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## LIPIDS IN NEWLY DISCOVERED SUBCLINICAL AND CLINICAL HYPOTHYROIDISM

### *INTRODUCTION*

Hypothyroidism is a disease that can occur at any age, is characterized by reduced synthesis of thyroid hormones. According to the severity of the clinical picture may be subclinical and clinical. The frequency of the subclinical form of hypothyroidism is about 9%, and the incidence of clinically manifest forms of this disease is higher in the female population at around 2%, while in the male ranges from 0.1–0.2%. (Larsen et al, 2002) Start of the disease is usually imperceptible and the patient can become aware of previous symptoms, only after the treatment achieve eutireoidizam. Obvious disease is associated with symptoms and signs such as cold intolerance, obtaining body weight, constipation, dry skin, bradycardia, hoarseness, slowed mental processes.

Body weight increases due to the accumulation of body fat and water retention, despite the reduced appetite.

This disease is common COPs increase in plasma at the expense of LDL fraction, is a consequence of reduced expression of LDL receptors in the liver, which are sensitive to the action of triiodothyronine. Reduced ratio of total cholesterol or LDL cholesterol with HDL cholesterol is adjusted during therapy hipotireoidizma. Sve these changes together are considered to be responsible for the atherogenic lipid profile in hypothyroidism.

Laboratory confirmation of disease approach after sufficient clinical suspicion. It is necessary to measure the level of TSH, TSH is elevated if it is necessary to measure the level of one of the free fraction of thyroid hormones. In subliničke forms of hypothyroidism TSH level is elevated and FT4 level is within normal limits. TSH in the subclinical form of the disease is moving to 10 mU / L. Data on association of subclinical hipotieoze with neuropsychiatric, cardiovascular and lipid disorders are unclear. The disorder of lipid metabolism is long possible consequence of subclinical hypothyroidism. Meta-analysis Danese and associates from 2000g showed that in subclinical hypothyroidism replacement therapy reduces total and LDL cholesterol without affecting HDL cholesterol and triglycerides (Danese MD et al, 2000). During

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Tromso studies found a positive association between serum TSH and serum total and LDL cholesterol. In patients with subclinical hypothyroidism with thyroxine therapy decreased the levels of these lipids. (Iqbal et al 2006)

Clinically manifest forms of this disease have patients with elevated TSH over 10MU / L and a reduced level of one of the free fraction of thyroid hormones. Results of the Framingham study showed a significant increase in levels of total cholesterol, LDL cholesterol and triglyceride levels with increasing levels of TSH in women and increase in total cholesterol and triglyceride levels in men. (Report of the 75th Annual Meeting of the American Thyroid Association in Palm Beach, Florida, USA, 2003)

### ***GOAL OF WORK***

Compare the level of TSH and cholesterol and triglyceride levels in newly diagnosed subclinical and clinical manifestations of male and female hypothyroidism.

### ***MATERIALS AND METHODS***

All the patients is covered by this paper, we measured thyroid hormone status (FT4 and TSH) and total cholesterol and triglycerides. The level of FT4 and TSH were measured on the device DPC Immulite 1000 while we were in cholesterol and triglyceride levels in the blood to determine the camera ILAB 300 +.

### ***RESULTS***

#### ***Subclinical***

Ordinal number	Initials	Age	FT4	TSH	Cholesterol	Triglycerides
1.	M.S.	58	14,4	5,33	7,43	1,17
2.	T.R.	65	13,61	6,25	7,97	3,0
3.	V.B.	60	18,1	7,17	5,7	1,70
4.	O.M.	48	15,9	6,96	9,31	10,06
5.	P.G.	53	18,5	6,59	6,38	1,49
6.	D.D.	54	16,64	6,78	5,3	1,52
7.	V.D.	40	13,7	9,07	5,15	2,14
8.	Z.L.J.	54	15,3	6,42	6,93	0,84

Ordinal number	Initials	Age	FT4	TSH	Cholesterol	Triglycerides
9.	B.B.	30	19,3	7,81	3,94	0,44
10.	P.Z.	62	13,0	5,48	5,18	6,05
11.	DJ.D.m	35	19,6	7,84	8,57	2,84
12.	C.R.	56	12,9	5,08	7,11	1,42
13.	K.S.m	46	13,7	6,59	6,91	1,29
14.	S.R.	48	19,0	6,60	10,06	2,92
15.	P.D.	26	10,4	5,75	5,22	1,6
16.	C.M.	54	16,7	6,59	7,46	2,13
17.	T.Z.	60	14,2	8,18	5,79	1,2
18.	P.V.	55	15,9	6,60	8,0	3,0
19.	T.Z.	35	13,1	7,72	7,56	2,0
20.	V.J.	40	12,3	8,95	5,59	1,74
21.	M.M.	30	12,6	8,01	5,22	1,22
22.	P.L.J.	51	8,99	6,34	5,46	1,22
23.	P.A.	56	10,2	5,18	7,14	2,36
24.	P.M.	38	18,1	8,87	5,3	1,5
25.	N.G.	60	11,5	4,97	8,90	5,8

