NAZIV DISERTACIJE: KOMPARATIVNA ANALIZA NUTRITIVNOG STATUSA I UNOSA MIKRONUTRIJENATA SA HORMONALNIM STATUSOM ŠTITNE ŽLIJEZDE KOD ŽENA REPRODUKTIVNE DOBI

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SAŽETAK

Hormoni štitne žlijezde imaju značajnu ulogu u regulaciji metabolizma, lipidnog i glikemijskog profila, dok nutritivni status i tjelesni sastav mogu učestvovati u nastanku subkliničkih hormonalnih promjena kod žena reproduktivne dobi. Cilj istraživanja bio je analizirati povezanost antropometrijskih pokazatelja, tjelesnog sastava i unosa joda, selena i cinka sa hormonalnim statusom štitne žlijezde. Provedena je presječna, opservaciona, deskriptivno-analitička studija na uzorku od 117 ispitanica, dobi 18–45 godina. Nutritivni status procijenjen je IODINE-FFQ upitnikom, antropometrijskim mjerenjima i analizom tjelesnog sastava. Laboratorijski su određeni TSH, FT3, FT4, glukoza, željezo i lipidni status, a podaci su obrađeni deskriptivnim i inferencijalnim statističkim metodama. Prosječan dnevni unos joda kod ispitanica iznosio je 91,09±29,19 µg, pri čemu je 94,02% ispitanica imalo neadekvatan unos u odnosu na preporučene vrijednosti. Većina ispitanica imala je vrijednosti TSH, FT3 i FT4 unutar referentnog raspona. Nije utvrđena značajna povezanost dnevnog unosa joda sa vrijednostima TSH, FT3 i FT4, dok je dnevni unos cinka pokazao slabu pozitivnu povezanost sa FT3, a unos selena slabiju negativnu povezanost sa TSH i FT4. Analizom međusobnih odnosa tireoidnih hormona utvrđena je negativna korelacija TSH sa FT3 i FT4, dok su FT3 i FT4 bili u pozitivnoj međusobnoj korelaciji. FT3 je pokazao pozitivnu korelaciju sa glukozom, a negativnu korelaciju sa ukupnim holesterolom, dok je FT4 pozitivno korelirao sa vrijednostima željeza. Analiza tjelesnog sastava pokazala je značajne dobne razlike u tjelesnoj masi, procentu tjelesne masti, masnoj masi, BMI, visceralnoj masti i metaboličkoj dobi. Najnepovoljniji metaboličko-antropometrijski profil zabilježen je kod žena u dobi 31–40 godina, koje su imale više vrijednosti tjelesne mase, procenta i mase masti, BMI, visceralne masti i metaboličke dobi u odnosu na mlađe ispitanice. Povišena visceralna mast bila je prisutna kod 74,5% ispitanica u dobi 31–40 godina i 71,4% ispitanica u dobi 41–45 godina, dok je u grupi mlađoj od 30 godina iznosila 25,8%. Prema BMI klasifikaciji, gojaznost je bila najzastupljenija u dobi 31–40 godina. Korelaciona analiza hormona štitne žlijezde i tjelesnog sastava pokazala je da je TSH značajno pozitivno povezan sa masom bez masti, mišićnom masom i bazalnim metabolizmom. FT3 je bio u negativnoj korelaciji sa metaboličkom dobi i visceralnom masti, dok je FT4 pokazao slabe negativne korelacije sa masom bez masti i metaboličkom dobi. Dobijeni rezultati ukazuju da vrijednosti tireoidnih hormona, i kada su većinom unutar referentnog raspona, mogu biti povezane sa promjenama u tjelesnom sastavu, energetskom metabolizmu, glikemijskom i lipidnom profilu kod žena reproduktivne dobi. Rezultati ukazuju na značaj integrisane procjene nutritivnog, antropometrijskog, laboratorijskog i metaboličkog statusa u ranom prepoznavanju hormonalnih i kardiometaboličkih rizika kod žena reproduktivne dobi. Dobijeni rezultati i algoritam ukazuju da nutritivni unos mikronutrijenata, tjelesni sastav mase, bazalni metabolizam, visceralna mast i metabolička dob mogu biti povezani sa vrijednostima hormona štitne žlijezde, čak i kada se one nalaze unutar referentnog raspona. Navedeno naglašava potrebu za individualiziranim nutritivnim preporukama, kontinuiranim praćenjem mikronutritivnog unosa i uključivanjem procjene tjelesnog sastava u preventivne javnozdravstvene programe usmjerene na očuvanje endokrinog, metaboličkog i reproduktivnog zdravlja žena.

