



A retrospective analysis of the relationship between obesity and thyroid nodule size

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Objectives

- The prevalence of overweight and obesity has been increasing for several decades. Few studies have recently showed functional and morphological changes of the thyroid gland in relation to obesity.
- The aim of this study was to correlate thyroid nodule size with body mass index (BMI), waist-hip ratio (WHR) and thyroid stimulating hormone (TSH) levels.

Methods

- A total of 119 patients diagnosed with euthyroidic nodular goiter were included in this retrospective study.
- The clinical presentations, anthropometric measurements, thyroid function tests and ultrasonographic characteristics of patients were analyzed.

Results

- The majority of the patients were female with a mean age of 56.3 ± 15.4 years at the time of diagnosis.
- The patients were divided into two groups according to a cut-off BMI value of 25 kg/m^2 .
- No statistically significant difference was found between the groups in respect of gender, place of birth, place of residence, smoking and family history.
- Thyroid US patterns were similar between groups.
- Thyroid nodule size did not correlate with serum TSH, BMI and WHR in both of groups.

Table-1: Demographic/clinical and biochemical characteristics of patients

Characteristics	Group 1 (n: 69)	Group 2 (n: 50)	p
Mean age, years \pm SD	55.2 \pm 16.2	57.4 \pm 17.2	NS
Female, n (%)	58 (85)	37 (74)	NS
Family history, n (%)	8 (11.5)	7 (14)	NS
Weight (kg)	73.51 \pm 16.11	67.00 \pm 17.10	NS
BMI (kg/m ²)	27.79 \pm 6.76	27.19 \pm 4.54	NS
Waist (cm)	91.37 \pm 16.71	101.66 \pm 9.59	NS
Waist-hip ratio (WHR)	0.84 \pm 0.08	0.90 \pm 0.06	NS
Free T3	3.23 \pm 1.94	3.21 \pm 1.95	NS
Free T4	1.72 \pm 2.11	1.52 \pm 1.95	NS
TSH	2.29 \pm 1.51	1.33 \pm 2.24	NS

Table-2: Ultrasound characteristics of thyroid nodules

US Characteristics	n (%)
Multipl nodules	86 (72.2)
Right lobe localization	75 (63.0)
Calcification	15 (12.6)
Solid consistency	88 (73.9)
Enlarged thyroid gland	39 (32.7)
Mean US size, cm \pm SD	1.85 \pm 1.49

Table-3: Correlation of thyroid nodule size with serum TSH, BMI and WHR

	r	p
TSH	0.209	0.053
BMI	0.036	0.748
WHR	-0.047	0.750

Conclusions

- Our data showed that thyroid nodule size was not associated with weight, height, body mass index and waist-hip ratio . Further studies are needed to confirm and to understand our observation.

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