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"Obesity Paradox" in the Prevalence of Artheroscleroisis in Patients with Risk Factors for Coronary Artery Disease Detected by MDCT Calcium Scoring

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There are studies in literature demonstrating the "Obesity Paradox" in patients with congestive heart failure. The aim of our study is to evaluate the existence of the "Obesity Paradox" in the prevalence of Coronary Artery Disease in obese and morbidly obese patients with multiple risk factors for CAD (hypertension, diabetes, hyperlipidemia, smoking, family history of CAD, and sedentary lifestyle).

This is a retrospective review of charts of 1244 asymptomatic patients with multiple risk factors, who underwent MDCT Calcium Scoring in a community practice from 2009 to 2012. The study population was divided into three groups based on Body Mass Index (BMI).

Non Obese: BMI < 30

Simple Obesity: BMI 31–35

Morbid Obesity: BMI > 35

Two Groups Based on Calcium Scoring on MDCT.

Calcium Score '0' - Normal

Calcium Score > 100 - Abnormal

Results

Using Null Hypothesis, P-Values were calculated.

- P-Value for patients of Simple Obesity BMI with a Calcium Score '0' was 0.0044.
- P-Value for patients of Simple Obesity BMI with a Calcium Score > 100 was .0006.
- P-Value for patients of Morbid Obesity BMI with a Calcium Score '0' was 0.0001.
- P-Value for patients of Morbid Obesity BMI with a Calcium Score > 100 was 0.0001.

Conclusion

Given above data, we conclude the existence of the "Obesity Paradox" – ie, the decreased prevalence of CAD in obese and morbidly obese patients compared to non-obese patients. Further studies are needed to evaluate the mechanism of the "Obesity Paradox".

Keywords

Calcium Scoring; MDCT; Coronary Artery Disease; Obesity Paradox

BMI	Number of patients	Number of patients with calcium score '0'	Number of patients with calcium score > 100
Non-Obese	574	210	238
Simple Obesity	368	154	128
Morbid Obesity	302	157	82
BMI	% Patients with Calcium Score '0'	% Patients with Calcium Score > 100	
Non-Obese	37%	41%	
Simple Obesity	42%	35%	
Morbid Obesity	52%	27%	

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