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Low skeletal muscle mass predicts incident hypertension in Korean men: A prospective cohort study

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Objectives:

Previous cross-sectional studies suggest the association between low muscle mass and hypertension. However, whether low muscle mass predicts the development of hypertension is unknown. We investigated the relationship between relative muscle mass and incident hypertension in a large prospective cohort of Korean adults.

Methods: In this prospective cohort study, we analyzed 132,324 participants without hypertension at baseline who underwent two health check-ups in 2012/2016 and 2013/2017. Subjects were divided into quartiles (SMI Q1-Q4) according to their baseline skeletal muscle mass index (SMI) [SMI (%) = total skeletal muscle mass (kg) / body weight (kg) × 100] levels. Multivariate logistic regression was used to estimate ORs and 95% CI for the development of hypertension after 4 years.

Results: After 4 years, 7,180 (5.43%) cases of incident hypertension were observed. The cumulative incidences of hypertension were 12.11%, 8.58%, 6.93% and 4.37% in men and 4.02%, 2.29%, 1.73% and 1.18% in women for Q1 through Q4 of SMI, respectively. The multivariate adjusted ORs (95% CI) for incident hypertension compared to Q4 were 1.46 (1.30-1.63), 1.31(1.19-1.46) and 1.26 (1.14-1.40) in men and 0.97 (0.76-1.23), 1.12 (0.90-1.38) and 1.14 (0.92-1.42) in women for Q1 through Q3 of SMI.

Conclusions: Low skeletal muscle mass was significantly and independently associated with the development of hypertension in Korean men, but not in women. Further research is warranted to verify the mechanism underlying this relationship.