

Snežana Marinković¹

THE AMOUNT OF BODY FAT, BODY MASS INDEX AND THE AMOUNT OF WATER IN THE NEWLY DISCOVERED EUTHYROID AND HYPOTHYROIDISM

Uvod: Telesna težina kod hipotireoze raste zbog nagomilavanja telesne masti i zadržavanja vode uprkos smanjenom apetitu.

Cilj rada: Utvrditi odnos količine masnog tkiva, indeksa telesne mase (BMI) i količine vode (TBW) kod novootkrivene i eutireoidne ženske i muške hipotireoze.

Metode rada: istraživanjem je obuhvaćeno 25 novootkrivenih i eutiroidnih pacijenata ženskog pola i 5 pacijenata muškog pola. Svim pacijentima smo odredili hormonski status štitaste zlezde i izmerili količinu masnog tkiva, indeks telesne mase i količinu tečnosti na In Body aparatu.

Rezultati rada: Kod 25 novootkrivenih hipotireoidnih žena prosečna vrednost BMI iznosila je 28,4 kg/m², a kod eutireoidnih 27,7 kg/m², prosečna vrednost količine masnog tkiva kod novootkrivenih ispitanica iznosila je 30,2 kg, a kod eutireoidnih 28,0 kg, dok je prosečna vrednost količine tečnosti kod novootkrivenih ispitanica iznosila 36,5 kg, a kod eutiroidnih 31,9 kg. Kod 5 novootkrivenih hipotireoidnih muškaraca prosečna vrednost BMI iznosila je 26,5 kg/m², a kod eutireoidnih 25,0 kg/m², prosečna vrednost količine masnog tkiva kod novootkrivenih ispitanika iznosila 19,4 kg, a kod eutireoidnih 17,3 kg, dok je prosečna količina tečnosti kod novootkrivenih ispitanika iznosila 45,6 kg a kod eutireoidnih 37,5 kg.

Zaključak: Naši rezultati pokazali su da supstitucionu terapiju kod pacijenata sa smanjenom funkcijom štitaste žlezde dovodi do redukcije indeksa telesne mase, količine masnog tkiva i količine vode. Najznačajniji stepen redukcije i kod muškaraca i kod žena pokazala je količina vode.

Ključne reči: hipotireoza, masno tkivo, indeks telesne mase

¹ Dr Snežana Marinković, internist-endocrinologist, Special Hospital „Čigota“ Zlatibor, smarinkovic1971@gmail.com

Hypothyroidism is a disease characterized by reduced synthesis of thyroid hormones. The incidence of clinically manifest hypothyroidism is higher in women and is about 2%, while in the male ranges from 0.1-0.2%. (Larsen et al, 2002) Body weight in hypothyroid patients is increasing due to the accumulation of body fat and water retention, despite the reduced appetite. Increased dermal glycosaminoglycans content retains water so that the skin hypothyroid patients thickened.

Adipose tissue is now considered active secretory organ in which are synthesized and secreted into the circulation of numerous molecules, including leptin, adiponectin, resistin, visfatin and others. The adipose tissue of normal weight men makes 9-18% of body weight, or 14-28% (Gregoire et al, 1998). Bioelectrical impedance analysis (BIA) is a method that is now widely used in the assessment of body composition. The measuring principle is based on orderdjivanju tissue resistance when passing a known amount of weak alternating electric current through the body. Greater resistance to the flow of electric current will provide fat because it contains the least amount of water. This method is of great importance because it is reliably determine the total amount of water in the body (TBW).

CONCLUSION

To determine the relative amount of fat, body mass index (BMI) and the amount of fluid in the newly discovered and euthyroid women's and men hypothyroidism.

MATERIAL AND METHODS

The survey included 25 newly diagnosed and euthyroid female patients and five male patients. For all patients, we did the hormonal status of the thyroid gland (FT4, TT3, TT4 and TSH levels) and measure the amount of body fat, body mass index and the amount of fluid in the In Body apparat.

