

# Evaluation of Epicardial Fat Tissue Thickness in Patients with Hyperthyroidism

E. Binnetoglu<sup>1</sup>, M. Asik<sup>2</sup>, B. Altun<sup>3</sup>, H. Sen<sup>1</sup>, E. Gazi<sup>3</sup>, G. Erbağ<sup>1</sup>, F. Günes<sup>1</sup>, Y.G. Bilen<sup>1</sup>, A. Temiz<sup>3</sup>, A. Barutçu<sup>3</sup>, A. Bekler<sup>3</sup>  
Çanakkale Onsekiz Mart University Faculty of Medicine Department of Internal Medicine, Endocrinology, Cardiology Çanakkale, Turkey.

## Objective

Thyroid hormones have several effects on the cardiovascular system, and recent studies have found that thyroid disorders affect coronary intima-media thickness (CIMT) in particular. Despite increased CIMT patients with hyperthyroidism, the extent of the relationship between CIMT and epicardial fat thickness (EFT) in those patients is unknown. Furthermore, there is no report evaluating the relationship between EFT and overt hyperthyroidism (OH) in the literature. In this study, we aim to evaluate the effectiveness of EFT in predicting atherosclerosis as well as CIMT in patients with overt hyperthyroidism.

## Methods

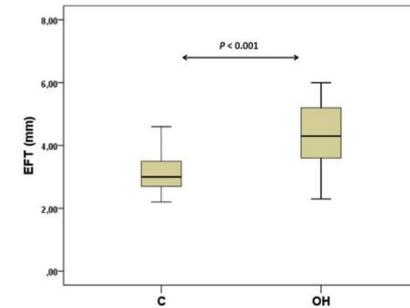
Thirty newly diagnosed, untreated overt hyperthyroid patients and 44 control subjects were included in this study. EFT was measured using a commercially available echocardiography machine (VIVID 7; General Electric Medical Systems, Norway) with a 2.5-Mhz probe. The echo-free space between the visceral and parietal pericardium on the anterior wall of the right ventricle was diagnosed as EFT. A linear-array imaging probe of the same echocardiography probe was used to evaluate the CIMT of the right common carotid artery.

## Results

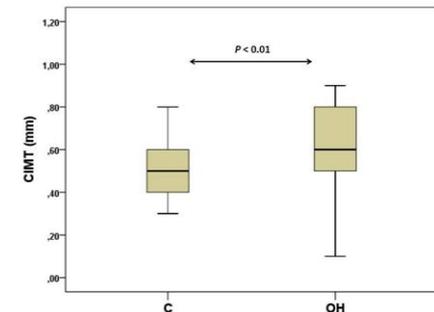
The hyperthyroid patients had a significantly greater EFT (mean:  $4.31 \pm 1.12$  mm) than the healthy subjects (mean:  $3.11 \pm 0.84$  mm) ( $P < 0.001$ ). CIMT was also significantly greater in the hyperthyroid patients (mean:  $0.62 \pm 0.17$  mm) than in the healthy subjects (mean:  $0.50 \pm 0.11$  mm) ( $p < 0.01$ ).

## Conclusion

In conclusion, the present study shows that mean EFT and CIMT were significantly higher in OH patient irrespective of confounding factors such as hypertension.



**Figure 1:** Box plot presentation of epicardial fat-tissue thickness in study participants. C: controls, OH: overt hyperthyroidism



**Figure 2:** Box plot presentation of carotid intima-media thickness in study participants. C: controls, OH: overt hyperthyroidism