



Body mass index, waist circumference and cardiovascular diseases in transitional ages (40 and 66 years)

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Background: There is lack of data on effect modification by age on the association between body mass index (BMI) or waist circumference (WC) and cardiovascular diseases (CVDs). We aimed to investigate the impact of BMI and WC on incident CVDs in individuals aged 40 and 66 years.

Methods: Overall, 2 430 510 participants who underwent a national health screening for transitional ages provided by the Korean National Health Insurance Service between 2009 and 2012 were included. The adjusted hazard ratios and 95% confidence intervals for myocardial infarction (MI), ischemic stroke and CVDs as a composite outcome of MI and ischemic stroke were calculated using multivariable Cox proportional hazard regression analysis.

Results: During a mean follow-up of 7.7 years, 24 884 MI and 29 415 ischemic stroke events occurred. Among participants aged 40 years, there was a J-shaped association of BMI with incident CVDs, MI and ischemic stroke with nadir at BMI 18.5-22.9 kg/m² (P for trend <0.001 for all). Among those aged 66 years, there were significant U-shaped associations of BMI with CVDs and MI with nadir at a BMI of 23.0-24.9 kg/m² (P for trend 0.013 and 0.017, respectively). WC was linearly associated with all study outcomes in both age groups (P for trend <0.001). The impact of general and abdominal obesity on both study outcomes was more prominent in those aged 40 years than in those aged 66 years (P for interaction <0.001).

Conclusions: To prevent cardiovascular risk, weight loss intervention should be cautiously implemented and individualized according to age. The maintenance of muscle mass may be essential in managing weight loss particularly in older population.