Sequence number	Initials	BMI kg/m ²	Amount of body fat kg	Amount of water kg
1.	MS	38,1	48,1	40,2
2.	VV	23,5	17,8	27,9
3.	PJ	26,2	27,5	37,9
4.	RD	26,3	26,1	35,3
5.	KZ	31,5	40,3	32,7

6.	PR	30,8	33,8	31,6
7.	KZ	33,5	42,1	39,3
8.	SZ	26,6	28,2	42,5
9.	ND	28,9	32,9	46,1
10.	VG	26,7	25,5	38,0
11.	KJ	27,4	23,6	36,2
12.	JS	21,8	18,6	28,9
13.	BT	36,3	48,1	46,1
14.	BR	23,0	13,0	42,2
15.	SG	30,5	29,8	40,6
16.	TM	30,4	27,7	39,0
17.	IS	23,2	21,5	32,4
18.	SZ	31,9	39,4	35,7
19.	VA	30,8	37,4	36,2
20.	SJ	31,6	38,3	33,5
21.	PGI	23,3	18,3	27,6
22.	CS	26,7	27,8	33,5
23.	NV	35,8	43,8	39,7
24.	MTD	22,5	21,8	36,7
25.	PB	23,6	23,6	32,2

Sequence number	Initials	BMI kg/m ²	Amount of body fat kg	Amount of water kg
1.	MD	28,7	21,0	45,6
2.	LB	24,7	16,1	59,2
3.	JV	32,9	34,3	48,0
4.	BN	21,2	11,6	40,0
5.	JB	25,2	14,2	35,2

Sequence number	Initials	BMI kg/m ²	Amount of body fat kg	Amount of water kg
1.	MS	38,8	50,8	37,1
2.	VV	22,0	16,1	23,0
3.	PJ	26,5	27,9	30,1
4.	RD	26,8	26,0	33,4
5.	KZ	30,0	33,2	28,1
6.	PR	30,0	28,5	29,3
7.	KZ	32,3	38,9	30,7
8.	SZ	26,8	28,1	33,2
9.	ND	28,1	33,5	32,9
10.	VG	26,7	21,4	34,6
11.	KJ	27,2	24,5	35,7
12.	JS	20,9	12,1	25,8
13.	BT	34,3	39,0	34,4
14.	BR	24,0	18,0	29,4
15.	SG	30,1	28,6	32,6
16.	TM	30,0	25,6	35,0
17.	IS	20,2	13,3	30,4
18.	SZ	32,8	37,5	32,2
19.	VA	27,9	30,8	33,9
20.	SJ	30,6	35,2	31,5
21.	PGI	25,0	23,1	29,8
22.	CS	26,4	28,2	33,0
23.	NV	32,6	40,8	35,9
24.	MTD	21,6	20,0	34,5
25.	PB	22,0	21,2	31,1

Sequence number	Initials	BMI kg/m ²	Amount of body fat kg	Amount of water kg
1.	MD	28,0	20,8	34,5
2.	LB	23,2	14,9	44,8
3.	JV	29,2	28,0	41,2
4.	BN	20,2	10,5	35,8
5.	JB	25,0	12,5	31,6

The work included 30 hiptireodinih patients, of whom 25 were women, or 83.3%, and 5 were male, and 16.7%. The average BMI in women newly discovered hypothyroidism was 28.4 kg / m², while the rate for men was slightly lower BMI 26.5 kg / m². The amount of body fat was measured at In Body camera with newly discovered hypothyroidism in women was 30,2kg, while in men this value was 19.4 kg. The average value of the amount of water in women at the time of diagnosis of reduced thyroid function was 36.5 kg and 45.6 kg in men. All patients included in this work was introduced replacement therapy after achieving so we eutireoidnog condition, measure the same parameters on the same device. In euthyroid female population of our study, the mean body mass index was 27.7 kg / m², while the average amount of body fat reduced from 30.2 kg to 28.1 kg. We measured the amount of water by achieving eutireoidnog conditions, with the average value was 31.9 kg. In eutireoidnih men covered in this paper, body mass index decreased from 26.5 to 25.1 kg / m², while the amount of body fat decreased by 2 kg, from 19.4 to 17.3 kg. The average value of the amount of water in men from our work on achieving eutireoidnog state is 37.5 kg.

DISCUSSION

In this study, we monitored the values of BMI, body fat mass and the amount of water at the time of diagnosis of reduced thyroid function and after the introduction of the euthyroid state. We have shown that the body mass index in the female population and decreased by 2.5%, the amount of body fat to 7%, while the reduction najznačajniju showed the amount of water in the body of 12.6%. When the male population covered by the operating body mass index was reduced by 5.3%, the amount of adipose tissue by 10.8%, but the most significant reduction, and the female population had an amount of water than 17.8%.

CONCLUSION

Our work has shown that substitution therapy with reduced thyroid function leads to reduced body mass index in women and in men, except that the two times greater reduction in men than in women. Significant reduction showed the amount of fat tissue after replacement therapy and one and a half time more in men than in women. The most significant reduction showed the amount of water in the body and in females 12.6%, males 17.8%, which is also one and a half time more in men than in women. Thus we have proved that the body weight of the reduction in unit function of the thyroid gland grows due to water retention.