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POVEZANOST POREMEĆAJA RADA ŠTITASTE ŽLEZDE I POJAVE SOMATSKIH SIMPTOMA KOD OBOLELIH

Apstrakt

Uvod: Štitasta žlezda je jedna od najznačajnijih endokrinih žlezda koja ima funkciju da oslobađa hormone koji regulišu metabolizam kod odraslog čoveka. Tiroidni hormoni direktno ili indirektno deluju skoro na sve sisteme u organizmu, pa mogu negativno uticati na zdravlje pojedinaca koji imaju veliki rizik da razviju poremećaje u psihosomatskim simptomima. Pojava somatizacije kod obolelih može biti praćena direktnim uticajem poremećaja u radu štitaste žlezde na pojedine organe i sisteme, ali može biti i nespecifična u odnosu na samo oboljenje.

Cilj: Ispitati povezanost različitih poremećaja štitaste žlezde i pojave somatskih simptoma kod obolelih, prema godinama starosti, indeksu telesne mase i dužini lečenja oboljenja.

Materijal i metode: Istraživanje je sprovedeno kao studija preseka, kod 221 ambulanog pacijenta sa oboljenjem štitaste žlezde u Specijalnoj bolnici za bolesti štitaste žlezde i bolesti metabolizma „Zlatibor", od februara do jula 2018. godine. Pored sociodemografskog upitnika u istraživanju je korišćena podskala somatizacije Četvorodimenzionalnog upitnika, o simptomima (4DSQ), za procenu pojave i nivoa somatizacije kod ispitanika.

Rezultati: Postoji povezanost različitih poremećaja u radu štitaste žlezde i visokog skora na skali za somatizaciju (16,05±8,34), kod 69,7% ispitanika. Kod naših ispitanika najviše izražene somatske simptome imaju ispitanici sa hipotireozom (M=17,5; AS=16,44±8,26), ispitanici koji imaju preko 61 godinu (19,29±8,29). Kod 72,4% ispitanih su izraženi mišićno-skeletni somatski simptomi. Izraženu somatizaciju (19,40±8,32)

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imaju ispitanici koji imaju povišene vrednosti indeksa telesne mase (35–39,9), kao i ispitanici koji se leče od oboljenja štitaste žlezde više od deset godina (19,7±8,7).

Zaključak: Ovo istraživanje je pokazalo da postoji povezanost poremećaja rada štitaste žlezde i pojave somatskih simptoma kod obolelih. Kod obolelih postoje umereno izraženi somatski simptomi koji su povezani sa godinama života, indeksom telesne mase i dužinom lečenja oboljenja.

Ključne reči: somatski simptomi, poremećaji rada štitaste žlezde, bodi mas indeks, lečenje oboljenja štitaste žlezde

Abstract

Introduction: The thyroid gland is one of the most important endocrine glands that has the function of releasing hormones that regulate metabolism in adults. Thyroid hormones act directly or indirectly on almost all systems in the body, so they can negatively affect the health of an individual, who have a high risk of developing disorders in psychosomatic symptoms. The occurrence of somatization in patients can be accompanied by a direct impact of thyroid disorders on certain organs and systems, but it can also be non-specific in relation to the disease itself.

Objective: To examine the relationship between different disorders of the thyroid gland and the occurrence of somatic symptoms in patients, according to age, body mass index and length of treatment.

Material and methods: The study was conducted as a cross-sectional study in 221 outpatients with thyroid disease at the Special Hospital for Thyroid Diseases and Metabolic Diseases ”Zlatibor”, from February to July 2018. In addition to the sociodemographic questionnaire, a four-dimensional symptom questionnaire subscale (4DSQ) was used in the study to assess the occurrence and level of somatization in subjects.

Results: There is an association between different thyroid disorders and a high score on the somatization scale (16.05 ± 8.34), in 69.7% of subjects. In our subjects, the most pronounced somatic symptoms have subjects with hypothyroidism (M = 17.5; AS = 16.44 ± 8.26), subjects over 61 years (19.29 ± 8.29). Musculoskeletal somatic symptoms were expressed in 72.4% of subjects. Pronounced somatization (19.40 ± 8.32) have subjects who have elevated body mass index values (35-39.9), as well as subjects who have been treated for thyroid disease for more than ten years (19.7 ± 8.7).

Conclusion: This study showed that there is an association between thyroid disorders and the appearance of somatic symptoms in patients. In patients, there are moderate somatic symptoms that are associated with age, body mass index and length of treatment.

Key words: somatic symptoms, thyroid disorders, body mass index, treatment of thyroid disease

Uvod

Štitna žlezda je jedna od najznačajnijih endokrinih žlezda koja ima funkciju da oslobađa hormone koji regulišu metabolizam kod odraslog čoveka (1, 2, 3). Ovi hormoni deluju na neuropsihijatrijske manifestacije, odnosno utiču na raspoloženje, ponašanje i saznanje (4, 5, 6). Hormoni štitaste žlezde utiču na niz fizioloških funkcija u organizmu uključujući i metabolizam lipida, ugljenih hidrata i proteina. Oni direktno ili indirektno deluju skoro na sve sisteme u organizmu, pa izmene u njihovim serumskim koncentracijama mogu negativno uticati na zdravlje pojedinca (7). Oboleli sa poremećajem rada štitaste žlezde imaju veliki rizik da razviju poremećaje u psihičkim i somatskim simptomima koji mogu da budu posledica same bolesti (3, 8, 9).

Kod poremećaja funkcije štitaste žlezde dolazi do prekomernog ili smanjenog lučenja tiroidnih hormona, ali često i prisustva antitela, što dovodi do različitih simptoma i poremećaja (6, 8, 10). Pacijenti sa poremećajem rada štitaste žlezde koji imaju hronične zapaljenske reakcije imaju veliki rizik da razviju poremećaje u psihosomatskim simptomima (11,12). Kod postojanja hormonske disfunkcije dolazi do psihičkih simptoma anksioznosti, nemira, napetosti, povećanog znojenja, gubitka težine, problema sa snom i razdražljivosti (13,14,15). Pojava somatizacije kod obolelih može biti praćena direktnim uticajem poremećaja u radu štitaste žlezde na pojedine organe i sisteme ali može biti i nespecifična u odnosu na samo oboljenje. Dimenziju somatizacije čine psihosomatski simptomi (bol u mišićima, vratu, leđima, glavobolje, stomačne tegobe, lupanje srca, nedostatak daha) koji predstavljaju uobičajenu reakciju tela na stres, kada su slabo ili umereno izraženi kod pojedinaca, ali veoma izraženi mogu da ukazuju na postojanje somatomorfnih poremećaja (16). Pacijenti sa poremećajem rada štitaste žlezde mogu imati promene u indeksu telesne mase (BMI). Klinički hipotireoza utiče na povećanje telesne težine, dok je hipertireoza smanjuje (17).

