

# THE EFFECT OF THYROID AUTOANTIBODIES ON DYSLIPIDEMIA IN PATIENTS WITH MILD FORM OF SUBCLINICAL HYPOTHYROIDISM

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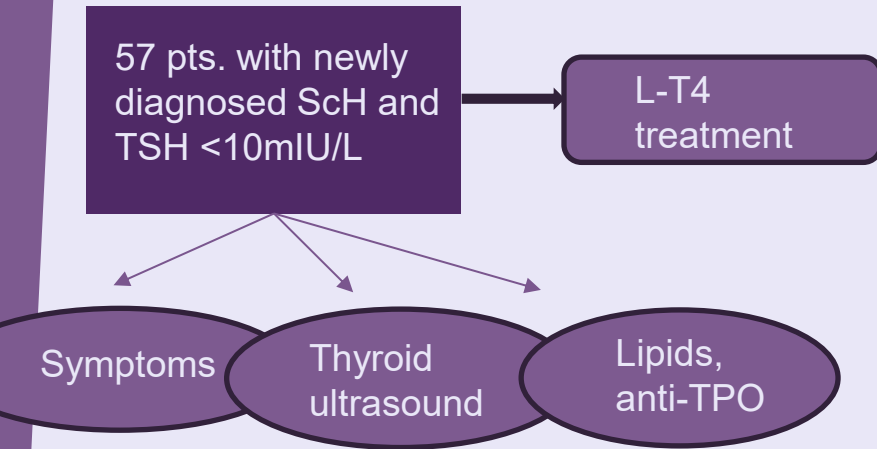
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**Introduction:** Increased incidence of dyslipidemia was found in patients with subclinical hypothyroidism (ScH) with positive anti-TPO antibodies. However, there are no studies which evaluate the effect of thyroid substitution therapy on lipids in these patients.

**Aim:** To evaluate the effect of the presence of anti-TPO antibodies on lipid parameters in patients with mild form of ScH treated with levothyroxine.

**Materials and methods:**



**Results:** The average value of TSH was  $8.1 \pm 1.9$  mIU/L. The euthyroid state was achieved with a mean dose of  $60.8 \pm 19$   $\mu$ g L-T4 in a mean duration of  $7.5 \pm 2.2$  months.

Table 1. Baseline and hormonal characteristics of the study population

	ScH at baseline (n=57)	ScH after treatment (n= 57)
sex (m : f)	3 : 63 (4.7%)	
age (years)	43.1 $\pm$ 13.2	
BMI (kg/m <sup>2</sup> )	26.2 $\pm$ 4.2	25.8 $\pm$ 3.6
menopause	10 (15.1%)	
TSH mIU/L	8.1 $\pm$ 1.9 <sup>a</sup>	2.27 $\pm$ 0.9 <sup>a</sup>
FT4 pmol/L	12.1 $\pm$ 1.6 <sup>b,c</sup>	14.9 $\pm$ 1.7 <sup>c</sup>
FT3 pmol/L	4.5 $\pm$ 1.0 <sup>d,e</sup>	5.2 $\pm$ 0.8 <sup>e</sup>

<sup>a,b,c</sup> the mean values with the same superscript are statistical significantly difference at level  $p < 0.00$

<sup>d,e</sup> the mean values with the same superscript are statistical significantly difference at level  $p < 0.05$