Ključne riječi: *tireoidni hormoni, žene reproduktivne dobi, tjelesni sastav, visceralna mast, mikronutrijenti, unos joda, IODINE-FFQ*.

DISSERTATION TITTLE:

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ABSTRACT

Thyroid hormones play a significant role in regulating metabolism, as well as lipid and glycemic profiles, while nutritional status and body composition can contribute to the development of subclinical hormonal changes in women of reproductive age. The aim of this study was to analyze the correlation between anthropometric indicators, body composition, and the dietary intake of iodine, selenium, and zinc with the hormonal status of the thyroid gland. A cross-sectional, observational, descriptive-analytical study was conducted on a sample of 117 female participants aged 18–45. Nutritional status was assessed using the IODINE-FFQ questionnaire, anthropometric measurements, and body composition analysis. Laboratory assessments included the determination of TSH, FT3, FT4, glucose, iron, and lipid status. Data were processed using descriptive and inferential statistical methods. The mean daily iodine intake among the participants was 91.09±29.19 μg, with 94.02% of the participants having an inadequate intake relative to the recommended dietary allowances. The majority of participants exhibited TSH, FT3, and FT4 values within the reference range. No significant correlation was found between daily iodine intake and TSH, FT3, and FT4 levels. However, daily zinc intake demonstrated a weak positive correlation with FT3, while selenium intake showed a weaker negative correlation with TSH and FT4. Inter-hormonal correlation analysis revealed a negative correlation between TSH and both FT3 and FT4, whereas FT3 and FT4 were positively correlated with each other. Furthermore, FT3 exhibited a positive correlation with glucose and a negative correlation with total cholesterol, while FT4 correlated positively with iron levels. Body composition analysis revealed significant age-related differences in body weight, body fat percentage, fat mass, BMI, visceral fat, and metabolic age. The most unfavorable metabolic-anthropometric profile was observed in women aged 31–40, who demonstrated higher body weight, body fat percentage and mass, BMI, visceral fat, and metabolic age compared to younger participants. Elevated visceral fat was present in 74.5% of participants aged 31–40 and 71.4% of those aged 41–45, compared to 25.8% in the under-30 age group. According to the BMI classification, obesity was most prevalent in the 31–40 age category. Correlation analysis between thyroid hormones and body composition indicated that TSH was significantly and positively associated with fat-free mass, muscle mass, and basal metabolic rate. FT3 was negatively correlated with metabolic age and visceral fat, while FT4 showed weak negative correlations with fat-free mass and metabolic age. The obtained results indicate that thyroid hormone values, even when predominantly within the reference range, can be associated with variations in body composition, energy metabolism, and glycemic and lipid profiles in women of reproductive age. The findings highlight the importance of an integrated assessment of nutritional, anthropometric, laboratory, and metabolic status in the early identification of hormonal and cardiometabolic risks in women of reproductive age. The results and the developed algorithm indicate that the nutritional intake of micronutrients, body composition, basal metabolic rate, visceral fat, and metabolic age can be associated with thyroid hormone levels, even when they fall within the reference range. This underscores the need for individualized nutritional recommendations, continuous monitoring of micronutrient intake, and the integration of body composition assessment into preventative public health programs aimed at preserving women's endocrine, metabolic, and reproductive health.

Keywords: *thyroid hormones, women of reproductive age, body composition, visceral fat, micronutrients, iodine intake, IODINE-FFQ.*