SZO procenjuje da 750.000.000 miliona ljudi boluje od poremećenog rada štitaste žlezde (18). Tireoidna disfunkcija u različitim formama primećuje se u 5–10% populacije (19, 20). Podaci ukazuju da više obolevaju žene i da se prevalenca povećava sa godinama života (2, 21). Mnoge studije ukazuju na poboljšanje neuropsihijatrijskih i somatskih simptoma sa adekvatnim lečenjem određenih oboljenja i nadodknadom nedostajućih hormona (6, 22, 23). Kod pojedinaca je moguće da pojedini simptomi ostaju i u eutiroidnom stanju (10).

U savremenoj medicini postoje interesovanja za psihičke aspekte kod poremećaja rada štitaste žlezde jer oni predstavljaju područje za zabrinutost javnog zdravlja u svetu. U Srbiji ne postoji nacionalni registar za obolele od štitaste žlezde ali postoji nacionalni vodič koji ukazuje na ovo oboljenje (24). Do sada je kod nas rađen veoma mali broj istraživanja na temu kvaliteta života, depresije i anksioznosti kod obolelih poremećajem rada štitaste žlezde, ali do sada nije ispitivano prisustvo i nivo

somatizacije kod obolelih. Povezanost somatskih simtoma sa poremećajem u radu štitaste žlezde predstavlja rizik za funkcionalnu onesposobljenost kod obolelih, ali i veće troškove lečenja. Zbog ovih i naučnih razloga važno je proširiti naša znanja iz ove oblasti.

Cilj istraživanja je bio ispitati povezanost različitih poremećaja rada štitaste žlezde i pojave somatskih simptoma kod obolelih, i kako na pojavu somatskih simptoma utiču godine života, indeks telesne mase (BMI) i dužina lečenja oboljenja.

Materijal i metode

Istraživanje je sprovedeno kao studija preseka sprovedena kod 221 uzastopnog ambulantnog pacijenta sa oboljenjem štitaste žlezde u Specijalnoj bolnici za bolesti štitaste žlezde i bolesti metabolizma „Zlatibor", u periodu od februara do jula 2018. godine.

Uključujući kriterijumi za istraživanje bili su pacijenti koji su se javili na lečenje lekaru specijalisti endokrinologu koji im je na osnovu laboratorijskih analiza dijagnostikovao poremećaj u radu štitaste žlezde, pacijenti koji su na lečenju oboljenja štitaste žlezde, stariji od 18 godina, pacijenti koji nemaju dijagnostikovan psihijatrijski poremećaj i koji su pristali na anonimno popunjavanje upitnika. *Isključujući kriterijumi* za ispitanike su bili prisustvo dijagnoze psihijatrijske bolesti, uzimanje lekova amiodaron i litijum, trudnoća ili šest meseci nakon porođaja, pacijenti sa kognitivnim deficitom i pacijenti sa višestrukim komorbiditetima. *Protokol studije*

Nakon pregleda lekara specijaliste endokrinologa i laboratorijskih rezultata ispitanici su se svrstavali u ispitivanu grupu sa poremećajem rada štitaste žlezde.

Laboratorijske analize su se odnosile na uzorke venske krvi koji su se uzimali u jutarnjim satima (od 7 do 9 časova). Serumske analize odnosile su se na nivo tireostimulirajućeg hormona (TSH), tiroksina (T4), antitela tireoidperoksidoze i TSH receptor (anti TBO i anti Trab), a sprovodile pomoću imunoenzimskog testa (Lumi test – henning i Elisa – Milenia). Za nivo normalnog TSH smatrao se referentni opseg 0,3–4,2 mU/l a za hipertireoidizam FT4 veće od 24,5 pmol/l, odnosno hipotireoidizam FT4 manje od 10,2 pmol/l. Referentni opseg za slobodni tiroksin je 10,2–24,5 pmol/l. Uzorak krvi kod učesnika klasifikovan je u pet kategorija prema nivou TSH i T4 i to: hipertireoidizam sa smanjenim TSH i povišenim FT4, subklinički hipertireoidizam sa smanjenim TSH (manji od 0,3 mlu/l) i normalnim FT4, hipotireoidizam sa povišenim TSH (veći od 4,2 mlu/l) i smanjenim FT4, subklnički hipotireoidizam sa povišenim TSH i normalnim FT4. Autoimuni tireoiditis je, pored ovih analiza, podrazumevao ispitivanja prisustva antitela na štitastu žlezdu (anti TPO) i svrstao poremećaje funkcije štitaste žlezde na Gravesovu bolest i Hašimoto tireoiditis. Referentne vrednosti za anti TPO antitela su manje od 35 mU/l i anti Trab do 1,5 U/l (24).

Instrumenti istraživanja

U studiji su upotrebljeni opšti sociodemografski upitnik za prikupljanje osnovnih demografskih podataka koji se odnosio na pol, godine života, vrstu sadašnjeg oboljenja, indeks telesne mase (BMI) i dužine lečenja oboljenja štitaste žlezde. Na osnovu godina života ispitanici su svrstavani u grupe po dekadama. Nakon izmerenih vrednosti telesne mase i telesne visine izračunate su vrednosti BMI, koji je određen na osnovu preporučene formule za njegovo izračunavanje (telesna masa u kilogramima podeli se sa kvadratom telesne visine u metrima – vrednosti kg/m^2). Za analizu naših rezultata ispitanici su bili podeljeni u četiri grupe s obzirom na vrednosti BMI: BMI<18,5 – neuhranjen; normalan BMI=18,5–25; prekomerna težina (BMI=25–29,9), gojazni (BMI=30–34,9), teška gojaznost – BMI=35–39,9 i preterano gojazni (BMI>40) (25).

Ispitanici su, takođe, grupirani prema dužini lečenja u četiri grupe: novooboleli, zatim oni koji se leče manje od pet godina, zatim grupa ispitanika koji se leče od šest do deset godina i grupa ispitanika koji se leče više od deset godina od kada je ustanovljeno njihovo oboljenje štitaste žlezde.

Procena prisustva somatskih simptoma kod ispitanika merena je supskalom za somatizaciju Četvorodimenzionalnog upitnika o simptomima (4DSQ), koji je bio anoniman. Ova skala procenjuje 16 somatskih simptoma i odnosi se na proteklu nedelju. Rezultati su bili na petostepenoj skali Likertovog tipa sa tvrdnjama koje se označavaju sa: „ne”, „ponekad”, „redovno”, „često”, „vrlo često ili stalno”. Da bi došli do rezultata skale, odgovori su vrednovani sa 0 za „ne”, 1 za „ponekad” i 2 za druge kategorije odgovora. Sabiranjem svake stavke dobijaju se rezultati skale. Kategorisanje rezultata na skali za somatizaciju: Blago izražena od 0 do 9 – znači da osoba ima normalan nivo somatizacije; Umereno izražena – od 10 do 20, što predstavlja znak mogućih problema, koji treba da budu nadgledani, razgovarati sa pacijentom; Veoma izražena skor 21 i više u kategoriji u kojoj je potrebna dalja dijagnoza i odgovarajući tretman za tog pacijenta. U prethodnim istraživanjima uočena su četiri klastera somatskih simptoma: kardiopulmonalni simptomi (preterano znojenje, bol i stezanje u grudima, kratak i nedostatak daha, lupanje srca), koji predstavljaju uobičajenu reakciju tela na stres, kada su slabo ili umereno izraženi, ali visoki skorovi mogu da ukazuju na postojanje somatomorfnih poremećaja. Zatim, skeletnomišićni simptomi (bol u leđima, vratu, mišićima, trnjenje u prstima), gastointestinalni simptomi (neprijatan osećaj u trbuhu, mučnina u želucu, bol u abdomenu ili u predelu želuca), kao i opšti simptomi (vrtoglavica ili osećaj vrtoglavice, nesvestica, glavobolja, zamagljen vid ili tačkice ispred očiju) (16, 26).

