



# COMPARATIVE ANALYSIS OF ORGANSPECIFIC AUTOANTIBODIES AND CELIAC DISEASE ASSOCIATED ANTIBODIES IN TYPE 1 DIABETIC PATIENTS, THEIR FIRST DEGREE RELATIVES AND IN HEALTHY CONTROLS

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## Objective:

In type 1 diabetes the coexistence with other endocrine disturbances and organ-specific autoantibodies has been frequently reported leading to the concept of autoimmune polyendocrine syndroms (APS). In addition, an association of type 1 diabetes with celiac disease has been described. These disorders share a similar genetic background and first degree relatives of type 1 diabetic patients may also be affected significantly. Screening for specific antibodies (abs) allows early diagnosis of these disorders.

## Research design and methods:

In the present cross-sectional study we analyzed sera of 197 recent onset (r.o.) type 1 diabetic patients at the time of diagnosis, 882 first degree relatives and sera of 150 healthy controls for prevalence and cooccurrence of the following antibodies (method): IAA (ria); GADA, IA-2 abs (radioligand assay); ICA, anti-adrenal cortex abs and anti-gastric parietal cell abs (indirect immunofluorescence); anti-thyroglobulin abs and anti-thyroid peroxidase abs, gliadin IgG/A, tissue-transglutaminase IgA (elisa).

## Results:

The overall frequency of gastric parietal cell abs and adrenal antibodies was generally low and did not differ significantly in the three groups. The prevalence of gliadin IgG/IgA and transglutaminase IgA was significantly higher in the group of r.o. type 1 diabetic patients ( $p < 0.05$ ), but the difference between first degree relatives and controls did not reach significance [Tab. 1].

Table 1: Prevalence of organspecific autoantibodies in patients with type 1 diabetes at recent onset (r.o.), first degree relatives of type 1 diabetic patients and in healthy controls. Data are percent (%).

	type 1 diabetes r.o. (n=197)	1st degree relatives (n=882)	healthy controls (n=150)
<b>celiac disease assoc. abs</b>			
anti-Gliadin IgG	10.2*	5.6	3.2
anti-Gliadin IgA	7.6*	2.6	2.0
anti-transglutaminase IgA	9.7*	3.2	2.6
> 1 ab positive	16.8*	7.3	4.6
<b>pernicious anemia ass. abs</b>			
anti-gastric-parietal-cell abs	5.6	6.0	3.2
<b>adrenitis associated abs</b>			
anti-adrenal abs	1.0	1.1	0.7

\* significantly different ( $p < 0.05$ )

By contrast, type 1 diabetes associated abs and thyroid abs were significantly more frequent both in r.o. type 1 diabetic patients and in the group of first degree relatives ( $p < 0.05$ ) [Tab. 2; Fig. 1].

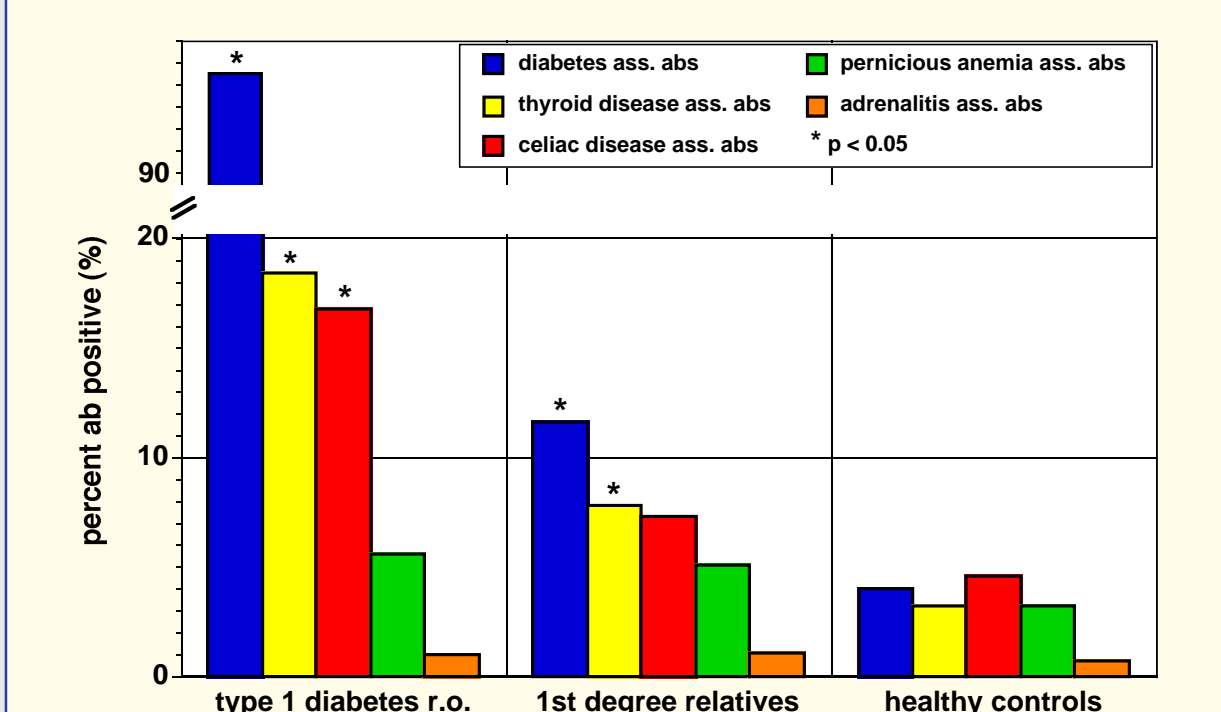
Focussing on coexistence of the abs, the group of r.o. type 1 diabetic patients presented with 27.4% of the subjects testing antibody positive specific for two or more of the envisaged disorders (type 1 diabetes,

