

INFLUENCE OF BODY MASS INDEX AND CHANGE OF BODY MASS INDEX ON THE INCIDENCE OF KIDNEY DISEASES

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Background and Aim. Obesity is a major public health issue. However, the association between body mass index (BMI) change and kidney diseases is lacking research. In this study, we aim to analyse the influence of BMI in early adulthood and the change of BMI on the incidence of chronic kidney disease (CKD), stage 5 chronic kidney disease (CKD5), end-stage renal disease (ESRD) and acute kidney injury (AKI).

Material and Methods. Population consisted of subjects included in Swedish Military Conscription Register (1969–2010) and the same subjects that were also included in Northern Sweden Health and Disease Study (NSHDS) (1985–2020). Diagnoses were taken from Swedish National Patient Register and data analysis was conducted using Cox proportional hazards model.

Results. 1.4 million subjects met the inclusion criteria for BMI evaluation in early adulthood. 6466 subjects developed CKD, 2143 developed CKD5, 2840 developed ESRD and 8788 developed AKI. After dividing subjects into BMI quintiles and adjusting for covariates, the hazard ratio (HR) in the fifth quintile was 2.44 for CKD, 2.08 for CK5, 1.85 for ESRD and 1.96 for AKI. 32 221 subjects met the inclusion criteria to evaluate BMI change. CKD has developed in 83 subjects, CKD5 in 27, ESRD in 40 and AKI in 180. Covariate-adjusted HRs for BMI increase of 1 kg/m² were 1.07 (0.98-1.16) for CKD, 0.96 (0.78-1.17) for CKD5, 0.84 (0.70-1.01) for ESRD and 1.11 (1.06-1.16) for AKI.

Conclusions. Higher BMI in early adulthood as well as BMI increase with age were found to be associated with increased incidence of CKD and AKI. It suggests that higher BMI is an important risk factor for developing kidney diseases.

Keywords: acute kidney injury, body mass index, chronic kidney disease, end-stage renal disease