Etički aspekti studije

Istraživanje je sprovedeno u skladu sa etičkim principima i ljudskim pravima u istraživanju, kao neprofitno i prema pravilima Helsinške deklaracije. Ispitanici su

pročitali informacije o istraživanju i dobrovoljno pristali na anonimno ispitivanje. Za sprovođenje istraživanja imali smo odobrenje etičkog odbora ustanove Specijalne bolnice za bolesti štitaste žlezde i bolesti metabolizma „Zlatibor” (3110/01.12.2017).

Statističke analize

Karakteristike uzorka analizirane su putem deskriptivne statistike. Rezultati su predstavljeni kao procenat (%) ili srednja vrednost ± standardna devijacija, u zavisnosti od tipa podataka. Grupe se upoređuju pomoću parametrijskog (t test) i neparametrijskog (Pearson chi-square test, Mann-Whitney U test, Kruskal-Wallis test) testa. Sve vrednosti p manje od 0,05 smatrane su značajnim. Svi podaci su analizirani pomoću SPSS 20.0 (IBM Corp. Released 2011. IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp.).

Rezultati

Od ukupno 221 ispitanika., najveći broj je bio ženskog pola (91,9%) i u kategoriji godina života od 41 do 50 godina. Prosečna starost ispitanika je 46,2 godine. Bodi mas indeks kod naših ispitanika je u najvećem broju slučajeva u kategoriji od 18,5–24,9. Prosečan bodi mas indeks je 25.9±4.4. Najveći broj ispitanika je imao dijagnozu hipotireoidizma (48%) i lečili su se manje od pet godina (50.2%). Kod 69,7% ispitanika postoji umeren i veoma izražen skor za somatizaciju (Tabela 1).

Tabela 1. Sociodemografske karakteristike ispitanika

Varijable	Ispitanici n=221 (%)
Pol – ženski	203 (91.9)
Godine života	
11–20	1 (0.5)
21–30	29 (13.1)
31–40	42 (19.0)
41–50	62 (28.1)
51–60	52 (23.5)
61+	35 (15.8)
BMI (kg/m^2)	
<18,5	4 (1.2)
18,5–24,9	95 (42.3)
25–29,9	86 (38.3)

30–34,9	29 (13.1)
35–39,9	5 (2.6)
40+	2 (0.9)
Dijagnoza	
Hipotireoza	106 (48.0)
Hipertireoza	44 (19.9)
Supklinički poremećaj	10 (4.5)
Gravesova bolest	14 (6.3)
Hašimoto tireoiditis	47 (21.3)
Dužina lečenja	
novooboleli	24 (10.9)
<5 godina	111 (50.2)
6–10 godina	46 (20.8)
>10 godina	40 (18.1)
Somatizacija	
blago izražena (0–9)	67 (30.3)
umereno izražena (10–20)	84 (38.0)
veoma izražena (21 i više)	70 (31.7)

T test Pearson chi square test Mann-Whitney U test

Naši rezultati ukazuju da je najviše izražena somatizacija kod ispitanika sa hipotireozom a najmanje kod ispitanika sa Gravesovom bolesti. Nema statističke razlike između svih pet grupa ispitanika. Naknadnim poređenjem, bez korelacija p vrednosti, ustanovljeno je da postoji razlika u somatizaciji između ispitanika sa hipotireoizmom i ispitanika sa Gravesovom bolesti (Tabela 2).

Tabela 2. Izraženost somatizacije kod ispitanika sa različitim oboljenjima štitaste žlezde

Dijagnoza	Somatizacija						
	N	A.S	SD	Median	Percentile 25	Percentile 75	p vrednost
Hipotireoza	106	16.44	8.26	17.5	10.0	23.0	H=5,176 p=0,270
Hipertireoza	44	17.11	8.62	16.5	9.5	24.5	
Supklinički poremećaj	10	16.80	9.25	16.5	12.0	24.0	
Gravesova bolest	14	11.86	7.45	11.0	5.0	16.0	
Hašimoto tireoiditis	47	15.26	8.22	14.0	10.0	23.0	
Ukupno*	221	16.05	8.34	17.0	10.0	23.0	

*Kruskal-Wallis test

Postoji izraženost somatskih simptoma kod velikog broja naših ispitanika sa različitim poremećajima rada štitaste žlezde. Od ukupnog broja ispitivanih najveći broj ispitanika 72,4% ima mišićno-skeletne simptome (Tabela 3).

Tabela 3. Povezanost somatskih simptoma kod pacijenata sa različitim poremećajem u radu štitaste žlezde

Oboljenja štitaste žlezde	Kardiopulmonalni simptomi N(%)	Mišićnoskeletni simptomi N(%)	Gastrointestinalni simptomi N(%)	Opšti simptomi N(%)
Hipotireoza	68 (64.2)	78 (73.6)	69 (65.1)	65 (61.3)
Hipertireoza	35 (79.5)	31 (70.5)	20 (45.5)	28 (63.6)
Supklinički poremećaj	7 (70.0)	9 (90.0)	6 (60.0)	8 (80.0)
Gravesova bolest	8 (57.1)	7 (50.0)	7 (50.0)	7 (50.0)
Hašimoto tireoiditis	30 (63.3)	35 (74.5)	27 (57.4)	29 (61.7)
Ukupno*	148 (67.0)	160 (72.4)	129 (58.4)	137 (62.0)

*Pearson chi square test

Pojava somatizacije kod obolelih sa poremećajem rada štitaste žlezde povezana je sa starošću, odnosno što ispitanici imaju više godina života veća je izraženost somatskih simptoma (Tabela 4).

Tabela 4. Povezanost pojave somatskih simptoma sa godinama života ispitanika

godine života		Somatizacija N(%)	A.S.	SD	Median	Percentile 25	Percentile 75
Starost ispitanika	11 – 20	1(0.4)	1.00	.	1.0	1.0	1.0
	21 – 30	29(13.1)	13.10	7.09	13.0	7.0	17.0
	31 – 40	42(19)	13.36	8.52	12.5	6.0	20.0
	41 – 50	62(28.1)	15.44	7.51	15.0	9.0	22.0
	51 – 60	52(23.5)	18.71	8.41	20.0	14.5	24.0
	61+	35(15.8)	19.29	8.29	20.0	15.0	26.0

Pearson chi square test

Najveći broj ispitanika ima normalan indeks telesne mase (43%). Povezali smo BMI kod ispitanika sa nivoom somatizacije i utvrdili da je najviša izraženost somatskih simptoma kod ispitivanih koji imaju BMI 35–39,9, a najmanja kod obolelih sa normalnim BMI (Tabela 5.).

