

## Impact of abdominal obesity on Left Ventricular Global Longitudinal Strain

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### Background:

Obesity is a growing problem worldwide especially abdominal obesity, which is an independent cardiovascular risk factor.

### Aim and objectives:

Assessment of LV systolic function using 2D speckle tracking in normal weight, overweight, and obese females and correlating it with BMI, waist circumference, and waist-to-hip ratio.

### Methods:

3 groups were involved in this study; Group I which represents the obese group and included 32 apparently healthy obese females (with BMI  $\geq 30$  kg/m<sup>2</sup>), Group II which represents the overweight group and included 26 overweight females (BMI 25 to 29.9 kg/ m<sup>2</sup>) and group III which included 25 healthy normal weight females (BMI <25 kg/ m<sup>2</sup>). All the studied cases underwent clinical examination including measurement of waist circumference and calculation of waist-to-hip ratio, laboratory investigations, and 2D speckle tracking echocardiography for assessment of LVGLS.

### Result:

Group I and group II had significantly higher waist circumference and waist-to-hip ratio compared to group III. Both group I and group II had significantly lower LVGLS as compared to group III. Using stepwise regression analysis waist circumference was the strongest predictor for LVGLS impairment (p<0.001).

### Conclusion:

Abdominal obesity is an independent risk factor for impaired LV systolic function. 2D STE is a good echo modality to detect subclinical LV systolic dysfunction.

### Keywords:

LV systolic function, body mass index, waist circumference, left ventricular global longitudinal strain.