Table 2. Lipid parameters in the study population

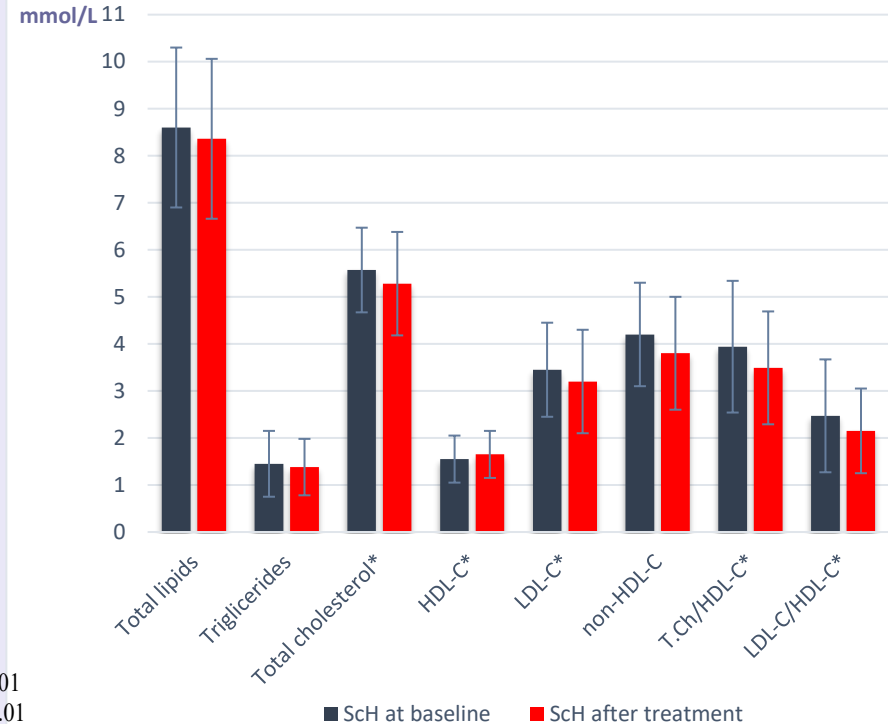
	ScH at baseline (n=57)	ScH after treatment (n= 57)
total lipids (mmol/L)	8.60±1.7	8.36±1.7
triglycerides (mmol/L)	1.45±0.7	1.38±0.6
<b>total cholesterol (mmol/L)</b>	<b>5.57±0.9<sup>a,b</sup></b>	<b>5.28±1.1<sup>a,b</sup></b>
<b>HDL-C (mmol/L)</b>	<b>1.55±0.5<sup>c,d</sup></b>	<b>1.65±0.5<sup>d</sup></b>
<b>LDL-C (mmol/L)</b>	<b>3.45±1.0<sup>e,f</sup></b>	<b>3.20±1.1<sup>f</sup></b>
<b>non-HDL-C (mmol/L)</b>	<b>4.2±1.1<sup>g</sup></b>	<b>3.8±1.2<sup>g</sup></b>
<b>total cholesterol/HDL-C</b>	<b>3.94±1.4<sup>h,i</sup></b>	<b>3.49±1.2<sup>i</sup></b>
<b>LDL-C/HDL-C</b>	<b>2.47±1.2<sup>j,k</sup></b>	<b>2.15±0.9<sup>k</sup></b>

<sup>a,b</sup> the mean values with the same superscript are statistical significantly difference at level  $p < 0.001$

<sup>c,f,i,k</sup> the mean values with the same superscript are statistical significantly difference at level  $p < 0.01$

<sup>c,d,g,h,j</sup> the mean values with the same superscript are statistical significantly difference at level  $p < 0.05$

Graph 1. Average values of lipid parameters in ScH at baseline and after thyroid replacement therapy (5 months cont. euthyroid state)



\* means statistically significant difference

- TSH positively correlated with total cholesterol ( $r = 0.147$ ,  $p < 0.05$ ).
- The lipid parameters did not respond to L-T4 treatment in patients with negative anti-TPO antibodies, while a decrease in
  - total cholesterol,
  - total cholesterol/HDL-C,
  - LDL-C/HDL-C was observed in patients with positive anti-TPO antibodies

**Conclusion:** Patients with mild ScH and positive anti-TPO antibodies with high cholesterol levels may benefit from thyroid substitution therapy.

Table 3. Comparison in lipid parameters before and after L-thyroxine treatment in the ScH group according to the presence of anti-TPO antibodies

	anti-TPO negative (n=15)		anti-TPO positive (n=42)		statistical significance
	before	after	before	after	
total lipids (mmol/L)	8.6±1.4	9.3±1.7	8.9±1.6	8.6±0.6	NS
triglycerides (mmol/L)	1.6±0.9	1.5±0.8	1.5±1.1	1.3±0.4	NS
total cholesterol (mmol/L)	5.4±1.1	5.2±1.3	5.5±1.1*	5.3±0.9*	*p<0.05
HDL-C (mmol/L)	1.4±0.5	1.4±0.4	1.6±0.4	1.6±0.4	NS
LDL-C (mmol/L)	3.3±1.0	3.4±0.9	3.5±1.0	3.3±0.9	NS
non-HDL-C (mmol/L)	4.4±1.1	4.1±1.1	4.3±1.1	3.8±1.1	NS
total cholesterol/HDL-C	4.1±1.1	4.0±1.1	3.9±1.5*	3.5±1.0*	*p<0.05
LDL-C/HDL-C	2.5±0.8	2.6±0.8	2.5±1.2*	2.2±0.8*	*p<0.05