Tabela 5. Povezanost pojave somatskih simptoma sa bodi mas indeksom

Vrednosti kg/m²		Somatizacija					
		N(%)	A.S.	SD	Median	Percentil 25	Percentil 75
BMI	<18,5	4(1.8)	15.75	11.24	14.5	6.5	25.0
	18,5-24,9	95(43)	14.51	8.69	14.0	7.0	21.0
	25-29,9	86(38.9)	16.90	7.88	17.0	11.0	23.0
	30-34,9	29(13.1)	17.90	8.02	18.0	12.0	24.0
	35-39,9	5(2.3)	19.40	8.32	22.0	20.0	25.0
	40+	2(0.9)	18.50	2.12	18.5	17.0	20.0

Pearson chi square test

Postoji statistički značajna razlika između grupa napravljenih prema dužini lečenja oboljenja štitaste žlezde i somatskim simptomima. Kada se urade naknadna poređenja, odnosno komparacija svake grupe sa svakom, utvrđeno je da postoji značajna razlika između grupe >10 godina sa grupom 6–10 godina (p=0,006), sa grupom <5 godina (p=0,005), dok je sa novootkrivenima razlika blizu konvencionalnog nivoa značajnosti i iznosi p=0,082. Sva naknadna poređenja su bez korekcije p vrednosti (Tabela 6).

Tabela 6. Trajanje terapije i somatski simptomi kod obolelih sa poremećajem rada štitaste žlezde

Varijabla	Trajanje terapije	N (%)	A.S.	SD	Median	Percentil 25	Percentil 75	p value[a]
Somatizacija	novooboleli	24 (10.9)	15.83	7.83	16.00	11.00	24.00	0.023
	<5 godina	111 (50.2)	15.28	8.41	16.00	8.00	22.00	
	6–10 godina	46 (20.8)	14.80	7.38	15.00	8.00	20.00	
	>10 godina	40 (18.1)	19.75	8.73	21.50	12.00	28.00	

[a]Kruskal-Wallis test

Diskusija

Rezultati dobijeni u našem istraživanju ukazuju da su izraženi somatiski simptomi kod obolelih sa poremećajem rada štitaste žlezde, na osnovu samoprocene simptoma na supskali za somatizaciju Četvorodimenzionalnog upitnika psihosomatskih simptoma (4DSQ).

Postoji značajno izražena somatizacija kod većine ispitanika (69,7%) koji imaju umerenu ili veoma izraženu somatizaciju. Rezultati ukazuju na visok intenzitet na skali za somatizaciju, kod više od 2/3 naših ispitanika, odnosno oboleli su dodatno opterećeni somatskim tegobama. Kod naših ispitanika prisutna je umereno izražena

somatizacija, srednja vrednost na našoj skali za somatizaciju je 16,05±8,34. Prisustvo medicinski neobjašnjenih simptoma kod obolelih sa poremećajem rada štitaste žlezde doprinosi pojavi komorbiteta bez obzira na samu bolest. Ovim možemo potvrditi da samo kod jedne trećine ispitanika nisu izraženi somatski simptomi, što ukazuje da je potrebno preventivno posmatrati i preduzeti mere podrške da ne dođe da pojave određenih somatskih simptoma. Povezanost oboljenja štitaste žlezde i somatskih simptoma mogla bi biti rezultat preklapanja dijagnostičkih kriterijuma za ovo oboljenje, ali kako su u samoj skali uključeni pojedini somatski simptomi koji se ne povezuju sa kliničkim simptomima za poremećaj funkcije štitaste žlezde a pokazuju povišenu somatizaciju možemo ukazati da su rezultati našeg istraživanja relevantni.

Najviše izražene simptome somatizacije srećemo kod ispitanika sa dijagnozom hipertireoze što je slično rezultatima drugih studija gde se smatra da je hipertireoza faktor za nastanak anksioznosti, ali i somatskih oštećenja (27, 28), tako da je 61% ispitanika imalo gastrointestinalne simptome i gubitak u težini (15), kao i izraženu nesanicu i kardiovaskularne simptome (27). U drugom istraživanju postoji izraženost opštih somatskih simptoma, odnosno izražena nesanica i gastorintestinalni simptomi (1).

Najveći broj ispitanika žali se na mišićno-skeletne tegobe (72,4%), dok najmanji procenat ispitivanih ima gastrointestinalne simptome. Naši ispitanici najviše imaju tegobe kao što su bolovi u leđima, vratu, mišićima, trnjenje u prstima (Tabela 3).

Analizom rezultata dobijamo podatak da kod obolelih od hipertireoze imamo najviše izražene kardiopulmonalne simptome (79,5%), a da se ovaj klaster u somatizaciji najmanje sreće kod Gravesove bolesti (57,1%), zatim da su skeletno-mišićni simptomi somatizacije najviše izraženi kod supkliničkog poremećaja (90%), a najmanje izraženi kod Gravesove bolesti. Gastrointestinalni simptomi su najviše izraženi kod ispitanika obolelih od hipotireoze (65,1%) a najmanje kod ispitanika sa hipertireozom (45,5%), dok se opšti simptomi sreću kod ispitanika sa subkliničkim poremećajem (80%) a najmanje kod ispitanika sa Gravesovom bolešću (50%). Raniji rezultati potvrđuju psihosomatski karakter Gravesove bolesti (29), dok su u našem istraživanju najmanje opterećeni somatiski simptomi u odnosu na obolele sa drugim oboljenjima štitaste žlezde. Smatramo ograničenje ove studije i relativno mali broj ispitanika u ovoj kategoriji oboljenja štitaste žlezde.

Rezultati našeg istraživanja ukazuju da postoji statistička značajnost kod ispitanika sa hipertireozom u kardiopulmonalnim simptomima i opštim simptomima i kod ispitanika sa Hašimoto tireoiditisom u gastrointestinalnim simptomima i opštim simptomima. Pored toga postoji statistička značajnost između ispitanika sa hipotireozom i sa hipertireozom u gastrointestinalnom klasteru somatizacijom (Tabela 3).

U našem istraživanju najmanju somatizaciju imaju ispitanici koji su u kategoriji godina života 21–30 godina. Analizom rezultata utvrdili smo da veći skor na skali za somatizaciju imaju ispitanici sa više godina života (Tabela 4). Svi islitanici imaju umereno izraženu somatizaciju, ali kako se ona povećava sa godinama života potreb-

no je na vreme početi sa prevencijom i uočavanjem ranih somatskih simptoma kod obolelih sa poremećajem rada štitaste žlezde.

