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Changes in metabolic syndrome components affect the incidence of end-stage renal disease: a nationwide cohort study

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Objectives:

Few studies have investigated the impact of a change in metabolic syndrome (MetS) components on clinical renal outcomes in the general population.

Methods: Using nationally representative data from the Korean National Health Insurance System, 13,310,924 subjects who underwent two health examinations over 2 years and were free from end-stage renal disease (ESRD) from 2009 to 2012 were followed to the end of 2016. The subjects were divided into four groups according to the change in MetS components between the two visits over 2 years: no MetS (–/–), post-MetS (–/+), pre-MetS (+/–), and both MetS (+/+).

Results:

After a median follow up of 5.11 years, 18,582 incident ESRD cases were identified. In the multivariate adjusted model, the hazard ratio (HR) and 95% confidence interval (CI) for the development of ESRD in the both-MetS (+/+) group compared with the no-MetS (–/–) group was 5.65 (95% CI, 5.42–5.89), which was independent of age, sex, and baseline estimated glomerular filtration rate. Additionally, the HR for the pre-MetS (+/-) group versus the no-MetS (–/–) group was 2.28 (2.15–2.42). In subgroup analysis according to renal function, the impact of a change in MetS on the incidence of ESRD was more pronounced in individuals with advanced renal dysfunction. Subjects with resolved MetS components had a decreased risk of ESRD, but not as low as those that never had MetS components.

Conclusions:

This provides evidence supporting the strategy of modulating MetS in the general population to prevent the development of ESRD.