

Middle or Older Age at the Time of Bariatric Surgery for Morbid Obesity is Associated with a Higher Risk for Cardiovascular Events

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PROBLEM

The prevalence of obesity in the United States is increasing in all age groups. Older adults who are obese are more likely to suffer from multiple chronic diseases

BACKGROUND

Weight loss after bariatric surgery in obese patients reduces adverse cardiovascular (CV) events; however, it is not known if similar benefits are maintained in middle age group as in young.

OBJECTIVE

We sought to determine if age at surgery affect CV event rates after laparoscopic adjustable gastric banding (LAGB) for obese patients.

METHODS

In this study, we used a data collected longitudinally from 828 obese ((body mass index [BMI] ≥ 35 kg/m² patients who underwent a laparoscopic adjustable gastric banding performed by a single surgeon and followed from 4 up to 11 years.

The outcome of interest was to identify differences in LAGB-induced weight loss on CV outcomes (myocardial infarction, heart failure, stroke and pulmonary embolism) in age groups <45 years and ≥ 45 .

Differences in LAGB-induced weight loss on CV events (myocardial infarction, heart failure, stroke and pulmonary embolism) were determined by Kaplan-Meier survival plot.

Cox regression analysis was used to predict CV events.

RESULTS

Table 1: Patient characteristic for the patients undergone bariatric lap band surgery and cardiac outcome in two age groups

Characteristic	Total (%)	Age Groups		P-value
		≤ 45 Years (%)	> 45 years (%)	
Gender				<0.0001
Female	714 (83.4)	385 (53.9)	329 (46.1)	
Race				<0.0001
White	636 (74.3)	285 (44.8)	351 (55.2)	
Black	178 (20.8)	116 (65.2)	62 (34.8)	
Other	42 (4.9)	31 (73.8)	11 (26.2)	
Hypertension	509 (59.5)	176 (34.6)	333 (65.4)	<0.0001
Diabetes	295 (34.5)	103 (34.9)	192 (65.1)	<0.0001
Dyslipidemia	423 (49.5)	168 (39.7)	255 (60.3)	<0.0001
Sleep Apnea	236 (27.4)	83 (35.3)	152 (64.7)	<0.0001
DJD	719 (84.1)	346 (48.1)	373 (51.9)	0.0012
GERD	412 (48.2)	215 (52.2)	197 (47.8)	0.3497
Asthma	405 (47.4)	217 (53.6)	188 (46.4)	0.0902
BMI (N, Mean, SD)	856, 48.6 (8.1)	432, 48.91 (7.9)	621, 48.32 (8.3)	0.2884

DJD = Degenerative joint disease; GERD=Gastro-esophageal reflux disease

Table 2: Cox Proportional Hazard Ratio for Cardiovascular Events

Parameters	Hazards Ratio	95% CI	P Value
Sleep Apnea	4.000	2.632 - 6.086	<0.01
Hypertension (ref =No)	1.915	1.099 - 3.336	0.022
Age group (≤ 45 vs > 45)	1.785	1.097 - 2.905	0.020
Gender (Female Vs male)	0.781	0.498 - 1.225	0.282
Race (Black Vs White)	1.322	0.826 - 1.212	0.244
Race (Other vs White)	1.817	0.814 - 4.066	0.144
Diabetes (ref=No)	1.292	0.844 - 1.978	0.238
BMI	1.004	0.980 - 1.028	0.759

