

Invited Editorial / Davetli Editöryal Yorum

What is the association between obesity and diastolic dysfunction: Obesity or obesity phenotype?

Obezite ve diyastolik disfonksiyon arasındaki ilişki neye bağlı: Obeziteye mi, obezite fenotipine mi?

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Obesity is currently one of the greatest public health issues worldwide. It is associated with several alterations in cardiac morphology and ventricular function.^[1] Left ventricular diastolic dysfunction occurs commonly in obese individuals, particularly the severely obese and the hypertensive obese. The influence on diastolic function seems to be multifactorial and may be a result of effects of adipose tissue as well as obesity-related comorbidities.^[2]

In current issue of the journal, Yaylali et al.^[3] published a study examining diastolic dysfunction (DD) in 91 obese participants without additional risk factors. The researchers found that of the body mass index (BMI) value, waist circumference measurement (WC), waist-hip ratio (WHR), and a body shape index (ABSI) parameters, only BMI was a predictor for DD. One of the outstanding features of this study is that participants with hypertension, diabetes, metabolic syndrome, and hyperlipidemia, which are closely related to obesity and are common etiological reasons for DD, were excluded from the study and the study group was quite homogeneous. Another important feature is that the current American Society of Echocardiography criteria were used for the diagnosis of DD. In the study, it was determined that the BMI, WC, and the WHR were associated with DD, but the

ABSI was not, and that only the BMI value was a predictor of DD after age and gender adjustment.

It is a well-known fact that obesity is an important risk factor for cardiovascular diseases. In parallel, obesity is also considered an important risk factor for DD. However, there are different data in the literature regarding which of the obesity phenotypes is more associated with DD. Although BMI has been found to be the most significantly associated with DD in some studies, as described by Yaylali et al.,^[3] there are also studies indicating that other obesity parameters have also been closely associated with DD.^[4]

It was reported in a recent study conducted using multidetector computed tomography that visceral adiposity may be associated with DD.^[5] In another study, it was determined that both WC and BMI were independent risk factors for DD.^[6] After correction for age, gender, and risk factors, only WC had a significant relationship with DD.

The effect of different obesity parameters on metabolic disorders is of interest to all medical disciplines. In a study carried out on hypertensive patients, it was

Abbreviation:

ABSI	A body shape index
BMI	Body mass index
DD	Diastolic dysfunction
WC	Waist circumference
WHR	Waist-hip ratio

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learned that the lipid accumulation product index and neck circumference in females, and the body adiposity index in males, had a significant relationship with type 2 diabetes.^[7] Therefore, the effect of obesity phenotypes on DD may differ in males and females. The fact that most of the participants in the Yaylalı et al.^[3] study were female could have affected the results.

The fact that different criteria for obesity were found to be a predictor for DD in different studies can be attributed to the selected patient group, risk factors, and the DD criteria used. However, in the study reported by Yaylalı et al.,^[3] DD was not detected in approximately 54% of those with obesity. This brings to mind the concept of the metabolically healthy obese, which is a topic of current discussion. Data regarding the fact that not all obese patients have metabolically unhealthy adipose tissue and that individuals who are described as metabolically healthy obese have better metabolic and cardiovascular outcomes compared with other obese individuals have begun to appear in the literature.^[8] However, there are also studies showing that metabolically healthy obese individuals are also at risk for DD.^[9] In light of these discussions, the association between obesity and DD cannot be explained simply by traditionally accepted hemodynamic changes; this association is the consequence of a complex process with concomitant neurohumoral and metabolic changes.^[10] The current literature does not provide clear data on which obesity parameter most accurately predicts DD.

While Yaylalı et al.^[3] found that BMI was a predictor for DD, the study has significant limitations: the small number of patients, the fact that female gender was predominant, and the fact that those with DD were only considered to be grade 1. Since all of those with DD were grade 1, it is not possible to determine the severity of DD with obesity parameters according to this study. There is a need for larger prospective studies with long-term follow-up and a larger sample

size that investigate the association between obesity phenotypes and DD and its severity.

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