Possible Effect Modification of History of MI on the Association Between Body Mass Index and Long Term Mortality

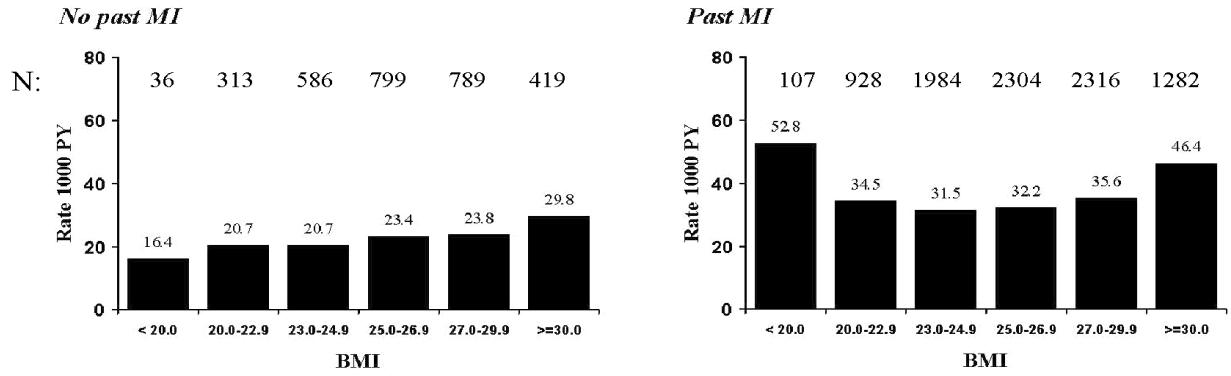
Michal Benderly [1,2], Valentina Boyko [1], Uri Goldbourt [1,2]

[1] *The Israel Society for Prevention of Heart Attack, Neufeld Cardiac Research Institute, Sheba Medical Center, Tel Hashomer,* [2] *Department of Epidemiology and Preventive Medicine, School of Public Health, Sackler Faculty of Medicine, Tel Aviv, Israel*

Reports among coronary heart disease (CHD) patients regarding mortality risk are inconsistent and range between a linear association, a U or J shaped one or even an inverse association ("obesity paradox"). We shought to study the long-term association between body mass index (BMI), and mortality and possible interaction with disease history among CHD patients.

Methods: Data on BMI and mortality were available for 12,466 male CHD patients (past MI or angina) screened for participation in the BIP study.

Results: The majority of patients (74%) had BMI between 23.0 and 29.9. Hypertension, diabetes, smoking, total cholesterol, triglycerides, HDL-C, were linearly related to BMI. Frequency of prior MI (overall 75%) did not significantly differ by BMI groups. The figure depicts age adjusted all-cause mortality rate/1000 person-year through follow-up median of 12 years.



In each BMI category, mortality risk was higher among MI survivors. History of MI seems to modify the association of BMI and mortality, which was U shaped among MI survivors, and linear among patients with only angina. The differences between patients with history of MI or without it persisted following adjustment for age, diabetes, peripheral vascular disease, smoking, COPD, cholesterol and systolic blood pressure.

Conclusion: Mortality risk associated with BMI differs among CHD patients according to history of MI. Further studies are needed to elucidate the nature of this observed interaction.