IDDM and Celiac Disease

An association between celiac disease and diabetes has been widely reported both in clinical surveys and in case histories (1–7). We studied this relationship, the extent of the association between celiac disease and diabetes, and whether this association was with insulin-dependent diabetes mellitus (IDDM).

Leicestershire has a population of 867,521 (1991 census) and is unusual in that the Health Authority follows geographical boundaries. This makes establishing population-based registers possible. Leicestershire has a register of childhood diabetes dating from the 1940s (8). This was extended in 1983 to include all people taking insulin in Leicestershire who had non-insulin-dependent diabetes mellitus and IDDM. Ascertainment previously has been found to be >95%. The celiac disease register was started in 1989. The two registers are similar in their methods of ascertainment and were derived from multiple sources. The insulin-taking register was separately obtained from consultant records, patient associations, general practitioners, and diabetes specialist nurse records (8). The celiac register (9) was obtained from consultant records, patient associations, general practitioners, histopathological records, and dietitian records. Ascertainment was calculated using capture-mark-recapture methodology (10).

The insulin-taking diabetes register consists of 4,787 individuals, whereas the celiac disease register has 336 individuals. The prevalence of celiac disease in the general population is 0.38 per 1,000. There were 8 people with celiac disease and insulin-treated diabetes, giving a prevalence of 1.67 per 1,000 insulin-treated diabetes cases (95% confidence interval of proportion is 0.0024–0.00013). Of these 8 patients, 4 fulfilled the criteria of Diabetes Epidemiology Registers International (10), which means that they were diagnosed at <15 years of age, with insulin therapy instituted on diagnosis. Of these patients, 3 had acute onset of diabetes with ketonuria and weight loss at presentation and were young (<30 years of age), which suggests IDDM. The other patient failed very quickly on sulfonylurea therapy (in <3 months) and was <40-years-old at diagnosis.

This study has used two population-based disease registers to investigate a possible association. This is another use of disease registers, which indicates a further example of their importance.

To have both celiac disease and insulin-requiring diabetes involves major difficulties with dietary management. These difficulties may explain why an uncommon association (1.7 cases per 1,000 insulin-treated diabetic patients) has been noticed from so many clinical surveys, and it is the reason for the dietary literature on the subject. Celiac disease remains a clinical possibility to account for the failure to thrive in an insulin-dependent child, and the loss of weight can explain the increased frequency of hypoglycemic reactions in the adult. However, this is rare, and far more common causes are apparent such as insufficient insulin and food or social circumstances.

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