Rezultati ukazuju da kod obolelih sa poremećajem rada štitaste žlezde nema uticaja na povećanje ili smanjenje indeksa telesne mase, najveći broj naših ispitanika ima normalne vrednosti BMI (Tabela 5). U našem, kao i drugim istraživanjima nema povezanosti disfunkcije štitaste žlezde i indeksa telesne mase (30). Analizirali smo kako BMI kod naših ispitanika utiče na pojavu somatskih simptoma i utvrdili da su oni koji imaju normalnu težinu najmanje dodatno opterećeni somatskim simptomima (14.51±8.69). Ovim istraživanjem smo utvrdili da povećan indeks telesne mase kod obolelih može imati uticaj na izraženu pojavu somatskih simptoma (Tabela 5). Ispitanici sa većim indeksom telesne mase imaju veći skor na skali za somatizaciju od svih drugih grupa. Možemo primetiti da je kod malog broja ispitanika manji nivo somatizacije kod obolelih sa BMI preko 40, što upućuje da je potrebno uraditi dodatna istraživanja kod ovih obolelih i njihovu povezanost somatizacije sa BMI.

Analizom naših rezultata došli smo do padataka da je dužina trajanja lečenja povezana kada je u pitanju pojava somatskih simptoma kod obolelih sa različitim poremećajima funkcije štitaste žlezde. Umereno izraženu somatizaciju pronašli smo kod svih grupa ispitanika sa različitom dužinom lečenja (Tabela 6). Najmanje izražene somatske simptome imamo u grupi koja se leči od 6 do 10 godina. Ispitanici koji su bili u grupi koja se leči više od 10 godina imaju daleko veću aritmetičku sredinu i medijanu od svih ostalih grupa, što ukazuje da trajanje lečenja utiče na povećanje skora na skali za somatizaciju, što ukazuje da dužina lečenja utiče na pojavu izražene somatizacije kod obolelih od štitaste žlezde. Ne postoji statistički značajna razlika između ispitanika koji su započeli lečenje i ispitanika koji se leče manje od 5 godina. Naše istraživanje ne može objasniti ove varijacije u težini somatizacije i dužine lečenja obolelih, ali pretpostavlja se da postoje različiti nivoi hormona štitaste žlezde tokom lečenja koji utiču na pojavu somatizacije kod obolelih od štitaste žlezde.

Potrebno je detaljnije utvrditi faktor rizika, pored osnovne bolesti, koji utiču na pojavu somatizacije kod obolelih. Povećani nivo somatskih simptoma, povezanih sa bolesti štitaste žlezde, ukazuje da kod ovih pacijenata postoji potreba za drugačijim tretmanom od uobičajenog. Pored uobičajene primene adekvatne terapije u lečenju oboljenja štitaste žlezde, moraju se uzeti u obzir i proširenja primene drugih terapija u sprečavanju nastanka komorbiditeta kod obolelih.

Rezultati istraživanja doprinose unapređenju znanja o dugoročnim posledicama hroničnih poremećaja rada štitaste žlezde na pojavu somatizacije kod obolelih. Ovakvi rezultati istraživanja nam ukazuju da je potrebno sprovoditi preventivne aktivnosti, rano identifikovati somatske poremećaje koji mogu nastati kod obolelih sa poremećenim radom štitaste žlezde i delovati u zaštiti njihovog fizičkog zdravlja.

Prednost našeg istraživanja je što je prvi put kod nas ispitivan nivo somatizacije kod obolelih od štitaste žlezde. Ograničenja naše studije su mali uzorak za pojedina

oboljenja štitaste žlezde, potrebno je detaljno usmeriti istraživanje kod pojedinih oboljenja o praćenju i određivanju uzročne veze između laboratorijskih analiza serumskog TSH i T4 i upoređivati sa pojedinim somatskim simptomima.

Zaključak

Ovo istraživanje je pokazalo da postoji povezanost poremećaja rada štitaste žlezde i pojave somatskih simptoma kod obolelih. Kod obolelih postoje umereno izraženi somatski simptomi koji su povezani sa godinama života, indeksom telesne mase i dužinom lečenja oboljenja.

Potreban je holistički pristup svakom pacijentu koji ima poremećaj u radu štitaste žlezde jer ovo oboljenje može dovesti do dodatnog opterećenja drugih organa i sistema u organizmu obolele osobe. Rana dijagnoza različitih oboljenja i lečenje oboljenja štitaste žlezde može smanjiti dodatni mortalitet kod oboljenja štitaste žlezde. Ovaj pristup je veoma važan za javno zdravlje ali i za sam tretman lečenja i postupak prema ovim pacijentima.

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CONNECTION BETWEEN THE DISORDER OF THE FUNCTION OF THE THYROID GLAND AND THE APPEARANCE OF THE SOMATIC SYMPTOMS WITH THE PATIENTS

Abstract

Introduction: The thyroid gland is one of the most important endocrine glands that has the function of releasing hormones that regulate metabolism in adults. Thyroid hormones act directly or indirectly on almost all systems in the body, so they can negatively affect the health of an individual, who have a high risk of developing disorders in psychosomatic symptoms. The occurrence of somatization in patients can be accompanied by a direct impact of thyroid disorders on certain organs and systems, but it can also be non-specific in relation to the disease itself.

Objective: To examine the relationship between different disorders of the thyroid gland and the occurrence of somatic symptoms in patients, according to age, body mass index and length of treatment.

Material and methods: The study was conducted as a cross-sectional study in 221 outpatients with thyroid disease at the Special Hospital for Thyroid Diseases and Metabolic Diseases ”Zlatibor”, from February to July 2018. In addition to the sociodemographic questionnaire, a four-dimensional symptom questionnaire subscale (4DSQ) was used in the study to assess the occurrence and level of somatization in subjects. Results are presented as a percentage (%) or mean ± standard deviation, depending on the data type. The groups were compared using the parametric (t test) and nonparametric (Pearson chi-square test, Mann-Whitney U test, Kruskal-Wallis test) test.

Results: There is an association between different thyroid disorders and a high score on the somatization scale (16.05±8.34), in 69.7% of subjects. In our subjects, the most pronounced somatic symptoms have subjects with hypothyroidism (M=17.5; AS=16.44 ± 8.26), subjects

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over 61 years (19.29±8.29). Musculoskeletal somatic symptoms were expressed in 72.4% of subjects. Pronounced somatization (19.40±8.32) have subjects who have elevated body mass index values (35-39.9), as well as subjects who have been treated for thyroid disease for more than ten years (19.7±8.7).

Conclusion: This study showed that there is an association between thyroid disorders and the appearance of somatic symptoms in patients. In patients, there are moderate somatic symptoms that are associated with age, body mass index and length of treatment.

Key words: somatic symptoms, thyroid disorders, body mass index, treatment of thyroid disease

Introduction

The thyroid gland is one of the most important endocrine glands whose function is to release the hormones which regulate the metabolism of a grown up person (1,2,3). These hormones influence the neuropsychiatric manifestations, it means that they influence the mood, behaviour and knowledge (4,5,6). The hormones of thyroid gland influence a great number psychological functions in the organism, including the metabolism of lipids, carbohydrates and proteins. They influence all the systems in the organism directly or indirectly, so that the changes in their serum consentractions can have a negative influence on the health of a person (7). The patients who suffer from thyroid gland function disorder can be in a great risk to develop the disorder of psychological and somatic symptoms that can be cosequence of the disease (3,8,9).