### *Clinical*

Ordinal number	Initials	Age	FT4	TSH	Cholesterol	Triglycerides
1.	G.B.	37	5,15	100,0	6,47	0,84
2.	L.M.	68	6,2	150,0	8,3	2,7
3.	J.G.	47	9,10	32,9	4,76	1,8
4.	O.D.	47	11,3	55,3	8,41	1,16
5.	V.M.	55	5,1	58,76	7,1	2,3
6.	DJ.B.	53	11,0	13,0	4,9	0,6
7.	A.M.	48	11,6	14,75	7,35	2,3

8.	I.S.	50	6,2	74,3	6,95	2,57
9.	K.Z.	61	7,4	39,2	8,3	3,1
10.	D.J.	41	11,6	42,5	6,10	1,16
11.	T.L.J.	44	12,4	10,29	6,03	0,99
12.	E.S.	48	9,67	75,0	8,72	1,11
13.	T.M.m	30	13,5	29,76	7,47	2,98
14.	C.K.	38	12,1	13,3	4,38	2,45
15.	A.M.m	68	5,03	87,95	5,56	1,69
16.	A.S.	58	15,6	14,2	4,64	2,01
17.	K.M.	28	8,0	14,53	6,41	0,8
18.	P.J.	29	12,3	69,4	8,04	1,13
19.	V.Z.	50	15,4	11,65	7,18	2,44
20.	S.M.	21	10,4	10,73	3,8	1,07
21.	K.M.	65	10,9	10,64	8,52	2,68
22.	N.A.	35	2,7	121,0	8,2	1,0
23.	S.M.	35	10,0	39,9	5,55	1,02
24.	G.S.	42	10,2	14,2	6,7	1,5
25.	M.M.	63	10,5	13,6	7,04	1,93

In both groups of patients that we followed in our work, the ratio of males and females was identical.

From a total of 25 patients that we followed in both groups, 23 were females which is 92% of the sample, while in each group were represented by 2 men, which is 8% of the sample.

The average age in the group of the subclinical form of hypothyroidism was 48.56 and in the group of clinical forms of the disease was 46.44 years.

Within diagnostics and subclinical and clinical hypothyroidism, we measured the level of free thyroxine (FT4) and thyroid-stimulating hormone (TSH).

In the group of the subclinical form of hypothyroidism average value of free thyroxine was 14.71, while in the group of clinical forms that value was 9.73 nmol / l.

The lowest level of free thyroxine was in a group of clinical forms of hypothyroidism and was 2,7nmol / l.

The normal level of free thyroxine in our laboratories ranging from 10.2 to 24.5 nmol / l.

The average value of thyroid-stimulating hormone in the group of the subclinical form of hypothyroidism was 6.84 pg / ml, and for clinical 44,67pg / ml.

The highest value tireostimulajućeg hormone in a group of clinical forms of hypothyroidism and was 150,0pg / ml and subclinical 9.07 pg / ml.

A normal TSH in our laboratory ranges from 0.4 to 4.2 pg / ml.

The average value of total cholesterol in the subclinical group was 6,72mmo / l and clinical 6,67mmo / l.

The highest value of total cholesterol in the subclinical group was 10.06, and in clinical 8,52 mmol / l.

In our laboratory total cholesterol levels ranging from 3.2 to 5.7 mmol / L.

In both groups of patients in our study, we measured the levels of triglycerides in the blood. Their average values were 2,43 mmol / l in the subclinical group, while the clinical group this value was 1,73mmo / l.

The highest value of triglycerides in the blood in our observed groups was 10.06 mmol / l within the framework of the subclinical form of the particular disease.

The highest value of triglycerides in the blood within clinical forms of hypothyroidism in our selected group was 2,98mmo / l.

Normal levels of triglycerides in the blood in our laboratories ranging from 1.1 to 2,26mmo / l.

## ***DISCUSSION***

Our work has shown that sbklinička I clinical form of reduced thyroid function are far higher percentage represented in females.

According to this study there was no difference in age between the groups.

From a total of 25 patients with subclinical form of hypothyroidism, with 10 of them which is 40% of the sample were measured by a normal cholesterol levels in the blood, while in all other patients from this group cholesterol levels were elevated.

In clinical form of reduced thyroid function of 25 patients obuvaćenih this work only 6 or 24% of the group had a cholesterol level within the normal range, while the other 76% of patients studied groups had elevated levels of cholesterol in the blood.

In the group of the subclinical form of hypothyroidism of 25 patients, 17 of them as 68% of the group had a completely normal value tritglicerida in the blood, while the clinical forms of the disease a normal level of triglycerides in 16 patients, which is 64% of the group.

This work demonstrated that with subclinical and clinical forms with hypothyroidism there is a positive correlation between the levels of TSH and cholesterol levels, increasing the level of TSH in the majority of patients have increased levels of cholesterol in the blood.

In the group of the subclinical form of hypothyroidism measured the highest values of cholesterol and triglycerides in the blood.

All patients included in this work were not on statin therapy did not even fibrates.

## ***CONCLUSION***

There is a positive correlation between the levels of TSH and cholesterol levels, while levels between TSH levels triglycerida negative correlation with the clinical and subclinical form of reduced thyroid function.

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