The Impact Of Weight Loss In Improvement Of Heart Geometry Following Bariatric Surgery

Raul J. Rosenthal, MD, FACS, FASMBS, Rajmohan Rammohan, MD, Nisha Dhanabalsamy, Emanuele Lo Menzo, MD, PhD, FACS, Samuel Szomstein, MD, FACS, Cleveland Clinic Florida, Weston, FL

INTRODUCTION: Obesity is commonly associated with an increase in sympathetic activity and higher mortality. Obesity and bariatric surgery also have a direct impact in the heart geometrical modification. The aim of the study was to analyze the extent of changes in the heart ventricular function and structure following weight loss after bariatric surgery.

METHODS: We retrospectively reviewed all the patients who underwent bariatric surgery between 2010 and 2015. The data included patient’s demographics, BMI, and comorbidities. The pre-operative and post-operative echography readings were compared.

RESULTS: Fifty one patients who had bariatric procedures and had echocardiography before and after the surgery were identified. There were thirty one females (60%). The mean age was 61.8±11 years with an average BMI of 40.7±7.89. The mean follow up was 1.2 years after the procedure. At 1 year follow up 25 patients (49%, p=0.01, 95% CI) showed normal left ventricular geometry. The Left atria mass (229±82.1 vs 193.2±42.5, p<0.01, 95% CI) and the Left ventricular end diastolic volume (129.4±53 vs 96.4±36.5, p=0.01, 95% CI) showed a significant modification following the procedure. There was significant modification in the Inter ventricular septal thickness (p=0.01, 95% CI) and Relative wall thickness (<0.01, 95% CI) following surgery.

CONCLUSIONS: Most of the obese patient present a significant cardiac remodeling from concentric remodeling to normal geometry after bariatric surgery. The decrease in BMI has a direct effect in the improvement of the left ventricular structure. Further studies have to be carried out to define the impact of obesity to the diastolic function.