that longstanding CD is a strong risk factor for the development of diabetic retinopathy in patients with type 1 diabetes. Therefore, we suggest closer monitoring of diabetic retinopathy in patients with longstanding CD and type 1 diabetes.

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