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The relationship between pituitary-thyroid axis hormones and cardiac autonomic dysfunctions in young obese males

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Introduction: Obesity has been associated with hypothyroidism and cardiac autonomic dysfunction. The present study aimed to investigate whether cardiac autonomic dysfunction in young obese males might be related to an underlying thyroid disturbance.

Materials and methods: On the basis of body mass index (BMI), 40 participants were grouped into normal weight group (NW; BMI=18.5-25 kg/m²; n=15), over weight group (OW; BMI=25-29.9 kg/m²; n=12) and obese group (OB; BMI ≥30 kg/m²; n=13). Electrocardiogram was recorded using PowerLab system and the time and frequency domain measures of heart rate variability (HRV) were calculated. Fasting blood samples were drawn for measurement of serum thyroid stimulating hormone (TSH), total thyroxin (TT4) and total triiodothyronine (TT3) concentrations.

Results: The levels of TSH, TT4 and TT3 were not significantly different between the groups. The frequency domain HRV parameter reflecting parasympathetic tone (high-frequency normalized units, HFnu) was significantly reduced in OB group. The parameters which reflect sympathetic activation (Heart rate, low-frequency normalized units; LFnu and the LF/HF ratio) were significantly increased in the OB group. HFnu was significantly and negatively correlated with BMI, waist hip ratio and body fat percentage, whereas LFnu and LF/HF ratio were significantly and positively correlated with the above mentioned parameters. No significant relationships were noted between the HRV parameters and the levels of TSH or thyroid hormones.

Conclusion: Cardiac autonomic dysfunction in young obese adult males is not linked with underlying thyroid disturbance.

Biography

Rakan Alqurainees is a medical student expected to graduate from medical school of Hail University, Saudi Arabia, by the end of June, 2016. He is very interested in the research field regarding the relationship between obesity and cardiovascular diseases. Currently he is working on research paper about the relationship between sex hormones and the cardiac autonomic dysfunction in obese individuals.

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