

Thyroid function, autoimmune thyroiditis and coeliac disease in juvenile connective tissue diseases

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Unlike in adults, the prevalence of unrelated autoimmune disorders in juvenile-onset connective tissue diseases (CTDs) is not well known. In this study, we evaluated the thyroid function and prevalence of autoimmune thyroiditis and coeliac disease in Italian juvenile CTD patients.

Between January 2002 and March 2003, we examined 37 patients (29 females, 8 males, median age 12.1 years, range 2.6–17.2 years): 22 with systemic lupus erythematosus (SLE), 6 with juvenile dermatomyositis (JDM), 5 with localized scleroderma (LS), and 4 with mixed connective tissue disease (MCTD). For each patient, anti-gliadin, anti-endomysium, and anti-transglutaminase antibodies, free T₄, free T₃, TSH, and thyroid autoantibodies (TPOA, TgA) were assessed. At the time of the study no patient exhibited symptoms of thyroid or coeliac diseases. A thyroid high resolution sonography was carried out in patients with raised TSH, low thyroid hormone levels, and/or positive thyroid autoantibodies. The diagnosis of autoimmune thyroiditis was considered if TPOA and/or TgA levels were elevated, with raised TSH levels and/or typical hypoechogenicity on thyroid ultrasound. The data were compared with a sex- and age-matched control group of 158 subjects from the same geographic area who had been admitted to A. Meyer Children's Hospital for minor surgery.

The results are summarized in Table I. No cases of overt or subclinical hypothyroidism was found in the juvenile CTD patients. Among the autoimmune thyroiditis patients, 2 children were positive for TPOA, 4 for TPOA and TgA, and 4 had a hypoechoic ultrasound pattern compatible with autoimmune thyroiditis. Compared to the controls, the group of juvenile CTD patients overall,

as well as the subgroups of SLE and MCTD patients, showed a higher prevalence of autoimmune thyroiditis and coeliac disease (Table I).

Our study shows a high prevalence of autoimmune thyroiditis and coeliac disease in juvenile CTDs patients, in particular those affected by SLE and MCTD, but not those with LS and JDM.

Our data confirm the findings of Ronchezel *et al.* (1) and Heberhard *et al.* (2) concerning thyroid autoimmune disorders (4/42 and 6/35, respectively), as well as the reports of Heberhard *et al.* (2) and Mihailova *et al.* (3) on anti-thyroid antibodies (7/12 and 15/35) in SLE children. It seems that the variable prevalence of autoimmune thyroid disease and thyroid antibodies reported in adult series is also present among juvenile CTDs.

Autoimmune thyroid diseases are also frequent in other adult CTDs, whilst rarely reported in childhood: only 2 patients with JDM (4, 5) and a girl with MCTD (6). To our knowledge, thyroid diseases have not been found among children with LS.

In adults, the relationship between coeliac disease and CTDs is controversial. Patients with SLE appear to show a higher prevalence of coeliac disease than controls and other juvenile CTD cases (7). The coexistence of coeliac disease and SLE is rarely reported in children (7). Sporadic cases of the concurrence of coeliac disease and juvenile or adult dermatomyositis have been reported (8–10). In a small group of children with JDM, the prevalence of gluten enteropathy has been one in 14, i.e. 20-fold higher than that estimated for the normal Italian population (9). The association of coeliac disease and overlap syndrome is very rare (10). Here we report what, to the best of our knowledge, represents data on the prevalence of coeliac disease in a small cohort of Italian children with juvenile CTDs.

In conclusion, our study shows a higher prevalence of thyroid autoimmunity and coeliac disease in children with juvenile CTDs, in particular SLE and MCTD, than controls.

Our data, although based on a small group of patients, suggest close monitoring for thyroid and coeliac diseases in juvenile onset CTD patients.

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Table I. Thyroid function, autoimmune thyroiditis, and coeliac disease in JCTDs patients.

	Total	SLE	CTD patients MCTD	LS	JDM	Controls
Number of patients	37	22	4	5	6	158
Subclinical hypothyroidism	-	-	-	-	-	4 (2.5%)
Autoimmune thyroiditis	6 (16.2%)*	5 (22.7%)°	1 (25%)*	-	-	1 (0.6%)
Coeliac disease	4 (10.8 %)**	2 (9%)°°	2 (50%)+	-	-	1 (0.6%)

*p < 0.001 ($\chi^2 = 16.7$); **p < 0.003 ($\chi^2 = 8.6$); °p < 0.001 ($\chi^2 = 22.8$); °°p = 0.04 ($\chi^2 = 4.0$); +p = 0.03 ($\chi^2 = 4.2$); ++p < 0.001 ($\chi^2 = 28.0$).