

## Prognostic value of carotid intima-media thickness

To the Editor,

We found the paper by Elitok et al. (1) very interesting. In the study, the authors have investigated the effect of bariatric surgery on carotid intima-media thickness (CIMT). This novel study provides the 1-year follow-up data on the effects of pronounced weight loss following bariatric surgery on surrogate measures of atherosclerosis. The current study revealed that CIMT reduction was not significant from baseline to the 6<sup>th</sup> month, whereas it became significant at the 9<sup>th</sup> month of follow-up. The 1-year results could have improved the manuscript in terms of supporting the evidence for the relationship between CIMT reduction and risk of long-term cardiovascular events.

In a systematic review and meta-analysis of the individual data from 16 studies consisting of 36.984 patients without known cardiovascular diseases (CVD) who underwent serial CIMT measurements (mean follow-up of 7 years), it was revealed that when the yearly progression rate is recalculated for various CIMT measurements (mean and maximum CIMT values of the common, bifurcated, and internal carotid arteries), there was no association between CIMT progression and the risk of future cardiovascular events (2). These findings are supported by a more recent meta-analysis of data including 31 studies consisting of 89,070 patients showing a consistent association between CIMT value and the combined endpoint of myocardial infarction, stroke, and cardiovascular death. However, there was no association between CIMT change and the risk of cardiovascular events (3). Moreover, it was reported that CIMT is not an independent factor for CVD prognosis (4). Thus, there is no obvious proof of a relationship between CIMT progression and the risk of future cardiovascular events due to various potential methodological and biological reasons. Therefore, serial CIMT measurement for CVD risk assessment is not recommended.

Previously, repeated measurement of analysis of variance or nonparametric Friedman test was the approach to examine longitudinal data in terms of temporal changes. Currently, a linear mixed model (LMM) is more often recommended due to its potential to provide more suitable data in terms of temporal changes (5, 6). Therefore, in our opinion, using LMM instead of the Friedman test might provide more information for your study, which can be included in this letter.

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### Author's Reply

To the Editor,

We would like to thank the authors of the letter for their criticism about the present study published in the March issue of *Anatol J Cardiol* 2020; 23: 218-22 (1). The present study revealed that CIMT reduction was not significant from baseline to the 6<sup>th</sup> month, whereas it became significant at the 9<sup>th</sup> month of follow-up (1).

The first meta-analysis of several large-cohort studies that assessed the association between carotid artery intima-media thickness (CIMT) and the risk of future cardiovascular events in-

licated that increased CIMT is a strong predictor of future cardiovascular events (2). CIMT is a noninvasive method performed using ultrasound imaging to measure the artery wall thickness (3). CIMT is a marker of subclinical atherosclerosis (asymptomatic organ damage) and should be evaluated in all asymptomatic adults or patients with a moderate risk of cardiovascular disease. Intima-media thickness values  $>0.9$  mm should be considered abnormal (4, 5).

Linear mixed model (LMM) is generally recommended because of its potential to provide more suitable data in terms of temporal changes (6, 7). We agree with you about using LMM instead of the Friedman test because LMM can provide more information for our study.

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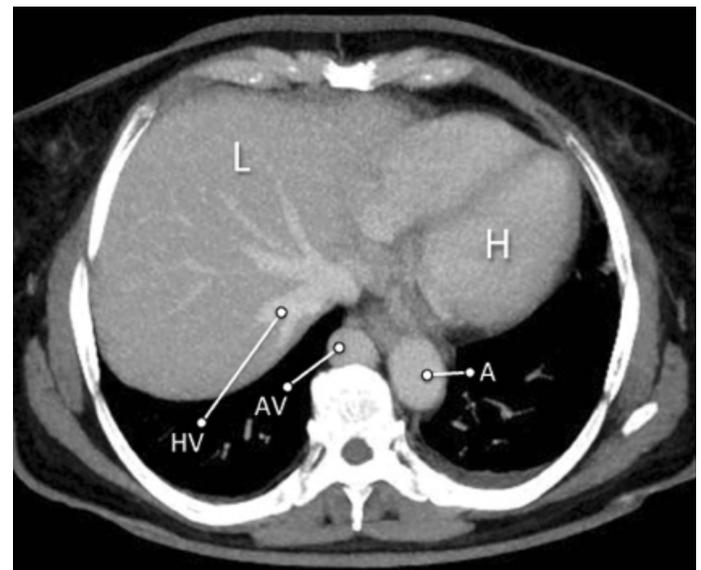
## Response to: Percutaneous closure of a secundum atrial septal defect through femoral approach in an adult patient with interrupted inferior vena cava and azygos continuation

To the Editor,

We appreciated the paper of Alizade et al. (1) entitled "Percutaneous closure of a secundum atrial septal defect through femoral approach in an adult patient with interrupted inferior vena cava (IVC) and azygos continuation".

The authors clearly highlighted that interventional endovascular maneuvers normally coded for vascular access, materials, and technique, must be carefully re-evaluated in the preoperative planning, in case of congenital anomalies involving the systemic venous return to the right atrium.

Congenital anomalies of the deep thoracoabdominal venous system are caused by variations in the development during embryogenesis. Azygos continuation of the IVC, like the case described by the authors, is a very rare venous variant. It is characterized by the absence of the IVC segment between the renal and hepatic veins. Therefore, blood from the IVC segment is drained into the thorax by the azygos vein, while hepatic veins are directly connected to the right atrium (Fig. 1-3) (2). Generally, azygos continuation is clinically silent and is often incidentally recognized during imaging studies done for other clinical purposes.



**Figure 1.** Contrast-enhanced multidetector computed tomography axial (1), coronal (2), and Sagittal (3) multiplanar reconstruction that shows the congenital anomalies azygos continuation of the inferior vena cava, with a dilated azygos vein (AV), normal superior vena cava (SVC), and hepatic vein (HV) of the liver (L) connected directly with the right atrium of the heart (H)