

In children with autoimmune thyroid diseases the association with Down syndrome can modify the clustering of extra-thyroidal autoimmune disorders

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OBJECTIVES

Background: Autoimmune diseases have a higher incidence and prevalence among the individuals with Down syndrome (DS) compared to chromosomally normal people (increased risk for thyroid, gut and islet autoimmunity, juvenile idiopathic arthritis) These findings provide insights into a very aggressive phenotypic expression of autoimmunity in DS children.

Aims: To investigate for the 1st time whether the association with DS might per se modify the aggregation of extra-thyroidal autoimmune diseases (ETADs) in children with the same index autoimmune disorders, by conditioning a different clustering in the cases with associated DS versus those without DS.

METHODS

In the present cross-sectional study covering **832 children with autoimmune thyroid diseases (AITDs)**, we investigated the clustering of ETADs in **2 groups of patients with or without DS** (Groups A and B, respectively) and in **four subgroups of patients aged either <6 or ≥6 years**. All the included patients were **screened for the most common pediatric ETADs** by specific anamnesis, clinical examination and some selected autoantibody assays.

RESULTS

The rate of children with ETADs was significantly higher in Group A; in particular, alopecia areata ($p=0.00001$) and vitiligo ($p=0.00001$) were found more often in Group A irrespective of age, whilst the distribution of T1 diabetes mellitus was not different in the two groups. Celiac disease prevalence was significantly higher in DS patients only in the older subgroup.

Table 1

Median ages, female predominance and percentages of the cases with no associated non-thyroidal autoimmune diseases (NTADs; Subset 0) or only one NTAD (Subset 1) or at least two NTADs (Subset 2) in two patient groups with autoimmune thyroid disorders, with or without Down's syndrome (Groups A and B, respectively).

	Age (yrs)	Female predominance (%)	Subset 0 (%)	Subset 1 (%)	Subset 2 (%)
Group A (Nos. 174)	6.1	46.0	43.7	50.6	5.7
Group B (Nos. 678)	11.2	78.8	82.2	17.0	0.8
p	0.0005	0.00001	0.00001	0.00001	0.0003

Table 2

Prevalence rates (%) of the most common non-thyroidal autoimmune disorders detected in two patient groups with autoimmune thyroid diseases, with or without Down's syndrome (Groups A and B, respectively) and in four different subgroups including younger (Subgroups A1 and B1) and older children (Subgroups A2 and B2).

	Celiac disease	Type 1 diabetes	Alopecia areata	Vitiligo
Group A (Nos. 174)	14.3	4.0	27.0	13.2
Group B (Nos. 678)	6.0	6.9	0.9	2.8
p	0.0004	0.790	0.00001	0.00001
Subgroup A1 (<6 yrs) (Nos. 78)	11.5	3.8	42.3	20.5
Subgroup B1 (<6 yrs) (Nos. 31)	3.2	5.5	0	3.2
p	0.175	0.558	0.00001	0.025
Subgroup A2 (≥6 yrs) (Nos. 96)	16.7	4.2	14.6	7.3
Subgroup B2 (≥6 yrs) (Nos. 647)	6.2	7.0	0.9	2.8
p	0.0003	0.304	0.00001	0.022

CONCLUSIONS

The association with DS may be able to modify the clustering of ETADs in the children with AITDs by favoring the aggregation of some specific diseases, such as alopecia areata and vitiligo.

References

Aversa T, Valenzise M, Corrias A, Salerno M, Iughetti L, Tessaris D, Capalbo D, Predieri B, De Luca F, Wasniewska M. In children with autoimmune thyroid diseases the association with Down syndrome can modify the clustering of extra-thyroidal autoimmune disorders. *J Pediatr Endocrinol Metab.* 2016 Jul 21.

