

Evaluation of Anti-Thyroid Peroxidase Antibody Levels In Patients With Metabolic Syndrome

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OBJECTIVES

This study aimed to evaluate thyroid stimulating hormone (TSH) and anti-thyroid peroxidase antibody (anti-TPOab) levels in euthyroid subjects with metabolic syndrome (MetS) and to compare them with healthy subjects without MetS.

METHODS

Study included 173 subjects consisted of 96 subjects with MetS and 77 healthy controls. Gender, age, body mass index (BMI), waist circumference (WC), and detailed medical history of all participants were noted. Serum insulin, glucose, "Homeostatic Model Assessment- Insulin Resistance" (HOMA-IR), total cholesterol (TC-HOL), low density lipoprotein (LDL-CHOL), high density lipoprotein (HDL-CHOL), triglyceride (TG), TSH, free T4, and anti-TPOab levels were obtained.

RESULTS

TSH and anti-TPOab levels were significantly higher in the MetS group than control group ($p = 0.048$ and $p = 0.001$, respectively). A ROC curve for anti-TPOab to discriminate between patients with MetS and controls was determined at ≥ 16.4 IU/mL (sensitivity 89.58%; specificity 80.52%; positive predictive value 85.15%; negative predictive value 86.11%; $p = 0.001$). Odds ratio for anti-TPOab ≥ 16.4 IU/mL between MetS and control group were 35,547 (95% confidence interval [CI] 14,979-84,357).

Table 1: Comparison of anti-TPOab and TSH levels between groups

	Patients		Control		p value
	Mean \pm SD (median)	Mean \pm SD (median)	Mean \pm SD (median)	Mean \pm SD (median)	
Anti-TPOab (IU/mL)	47,76 \pm 30,11 (40,85)	13,16 \pm 9,89 (9,9)			0,001
TSH (μ IU/mL)	2,01 \pm 2,38 (1,65)	1,63 \pm 1,34 (1,3)			0,048

Anti-TPOab: anti-thyroid peroxidase antibody, SD: Standard deviation, TSH: thyroid stimulating hormone

Table 2: OR and their associated confidence intervals for risk factors, according to serum anti-TPOab levels

	Anti-TPOab (IU/mL)		P	OR	%95CI
	≥ 16.4	< 16.4			
	n (%)	n (%)			
Gender					
Female	75 (%74,3)	61 (%84,7)	0,142	0,520	0,238-1,137
Male	26 (%25,7)	11 (%15,3)			
BMI ≥ 25 kg/m ²	92 (%91,1)	38 (%52,8)	0,001**	9,146	4,003-20,896
BMI ≥ 30 kg/m ²	65 (%64,4)	13 (%18,1)	0,001**	8,194	3,967-16,929
HT	51 (%50,5)	9 (%12,5)	0,001**	7,140	3,208-15,890
HL	15 (%14,9)	3 (%4,2)	0,044*	4,012	1,116-14,420
History of family for CAD	59 (%58,4)	24 (%33,3)	0,002**	2,810	1,497-5,274
Smoking	35 (%34,7)	22 (%30,6)	0,688	1,205	0,631-2,303
HOMA-IR ≥ 2.5	84 (%83,2)	22 (%30,6)	0,001**	11,230	5,448-23,147

Continuity (Yates) Correction, * $p < 0.05$, OR: odd ratio, anti-TPOab: anti-thyroid peroxidase antibody, CI: confidence interval, BMI: body mass index, HT: hypertension, HL: hyperlipidemia, CAD: Coronary artery disease, HOMA-IR: homeostasis model assessment insulin resistance

CONCLUSIONS

Serum TSH and anti-TPOab levels were significantly higher in euthyroid subjects with MetS than those without MetS. Subjects with MetS who had anti-TPOab levels ≥ 16.4 IU/mL had 8-9-fold risk of having higher than normal BMI; 7-fold risk of having HT; 11-fold risk of having higher than normal HOMA-IR; 2-fold higher incidence of family history of CAD; and 4-fold risk of having HL.

REFERENCES:

- 1.Uzunlulu M, Yorulmaz E, Oguz A. Prevalence of subclinical hypothyroidism in patients with metabolic syndrome. *Endocr J* 2007;54(1):71-76.
- 2.Meher L, Raveendranathan S, Kota S, Sarangi J, Jali S. Prevalence of hypothyroidism in patients with metabolic syndrome. *Thyroid Research and Practice* 2013;10(2):60.
- 3.Vanderpump MP, Tunbridge WM. Epidemiology and prevention of clinical and subclinical hypothyroidism. *Thyroid* 2002;12(10):839-847.

