Serum prevalence of celiac disease in children and adolescents with type 1 diabetes mellitus

Dear Editor,

We would like to make some comments about the article entitled "Serum prevalence of celiac disease in children and adolescents with type 1 diabetes mellitus."¹

In most diabetic patients, celiac disease (CD) is insidious and asymptomatic; therefore, serological screening for CD is crucial for an early diagnosis and introduction of appropriate treatment.² In a cross-sectional study, Araújo et al.¹ found a prevalence of 10.5% for CD among children and adolescents with type 1 diabetes mellitus (DM-1) using the anti-tissue transglutaminase (anti-tTG) antibody assay, recommended as the test of choice for the initial screening of CD in diabetic patients.³

Serological tests for the detection of anti-tTG and anti-endomysial antibodies should be reserved for IgA isotypes; therefore, it is necessary to identify patients with IgA deficiency (IgAD) beforehand in order to rule out false-negative results. Of 361 diabetic patients selected by Araújo et al.¹, seven (1.9%) had IgAD.

In a previous study carried out at Hospital de Clínicas of Universidade Federal do Paraná, Brazil, eight out of 149 diabetic children and adolescents screened for CD had IgAD (IgA < 5 mg/dL), which corresponds to a prevalence of 5.3%. Serum IgA levels were measured by the enzyme-linked immunosorbent assay (ELISA), standardized to determine serum IgA titers below the radial immunodiffusion sensitivity level in the low-concentration plate and turbidimetry. In this same group of diabetic patients, the diagnosis of CD was confirmed in 8.7% (13/149) by anti-endomysial antibody testing and intestinal biopsy.⁴

Liblau et al.⁵ reported that one out of 261 diabetic patients in France had IgAD, a higher prevalence rate than that for the normal French population, which corresponds to 1:1,400. In Italy, IgAD was detected in seven of 191 diabetic patients, i.e., a prevalence of 1:27, higher than that for the normal Italian pediatric population (1:500).⁶

The prevalence of CD in DM-1 patients, recently assessed by anti-endomysial antibody testing and intestinal biopsy in the state of São Paulo, Brazil, amounted to 4.8%, comparable to the prevalence rate described in U.S. and European studies.⁷

Tanure et al. found a prevalence of 2.6% for CD in diabetic patients from the Brazilian state of Minas Gerais.⁸ The patients were identified based on the positive results for antigliadin antibodies (AGA), anti-endomysial antibodies and intestinal biopsy.⁷ However, only diabetic patients with positive IgG-AGA and negative IgA-AGA results had their IgA level measured by nephelometry. The 12 patients who were positive only for IgG-AGA had normal serum IgA levels.

We agree that multicenter studies should be conducted in Brazil on the association of CD and DM-1 and that diabetics should be screened for CD on a routine basis. However, due to the higher prevalence of IgAD among diabetic patients, the serum IgA level should be determined before the serological tests for the detection of anti-tTG and anti-endomysial antibodies of the IgA isotype class for the screening of CD. This eliminates false-negative results, by the use of criteria established for IgAD, and by more sensitive methods for IgA measurement, such as ELISA (Table 1).

| Table 1 - Prevalence of IgAD and CD in DM-1 patients, according to different studies |
|---------------------------------|------------------|-----------------|
|                                | DM-1             | IgAD            | CD |
| Curitiba, Brazil               | 149 (5.3%)       | 13 (8.7%)       |    |
| Belo Horizonte, Brazil         | 234              | ?               | 6 (2.6%) |
| São Paulo, Brazil             | 104 (2.9%)       | 5 (4.8%)        |    |
| Recife, Brazil                 | 354 (7.2%)       | 37 (10.5%)      |    |
| France                         | 261 (1.0%)       | NP              |    |
| Italy                          | 191 (7.3%)       | NP              |    |

CD = celiac disease; IgAD = IgA deficiency; DM-1 = type 1 diabetes mellitus; NP = not performed.

* Criteria for IgAD: serum IgA < 5 mg/dL.

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In the table where the four Brazilian studies are cited, we observed that the results regarding the frequency of IgA deficiency and of CD among DM-1 patients are similar, since numerical differences are likely to result from methodological factors rather than from actual differences in frequency itself.

We reinforce the final recommendations made by our colleagues: multicenter studies should be conducted in Brazil on the association of CD and DM-1 and diabetics should be screened for CD on a routine basis.

Reference

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