Diabetes-related autoantibodies in schoolchildren with celiac disease

Marqueurs sérologiques du diabète chez les enfants atteints de maladie cœliaque

In the issue of December 2006 of the *Annals of Endocrinology*, Laadhar et al. [1] reported the results of a study on the prevalence of diabetes-related autoantibodies (DRA), which have been considered predictive of subsequent type 1 diabetes mellitus (T1DM) development, in a population of 31 newly diagnosed children with celiac disease (CD). As no significant differences were observed between the prevalence of DRA in children with CD and in a matched control group, the authors conclude that the risk to develop T1DM seems not to differ between patients with CD and healthy individuals, and thus a regular screening for DRA in children with CD does not appear to be warranted.

This conclusion is in contrast with what has been suggested in other studies, where screening for DRA in children with CD was highly recommended [2].

The prevalence of DRA in children with CD differs widely in published studies, ranging from 0 [3] to 13% [4] for islet cell antibodies (ICA), from 3.2 [1] to 23% [2] for glutamic acid decarboxylase antibodies (GADA) and from 9.7 [1] to 23% [2] for protein tyrosine phosphatase-2 antibodies (IA2-A). This large variability can explain the dissimilar recommendations coming from the different studies for testing DRA in patients with CD.

The reason for such variability is not clear. We can hypothesize that a possible selection bias (i.e., when the cause leading to the diagnosis of CD is a family history of T1DM), and/or different methodologies used for DRA detection (see for example enzyme-linked immunosorbent assay [2] versus radioimmunoprecipitation [1] used for the detection of GADA and IA2-A) may account for this variability. Interestingly, in their paper, Laadhar et al. [1] indeed reported that a family history of T1DM (two out three of the children with CD and positive for DRA), rather than CD per se, was associated with the presence of DRA on the population they studied.

In order to better clarify the true prevalence of DRA in newly diagnosed children with CD, data obtained from patients diagnosed in non-selected populations could be very helpful. We have therefore evaluated the prevalence of DRA in 17 sera of children with clinical or subclinical CD (ten females, seven males, mean age 10.7 years, range 6–14 years) obtained through a previous mass screening for CD-related autoantibodies [5] carried out in 1607 non-selected schoolchildren coming from the province of Sassari in Sardinia, the region that with Finland has the highest incidence of T1DM [6], and possibly CD [5], in the world.

ICA were measured by conventional indirect immunofluorescence on blood group 0 human pancreas sections; the cut-off value for positivity was ≥ 5 juvenile diabetes foundation units. GADA and IA2-A were measured by radioimmunoprecipitation; the cut-off points for both assays were established as the 99th percentile of autoantibody levels (calculated using more than 8000 sera from non-diabetic Sardinian schoolchildren), and corresponded to ten arbitrary units (AU) and 5 AU for GADA and IA2-A, respectively.

Of the 17 children with clinical or subclinical CD, 15 (88.2%) were negative for all three DRA measured. Two boys (9 and 14 years old) were positive for GADA alone.

Since the risk to develop T1DM is highly increased in the presence of multiple, but not single, DRA positivity [6], our population of children with CD does not appear to be at risk of developing T1DM. Indeed, none of the 17 children with CD, regardless of their DRA status, developed T1DM after a minimum follow-up period of 10 years.

Our data, obtained from a non-selected pediatric population, confirm the conclusion of Laadhar et al. [1] that a regular screening for DRA in all children with CD seems not to be recommended.

References

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