151. Age-Dependent Associations of Body Mass Index With Myocardial Infarction, Heart Failure, and Mortality in Over 9 Million Koreans

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Body

Background: While obesity is a well-known cardiovascular risk factor, little is known whether age has a modifying effect. We aimed to determine the age-dependent associations of body mass index (BMI) with cardiovascular outcomes.

Methods: A population-based cohort of 9,278,433 Koreans without prior cardiovascular disease were followed up for the incidence of myocardial infarction (MI), heart failure (HF), and all-cause death. The effect of BMI with normal weight (18.5–22.9 kg/m2) as reference was analyzed according to age groups [young (20–39 years), middle-aged (40–64 years), and elderly (≥65 years)] and age deciles.

Results: During 8.2 years, MI, HF, and all-cause death occurred in 65,607 (0.71%), 131,903 (1.42%), and 306,065 (3.30%), respectively. Associations between BMI and all outcomes were significantly modified by age (p-for-interaction<0.001). There was a proportional increase in incident MI according to BMI in young subjects; this relationship became U-shaped in middle-aged subjects, and inversely proportional/plateauing in elderly subjects. A U-shaped relationship between BMI and incident HF was observed, but the impact of obesity was stronger in young subjects while the impact of underweight was stronger in middle-aged and elderly subjects. Meanwhile, lower BMI was associated with higher all-cause mortality in all ages, though this association was attenuated at young age, and mild obesity was associated with the greatest survival benefit. These associations were independent of sex, smoking, physical activity, and comorbidities.

Conclusion: The impact of BMI on cardiovascular risk differs according to age. Weight loss may be recommended for younger obese subjects, while mild obesity may be beneficial at old age.

Clinical Implications: This study helps enable cardiovascular clinicians to understand that the impact of body mass index on cardiovascular risk is modified by age, and that optimal weight control recommendations should differ for age groups.