Table 2: Prevalence of type 1 diabetes and thyroid disease associated autoantibodies in patients with type 1 diabetes at recent onset (r.o.), first degree relatives of type 1 diabetic patients and in healthy controls. Data are percent (%).

	type 1 diabetes r.o. (n=197)	1st degree relatives (n=882)	healthy controls (n=150)
<b>type 1 diabetes assoc. abs</b>			
islet-cell abs	82.1*	4.9*	1.3
anti-GAD abs	76.0*	7.6*	2.6
anti-IA-2 abs	44.4*	4.0*	0.6
insulin auto abs	37.8*	3.4	0.6
> 1 ab positive	93.4*	11.6*	4.0
<b>thyroid disease assoc. abs</b>			
anti-TPO+TG abs	18.4*	7.8*	3.2

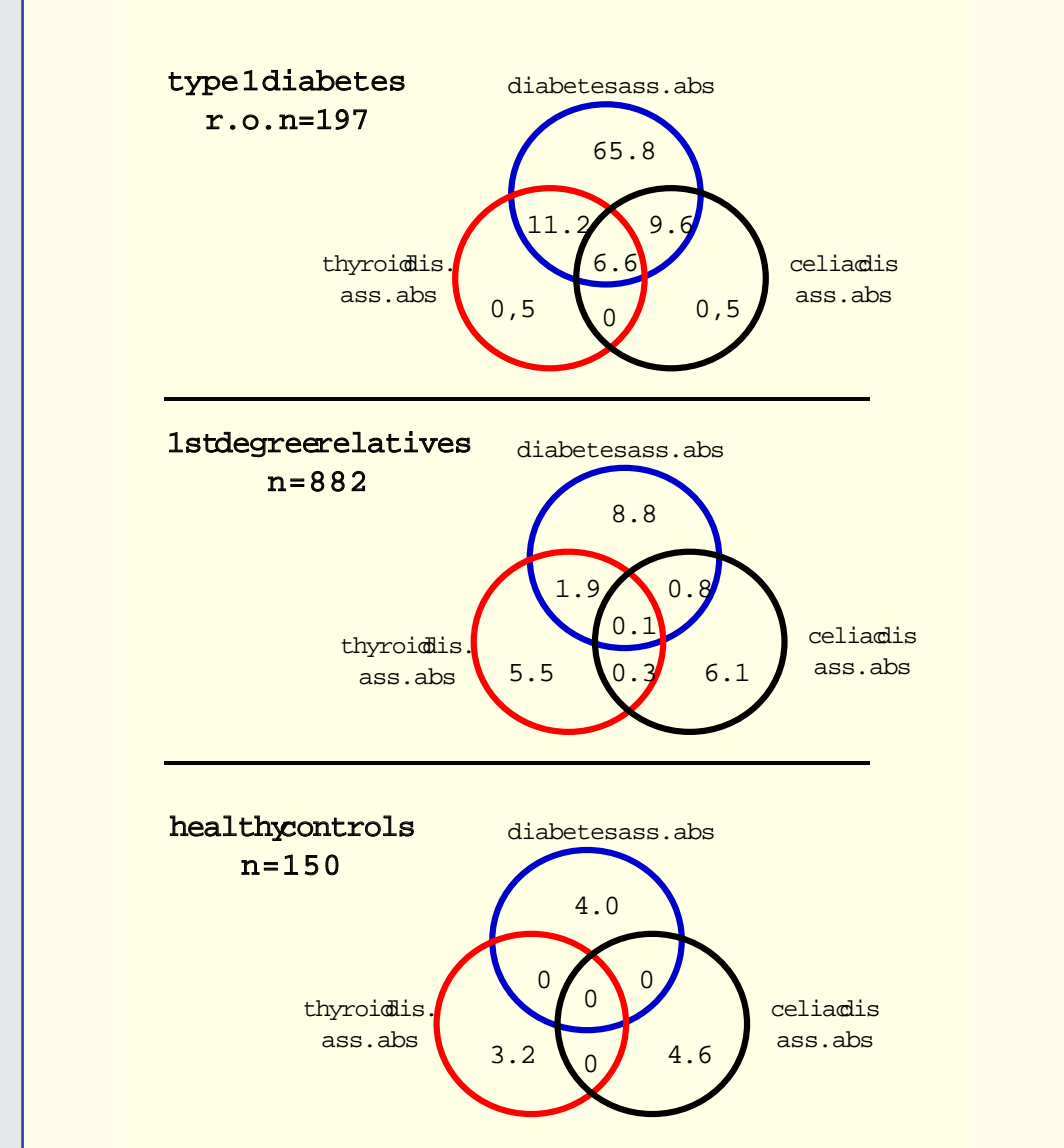
\* significantly different ( $p < 0.05$ )

Figure 1



autoimmune thyroiditis, celiac disease), compared to 3.1% in the group of first degree relatives and 0/150 in the control population ( $p < 0.05$ ) [Fig. 2].

Figure2



## Conclusions:

We conclude, that in an active case finding strategy, recent onset type 1 diabetic patients should be routinely screened for concomitant autoimmune thyroid disease and additionally for celiac disease. Screening in their first degree relatives should include at a minimum the search for thyroid autoimmunity in addition to screening for pre-type 1 diabetes.