Thyroid Dysfunction And Insulin Resistance.

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OBJECTIVES

Background Insulin resistance (IR) is a state in which a given concentration of insulin produces biological effect less than expected and IR actually make up a broad clinical spectrum, as obesity, glucose intolerance, DM, & the metabolic S . that are associated with various endocrine, metabolic, & genetic conditions. There is an association of IR with thyroid abnormalities. Evidence for a relationship between T4 and T3 and glucose metabolism appeared over 100 years ago when the influence of hyperthyroidism in the deterioration of glucose metabolism was first noticed. . More , hypothyroidism has been linked to decreased IR. Thyroid hormones exert both insulin agonistic and antagonistic actions in different organs. However , this occurs in a fine balance necessary for normal glucose metabolism. Deficit or excess of thyroid hormones can break this equilibrium leading to alterations of carbohydrate metabolism . **Aim of this study** to determine the association between thyroid function and IR

METHODS

This study included 90 non diabetic patients recruited from Fayoum university hospital 30 patients had hypothyroidism, 30 had hyperthyroidism & 30 were euthyroid . All the patients were examined clinically and body measurements were obtained .HOMA IR were calculated . Using a claculator after measuring both fasting insulin and fasting blood glucose. Also thyroid functions were assessed and all medications used and there doses were checked

Table (3): Insulin resistence among different study groups

IR	Hypothyrodism (N=30)	Hyperthyrodism (N=30)	Normal (N=30)	P-value
	N (%)			
Insulin Resistance	15 (50.0)	11 (36.7)	5 (16.7)	0.024*
No Insulin Resistance	15 (50.0)	19 (63.3)	25 (83.3)	

* Significant

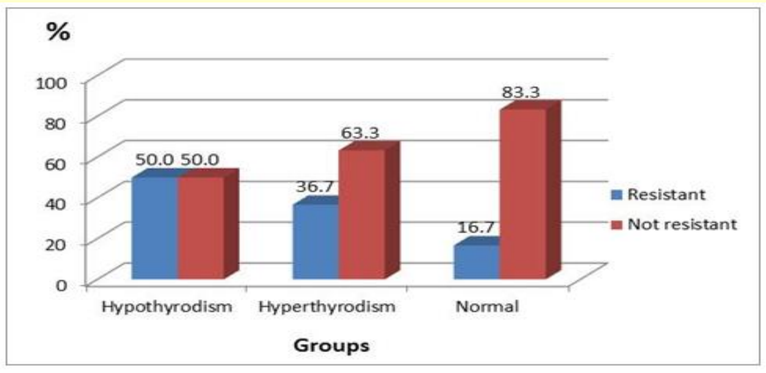

Figure 9: insulin resistance among different study groups

Table (1): Anthropometric measurments among study groups

Variable	Hypothyrodism (N=30)	Hyperthyrodism (N=30)	Normal (N=30)	Pvalue
	Mean±SD			
Weight (Kg)	86.7±11.3	73.3±8.7	84.8±9.2	<0.0001**
P-value	<0.0001#	<0.0001##	0.462###	
Height (cm)	164.5±6.4	168.0±7.7	168.3±9.8	0.127
P-value	0.092#	0.886##	0.086###	
BMI (weight/height in meter^2)	32.1±4.4	26.0±3.3	30.1±3.9	<0.0001**
P-value	<0.0001#	<0.0001##	0.044###	
Waist circumference (cm)	93.2±8.9	81.7±5.1	88.00±8.3	<0.0001**
P-value	<0.0001#	0.002##	0.010###	

RESULTS

It was found that 50% of hypothyroid patients had IR , while 36% of hyperthyroid patients had IR while only 16.5% of the euthroid subject had insulin resistance and the difference were statically significant (p=0.024).
There was a highly statistically significant difference between groups of the study regarding the mean values of weight, BMI and waist circumference (P<0.0001). Conversely, there was no statistically significant difference as regards the mean values of height.
There was no statistically significant difference between males and females as regards the mean values of HOMA/IR among the three study groups (P = 0.583, 0.552 and 0.077).

CONCLUSIONS

This study included 90 non diabetic or prediabetic subjects , of them 30 hypothyroid, 30 hyperthyroid, and 30 euthyroid.
It was found that about 50% of hypothyroid patients and 36% of hyperthyroid patients had insulin resistance (HOMA-IR > 2) and only 17% of euthyroid group had insulin resistance .
Also strangely there was no statisticalyl significant correlation between body weight ,BMI, as well as waist circumference with insulin resistance.
We recommend further research as regards this topic with a larger sample size and more detailed data including lipid parameters and either related biomarkers .

References

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