The disorder of thyroid gland causes the excessive or reduced secretion of the thyroid hormones but often and the presence of the antibodies which brings to different symptoms and disorders (6,8,10). The patients with the disorder of the function of the thyroid gland who have chronic inflammatory reactions are at the risk to develop disorders in the psychosomatic symptoms (11,12). Hormone disfunction causes psyche symptoms of anxiety, restlessness, tension, excessive sweating, weight reduce, sleeping problems and irritation (13,14,15).

The appearance of somatization with the patients can be followed by the direct influence of disorder of the thyroid gland function on some organs and systems, but it can be non-specific in the relation to the disease itself. The dimensions of the somatization are psychosomatic symptoms (pain in the muscles, neck, back, headache, stomachache, heartbumping, breathlessness) which are the usual body reactions to the stress, when they are weakly or moderately expressed with individuals, but if they are very expressed they can point to the existence of the somatomorphic disorders (16). The patients with the disorder of the thyroid gland function can have changes in the

index of the body mass (BMI). Clinically, hypothyroidism causes the increase of the body masses, but hyperthyroidism reduces it (17).

World Health Organization (WHO) that 750 million suffer from the disorder of the thyroid gland function (18). Thyroid disfunction is shown in different forms and is noticed with 5 – 10 % of the population (19,20). The data show that the women suffer from this disease in greater number and it increases with the age (2,21). Many studies show the improvement of the neuropsychiatric and somatic symptoms with the adequate treatment of the definite diseases and with the compesation of the necessary hormones (6,22,23). It is possible that some symptoms stay in the euthyroid state with some individuals (10).

In contemporary medicine there are interests for psyche aspects connected with the thyroid gland function because they worry public health in world. In Serbia There is not a national register for patients with the thyroid disease, but there is a national guide that points out this disease (24). The small number of tests has been done so far with us related to the life quality, depression and anxiety in patients with thyroid dysfunction, but the presence and the level of somatization with the patients. The connection of somatic symptoms with the thyroid gland function represents the risk for the functional disability and higher treatment expenses with the patients. Taking into account all these and other scientific reasons, it is important to broaden our knowledge from this field.

The aim of this study was to examine the relationship between different disorders of the thyroid gland and the occurrence of somatic symptoms in patients, according to age, body mass index and length of treatment.

Material and methods

The study was conducted as a cross-sectional study in 221 outpatients with thyroid disease at the Special Hospital for Thyroid Diseases and Metabolic Diseases ”Zlatibor”, from February to July 2018.

Including the research criteria there were the patients who turned to the endocrine gland specialist who diagnosed the disorder of the thyroid gland function after the laboratory analyses, then the patients who were treated from this disease, older than 18 years, the patients who don’ t have diagnosed psyche disorder and who accepted to answer questionnaire anonymously. Excluding criteria for the respondents were the diagnosis of the psychiatric disease, the treatment with amidoron and litium, pregnancy or six months after birth-giving, the patients with the cognitive deficit and the patients with the complex comorbidities.

After the checkup of the endocrine specialist and laboratory analyses the respondents were classified into the group with the disorder of the thyroid gland function.

Procedures

Nakon pregleda lekara specijaliste endokrinologa i laboratoriskoh rezultata ispitanici su se svrstavali u ispitivanu grupu sa poremećajem rada štitaste žlezde.

Laboratory analyses referred to the samples of vein blood which had been taken during the morning hours (from 7 to 9 a.m.). Serum analyses referred to the level of thyrostimulating hormone (TSH), thyroxine (T4), antibodies of thyroid peroxidosis and TSH receptor (anti TBO and anti Trab) and they were carried out by immunoenzymatic test (Lumi test – henning i Elisa – Milenia). The level of normal TSH was considered to be the range from 0,3-4,2 mU/l and for hyperthyroidism FT4 more than 24,5 pmol/l as well as for hyperthyroidism FT4 less than 10,2pmol/l. The reference range of free titoxin is 10,2-24,5 pmol/l. The sample of blood from the respondents was classified into five categories according to the level of TSH and T4: hyperthyroidism with decreased TSH and increased FT4, subclinical hyperthyroidism with decreased TSH (lower than 0,3 mlu/l) and normal FT4, hyperthyroidism with increased TSH (higher than 4,2 mlu/l) and decreased FT4, subclinical hyperthyroidism with increased TSH and normal FT4. Autoimmune thyroidism, besides these analyses, comprised the research of the existence of antibodies of thyroid gland (anti TPO) and classified the disorders of the thyroid gland functions into Graves' disease and Hashimoto thyroiditis. Reference values for anti TPO antibodies are lower than 35mU/l and anti Trab to 1,5 U/l (24).

Research instruments

General sociodemographic questionnaire for collecting basic demographic data which referred to the sex, age, type of current illness, body mass index (BMI), the length of treatment of thyroid gland disorder were included in this study. According to the age, the respondents were classified into groups by decades. After the values of body mass and heights had been measured, the values of BMI were calculated, which was defined on the basis of recommended formula kg/m2. For our analyses' results, the respondents were divided into four groups according to the values of BMI: BMI<18,5 - malnourished; normal BMI=18,5-25; overweight (BMI=25 - 29,9); the obese (BMI=30-34,9), severe obesity - BMI=35-39,9 and excessive obesity BMI>40 (25).

According to the length of treatment the respondents were classified into four groups: newly ill, the ones who have been treated less than five years, than the group of the respondents who have been treated from six to ten years and the ones who have been treated more than ten years since their thyroid gland disease was diagnosed.

Assessment of the presence of somatic symptoms in the subjects was measured with the somatization subscale of the Four-Dimensional Symptom Questionnaire

(4DSQ), which was anonymous. This scale estimates 16 somatic symptoms and reference period is ”the past week”. The results were on a five-point Likert-type scale with claims denoted by: ”no”, ”sometimes”, ”regularly”, ”often”, ”very often or constantly”. To get the results of the scale, the answers were evaluated with 0 for ”no”, 1 for ”sometimes” and 2 for other answer categories. Adding each item gives the results of the scale. Categorization of results on the somatization scale: Mildly expressed from 0 to 9 - means that the person has a normal level of somatization; Moderate - from 10 to 20, which is a sign of possible problems, which should be monitored, talk to the patient; severe - a very pronounced score of 21-32 in the category in which further diagnosis and appropriate treatment is needed for that patient. In previous studies, four clusters of somatic symptoms were observed: cardiopulmonary symptoms (excessive sweating, chest pain and tightness, shortness of breath, palpitations), which are the body’s usual response to stress, when they are mild or moderate, but high scores can to indicate the existence of somatic disorders. Then, musculoskeletal symptoms (back, neck, muscle pain, tingling in the fingers), gastrointestinal symptoms (abdominal discomfort, nausea in the stomach, pain in the abdomen or stomach area), as well as general symptoms (dizziness or lightheadedness, fainting, headache, blurred vision or spots in front of the eyes) (16,26).

