

**POSTER PRESENTATION**

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# In the absence of obstructive coronary artery disease, patients with class II and III obesity have decreased myocardial perfusion reserve

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From 17th Annual SCMR Scientific Sessions  
New Orleans, LA, USA. 16-19 January 2014

## Background

Obesity is associated with cardiovascular morbidity and mortality. This quantitative CMR perfusion study aims to examine the contribution of body mass index (BMI) to decreased myocardial perfusion reserve (MPR).

## Methods

123 patients with no obstructive epicardial coronary artery disease, defined by coronary computed tomographic angiogram demonstrating < 30% stenosis, underwent regadenoson CMR 1st-pass perfusion imaging, using 0.05 mmol/kg gadolinium (Gd) followed by rest perfusion imaging (also 0.05 mmol/kg Gd) performed 20 minutes later. The subjects were categorized into 4 groups: normal BMI (between 18.5-24.9 kg/m<sup>2</sup>, overweight (BMI 25-29.9 kg/m<sup>2</sup>), Class I obese (BMI 30-34.9), and Class II and III obese (BMI ≥ 35). Myocardial blood flow (MBF) in ml/min/g and myocardial perfusion reserve (MPR) were quantified using a fully quantitative model constrained deconvolution.

## Results

The normal BMI group had 25 patients (mean BMI 22.8 ± 0.3), the overweight group had 52 patients (mean BMI 27.4 ± 0.2), the Class I obese group had 22 patients (mean BMI 32.1 ± 0.3), and the Class II/III obese group had 24 patients (mean BMI 42.7 ± 1.1). MPR in the four groups was: Normal 2.12 ± 0.09, Overweight 2.23 ± 0.09, Class I Obese 2.04 ± 0.13, and Class II/III Obese 1.84 ± 0.11 (Figure 1). MPR was statistically higher in the Normal

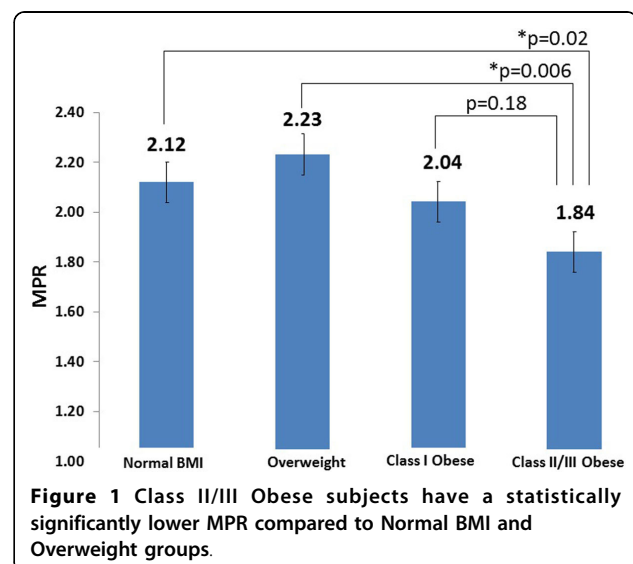
and Overweight groups compared to the Class II/III Obese group (p = 0.02 and 0.006 respectively).

## Conclusions

Even in the absence of obstructive coronary artery disease, Class II and III obesity is associated with decreased MPR as demonstrated by CMR quantitative measurement of regadenoson-rest perfusion.

## Funding

This research was supported by the Intramural Research Program of the National Heart, Lung, and Blood Institute, National Institutes of Health.



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Published: 16 January 2014

doi:10.1186/1532-429X-16-S1-P256

**Cite this article as:** Bandettini *et al.*: In the absence of obstructive coronary artery disease, patients with class II and III obesity have decreased myocardial perfusion reserve. *Journal of Cardiovascular Magnetic Resonance* 2014 **16**(Suppl 1):P256.

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