

The Role of circulating sTWEAK in the pathogenesis of Hashimoto's Thyroiditis and its relationship with other cytokines: A pilot study

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OBJECTIVE and METHODS

We aimed to investigate the role of sTWEAK in the pathogenesis of Hashimoto's Thyroiditis (HT) and its relationship with IL-12, IL 17-A and TGF-β1.

Serum TSH, fT4, anti-TG and anti-TPO were measured and thyroid USG was performed to both group. In addition serum samples were collected and sTWEAK, IL 17-A, IL-12 and TGF-β1 were measured.

PATIENTS

Sixty patients (20 patients were euthyroid, 20 patients were subclinical hypothyroidism and other 20 were overt hypothyroidism), who were newly diagnosed with HT and did not receive any treatment, and 20 patients with no known disease as the healthy control group were included in the study.

RESULTS

The HT group had lower levels of sTWEAK and TGF-β1, but had higher levels of IL-12 and IL 17-A as compared to the control group. Of these, only the difference between IL 17-A levels reached the statistical significance (2.1(1.1-10.7) vs 1.8(1.2-2.3)) p < 0,001). The overt hypothyroidism group had significantly higher levels of IL-12 than those of other groups. All of the subgroups had significantly higher levels of IL 17-A than those of control group. sTWEAK was negatively correlated with IL 17-A in the overt hypothyroidism.

DISCUSSION

We achieved data that support the role of IL-12 and IL17-A in the pathogenesis of HT but did not find significant differences between the sTWEAK level and the groups. Also, no significant relationship was identified between the sTWEAK level and either the thyroid autoantibodies or the cytokine levels of other pathways. Further studies are needed to present the effect of sTWEAK level on the autoimmune diseases.

Table 1. Comparison of subgroups of the HT patients and controls

	Control	Euthyroid	S. Hypothyroid	O. Hypothyroid	p value
Age	35.3 7.5	32.5 8.2	30.9 9.9	31.9 8.2	0.9
Sex(M/F)	2/18	1/19	2/18	3/17	
BMI	24.6 2.3	23.6 2	25.1 3	24 3.3	0.6
Systolic BP(mmHg)	110(90-125)	118.5(100-128)	110 (90-132)	116(90-135)	0.08
Diastolic BP(mmHg)	70(60-80)	62.5(56-87)	70(53-90)	72.5(60-85)	0.02 c,e,f
TSH(μIU/mL)	1.6(0.9-3.5)	2.1(0.9-4.2)	7.1(4.6-14.5)	33.3(9.6-207.6)	.b,c,d,e,f
fT3(pg/mL)	2.8 0.5	-	3 0.4	2.2 0.8	<0.01
fT4(ng/dL)	1.2 0.5	1.2 0.1	1.1 0.1	0.6 0.1	<0.01 ^b
Anti-TG(IU/mL)	7.6(2.4-26)	207.1(16.7-1538)	219(10-3910)	341(59.4-7411)	<.b,c
Anti-TPO (IU/mL)	3.9(1-39)	43.1(5-443)	119(4-9578)	515.5(6-7977)	<.b,c,e,f
TWEAK (pg/mL)	838.5 236.5	771.4 215.4	888.2 374.4	687.6 153.3	0.04 ^d
TGF-β1 (ng/mL)	29.4(0.3-153.1)	7.3(0.5-104.6)	27(0.6-205.8)	15.7(0.5-97.5)	0.2
IL-12(pg/mL)	2.7(1.9-4.2)	2.7(2.2-5.8)	3.1(2.1-29.1)	3.6(2.4-7.6)	<0.01 ^{b,f}
IL 17-A(pg/mL)	1.8(1.2-2.3)	2.3(1.6-10.7)	2(1.1-2.7)	2.3(1.5-7.8)	<.b,c,e

a: Control vs SH, b: Control vs OH, c: Control vs Euthyroid HT, d:SH vs OH, e:SH vs Euthyroid HT, f:OH vs Euthyroid HT

Abbreviations: BMI:body mass index, BP: blood pressure, TSH: thyroid stimulating hormone, anti-TG: anti-thyroglobuline, anti-TPO: anti-thyroidperoxidase, TGF-β1: transforming growth factor beta-1, SH: subclinical hypothyroidism, OH: overt hypothyroidism, HT: Hashimoto's thyroiditis