Ethical Approval

The research was carried out according to ethical principles and human rights within the research, as well as non-profitable and according to the regulations of the Helsinki Declaration. The respondents read the information about the research and voluntarily accepted the anonymous examination. We had the approval of the Ethical board of the Special Hospital for thyroid gland and metabolism diseases ”Zlatibor” for carrying out the research (3110/01.12.2017.).

Statistical analysis

The characteristics of the sample were analyzed through descriptive statistics. Results are presented as a percentage (%) or mean ± standard deviation, depending on the data type. The groups were compared using the parametric (t test) and non-parametric (Pearson chi-square test, Mann-Whitney U test, Kruskal-Wallis test) test. All p values less than 0.05 were considered significant. All data were analyzed using SPSS 20.0 (IBM Corp. Released 2011. IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp.). No statistical imputation process was undertaken for missing information (i.e. we used complete case analysis).

Results

Out of 221 respondents, the greatest number was a female sex (91.9%) of age group from 41–50. The average age of the respondents is 46,2. Bodi mas indeks BMI is in the most number of cases within the category from 18,5-24,9. The average BMI is 25,9±4,4. The largest number of the respondents had the diagnosis of hyperthyroidism (48 %) and they had been treated less than five years (50.2%). There is a moderate and severe score for somatization with 69,7% of the respondents (Table 1).

Table 1. Sociodemographic characteristics of the study population

Variables	respondents n=221 (%)[a]
Gender – female	203 (91.9)
Age (years)	
11 - 20	1 (0.5)
21 - 30	29 (13.1)
31 - 40	42 (19.0)
41 - 50	62 (28.1)
51 - 60	52 (23.5)
61+	35 (15.8)
BMI (kg/m^2)*	
<18,5	4 (1.2)
18,5-24,9	95 (42.3)
25-29,9	86 (38.3)
30-34,9	29 (13.1)
35-39,9	5 (2.6)
40+	2 (0.9)
Diagnosis	
Hipotireoza	106 (48.0)
Hipertireoza	44 (19.9)
Subklinički poremećaj	10 (4.5)
Gravesova bolest	14 (6.3)
Hašimoto tireoiditis	47 (21.3)
Duration of therapy	
newly discovered	24 (10.9)
<5 years	111 (50.2)
6-10 years	46 (20.8)
>10 years	40 (18.1)
Somatisation	
Mild (0-9)	67 (30.3)
Moderate (10-20)	84 (38.0)
Severe (21-32)	70 (31.7)

[a]T test, Pearson chi square test, Mann-Whitney U test

*BMI = body mass index

Our results indicate that the most excessive somatization has been noticed with the respondents suffering from hypothyroidism and the least excessive somatization has been noticed with the ones suffering from Graves' disease. During the additional comparison, without correlations of p values, it was confirmed that there was a difference in somatization between the respondents with hypothyroidism and the ones suffering from Graves' disease (Table 2).

Table 2. The extent of somatization with respondents with different thyroid gland diseases.

Diagnosis	Somatisation						
	N	A.S	SD	Median	Percentile 25	Percentile 75	P value
Hypothyroidism	106	16.44	8.26	17.5	10.0	23.0	H=5,176 p=0,270
Hyperthyroidism	44	17.11	8.62	16.5	9.5	24.5	
Subklinical disease	10	16.80	9.25	16.5	12.0	24.0	
Graves' disease	14	11.86	7.45	11.0	5.0	16.0	
Hashimoto thyroiditis	47	15.26	8.22	14.0	10.0	23.0	
Total *	221	16.05	8.34	17.0	10.0	23.0	

**Kruskal-Wallis test*

A large number of our respondents with different thyroid gland function disorders show excessive somatic symptoms. Of the total number of respondents, 72.4% have musculoskeletal symptoms (Table 3).

Table 3. The connection of somatic symptoms with the patients with different thyroid gland function disorders

Thyroid disorder	Cardiopulmonary symptoms N(%)	Musculoskeletal symptoms N(%)	Gastrointestinal symptoms N(%)	General symptoms N(%)
Hypothyroidism	68 (64.2)	78 (73.6)	69 (65.1)	65 (61.3)
Hyperthyroidism	35 (79.5)	31 (70.5)	20 (45.5)	28 (63.6)
Subklinical disease	7 (70.0)	9 (90.0)	6 (60.0)	8 (80.0)
Graves' disease	8 (57.1)	7 (50.0)	7 (50.0)	7 (50.0)
Hashimoto thyroiditis	30 (63.3)	35 (74.5)	27 (57.4)	29 (61.7)
Total*	148 (67.0)	160 (72.4)	129 (58.4)	137 (62.0)

[*] *Pearson chi square test*

The appearance of somatization with the ill-affected suffering from thyroid gland function disorder is related to the age. The older respondents are, the bigger the range of somatic symptoms is (Table 4).

Table 4. The connection of somatic symptoms with the age of the respondents

		Somatisation*					
Age (in years)		N(%)	A.S.	SD	Median	Percentile 25	Percentile 75
Age of respondents	11 - 20	1(0.4)	1.00	.	1.0	1.0	1.0
	21 - 30	29(13.1)	13.10	7.09	13.0	7.0	17.0
	31 - 40	42(19)	13.36	8.52	12.5	6.0	20.0
	41 - 50	62(28.1)	15.44	7.51	15.0	9.0	22.0
	51 - 60	52(23.5)	18.71	8.41	20.0	14.5	24.0
	61+	35(15.8)	19.29	8.29	20.0	15.0	26.0

*Pearson chi square test

The greatest number of the respondents has the normal index of body mass (43%). We have connected the BMI of the respondents with the level of somatization and we have confirmed the highest level of somatic symptoms with the respondents who have BMI 35-39.9, but the lowest one with those patients who have a normal BMI (Table 5).

Table 5. Connection of the appearance of Somatisation with the body mass index of the respondents

kg/m^2		Somatisation					
		N(%)	A.S.*	SD*	Median*	Percentil 25*	Percentil 75*
BMI	<18,5	4(1.8)	15.75	11.24	14.5	6.5	25.0
	18,5-24,9	95(43)	14.51	8.69	14.0	7.0	21.0
	25-29,9	86(38.9)	16.90	7.88	17.0	11.0	23.0
	30-34,9	29(13.1)	17.90	8.02	18.0	12.0	24.0
	35-39,9	5(2.3)	19.40	8.32	22.0	20.0	25.0
	40+	2(0.9)	18.50	2.12	18.5	17.0	20.0

*Pearson chi square test

There is a statistic significant difference among the groups made according to the length of treating thyroid gland disease and somatic symptoms. When the new comparisons are made, the comparison among all the groups, it is confirmed that there is a significant difference between the group >10 years to a group 6-10 years (p=0,006), with a group, 5 years (p=0,005), while the difference of the newly discovered group is

near the conventional level of significance and it is p=0,082. All subsequent comparisons are without the correction of p value (Table 6).