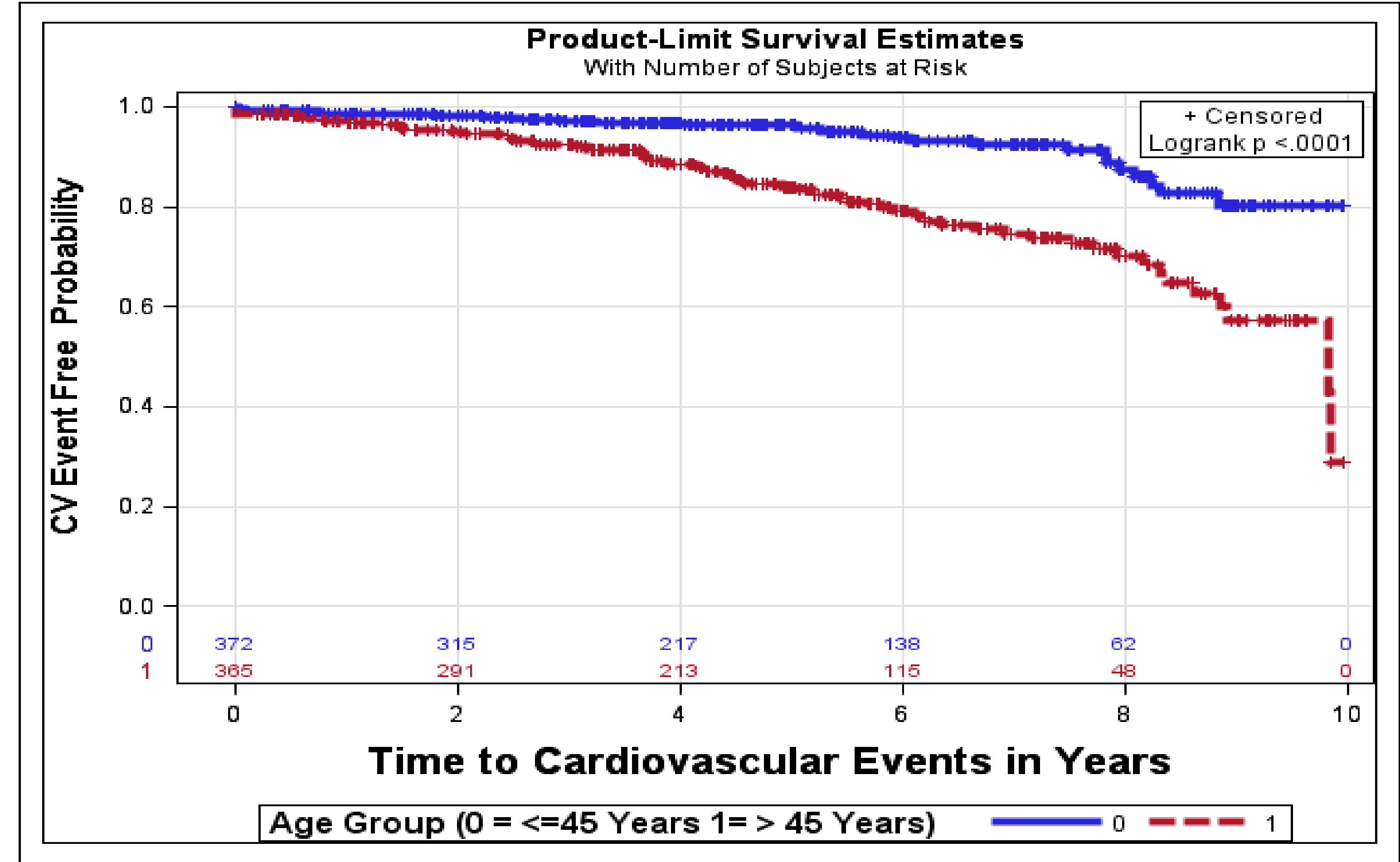


Figure 1. KM Curve for Cardiovascular Event

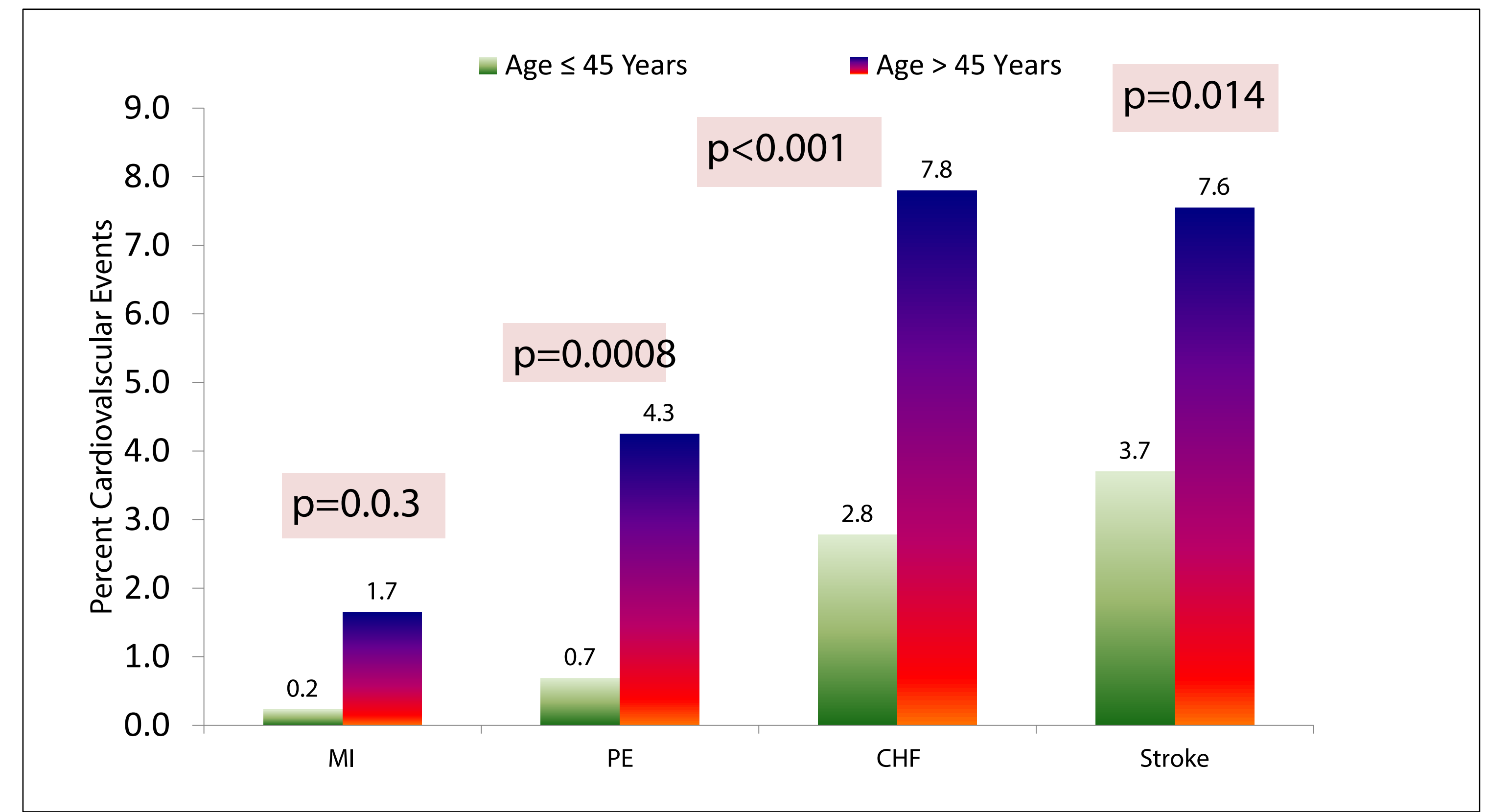


Figure 2: Cardiovascular events

CONCLUSIONS

The incidence of CV events were higher in older group. Operating earlier, controlling OSA and hypertension may help further reduce CV events in morbidly obese individuals.