Table 6. Duration of therapy period and Somatisation with the patients suffering from the disorder of thyroid gland function

Variables		N (%)	A.S.	SD	Median	Percentil 25	Percentil 75	p value[a]
Somatisation	newly ill	24 (10.9)	15.83	7.83	16.00	11.00	24.00	0.023
	<5 years	111 (50.2)	15.28	8.41	16.00	8.00	22.00	
	6-10 years	46 (20.8)	14.80	7.38	15.00	8.00	20.00	
	>10 years	40 (18.1)	19.75	8.73	21.50	12.00	28.00	

[a]Kruskal-Wallis test

Discussion

The results of our research point out the expressive somatic symptoms with the patients suffering from the disorder of the thyroid gland function, which is based on the self-assessment of the symptoms on the subscale for the somatization of the four dimensional questionnaire of psychosomatic symptoms (4DSQ).

There is an excessively expressed somatization with the great number of the respondents (69,7%) who have a moderate or a very expressed somatization. The results point to the high intensity on the scale of the somatization, with more than 2/3 of our respondents. It says that patients are additionally burdened with the somatic troubles. Moderately expressed somatization is present with our respondents, medium value on our scale for the somatization is 16,05±8,34. The presence of medical inexplicable symptoms with the patients suffering from the disorder of thyroid gland function contributes to the appearance of the comorbidities regardless the disease. This can certify that the somatic symptoms are not expressive with only one third of the respondents which means that it is necessary to have a preventive observation and to take steps of support so that the appearance of the somatic symptoms could be avoided. The connection between the thyroid gland disease and somatic symptoms would be the result of the overlap of the diagnostic criteria for this disease., as some somatic symptoms are included into the scale itself and they are not connected with the clinical symptoms for the disorder of the thyroid gland function, but show the higher somatization, we can point out that the results of our research are referent.

The greatest number of somatization symptoms can be met with the respondents with the diagnosis of hyperthyroidism, which is similar to the results of other studies where hyperthyroidism is considered to be the cause of anxiety and somatic problems (27,28) so that 61% of the respondents had gastrointestinal symptoms and the loss of

weight, very expressive insomnia and cardiopulmonary symptoms (27). In the other research there is the expressiveness of general somatic symptoms, expressive insomnia and gastrointestinal symptoms.

The greatest number of respondents complains about musculoskeletal troubles (72,4%), while the smallest percent of them has gastrointestinal symptoms. Our respondents have the greatest troubles with the pain in the back, neck, muscles and tingling in the fingers (Table 3).

The analysis of the results shows the datum that the patients suffering from hyperthyroidism have the highest expressed cardiopulmonary symptoms (79,5%), but this cluster in the somatization is the least found with Graves' disease (57,1%), then musculoskeletal symptoms are greatly expressed with subclinical disorder (90%), but is the least expressed with Graves' disease. Gastrointestinal symptoms have the most expressiveness with the respondents suffering from hypothyroidism (65,1%), in the least with the respondents with hyperthyroidism (45,5%), while the general symptoms can be found with the respondents with subclinical disorders (80%) and the least with the respondents with Graves' disease (50%). Earlier results confirm the psychosomatic character of Graves' disease (29) while in our research the least troubled are by somatic symptoms related to the patients with other diseases of the thyroid gland. We consider the limitation of this study and a relatively small number of the respondents in this category of the thyroid gland disease.

The results of our research show that there is statistical significance with the respondents with the hyperthyroidism in the cardiopulmonary symptoms and general symptoms and with the respondents with Hashimoto thyroiditis in the gastrointestinal symptoms and general symptoms. Besides that there is a statistical significance between the respondents with hypothyroidism and hyperthyroidism in the gastrointestinal symptoms of somatization (Table 3).

Our research shows that the least of somatization is with the respondents who are at the age of 21 to 30. The analysis of the results confirms that the higher score on the scale of somatization is with the older respondents (Table 4). All the respondents have moderately expressed somatization, but as it increases with the age it is necessary to start with the prevention and notice of the somatic symptoms with the patients with the disorder of the thyroid gland disease.

The results show that there is not an influence on the increase and decrease of the body mass index with these patients, the greatest number of our respondents have normal values of BMI (Table 5). In our research and in the other ones there is not the connection between the disorder of the thyroid gland and the body mass index (30). We have analyzed how BMI with our respondents influences the appearance of the somatic symptoms and we have confirmed that those ones with normal weight are the least additionally burdened with somatic symptoms (14.51±8.69). This research confirms that the increased body mass index with the patients can have the influence

on the expressed appearance of the somatic symptoms (Table 5). The respondents with a higher index of body mass have a higher score on the scale of somatization than the all other groups. We can notice that with a small number of respondents there is a lower level of somatization with the BMI patients over 40 years old which shows that it is necessary to do further research with these patients and their connection of somatization with BMI.

The analysis of our results gives the data which show that the duration of treating is connected with different disorders of the thyroid gland function when there is the appearance of the somatic symptoms. Moderately expressed somatization was found with all the groups of the respondents with different duration of treating (Table 6). The least expressed somatic symptoms are in the group of patients from 6 to 10 years. The respondents in the group which has been treated more than 10 years have higher arithmetic mean and median compared to other groups which shows that the duration time of treating influences the increase of the score on the scale of somatization, which points out that the time of treating influences the appearance of the expressed somatization with the patients with the thyroid gland disease. There is not a statistically important difference between the respondents who have started the treatment and the respondents who have been treated less than 5 years. Our research cannot explain these varieties in the importance of somatization and the time of treating of the patients, but it supposes that there are different levels of thyroid gland hormones which influence the appearance of somatization with the patients during the time of treating.

It is important to find in detail the factors of risk besides the basic disease, which influence the appearance of somatization with the patients. The increased level of somatic symptoms connected with the thyroid gland disease points out the need for a different treatment from the usual one with these patients. Besides the usual use of the adequate therapy in treating the thyroid gland disease, the expanded uses of other therapies in the prevention of the starting comorbidities with the patients must be taken.

The results of the research contribute to the improvement of the knowledge about long - lasting consequences chronic disorders of the thyroid gland function to the appearance of somatization with the patients. These results of the research point to the necessity of preventive activities, early identification of somatic disorders that can appear with the patients with thyroid gland disease and the acting to protect their physical health.

The advantage of our research is that the level of somatization with the patients with thyroid gland disease has been tested for the first time. The restrictions of our study are the small standards for some thyroid gland diseases, it is necessary to direct the research in detail to some diseases about observing and defining the causative connection between laboratory analyses of the serum TSH and T4 and compare it to some somatic symptoms.

Conclusion

This research has shown the connection between the thyroid gland disorder and the somatic symptoms with the patients. There are moderately expressed somatic symptoms with patients, which is connected with life age, the index of body mass and the time period of the treatment.

The holistic access is necessary to any patient with the thyroid gland disorder because this disease can lead to an additional burden of other organs and systems in the organism of the patient. An early diagnosis of different diseases and the treatment of the thyroid gland disease can reduce the additional mortality from thyroid gland disease. This access is as very important for the public health as for the some way of treatment and the attitude to these patients.

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