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한국인에서 체지방 증가는 만성콩팥병 발생의 예측인자이다

성균관의대 강북삼성병원 내과

현영율, 김향, 이규백

Fat Mass Gain Predicts CKD in Korean General Population

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Objective: Risk factors for chronic kidney disease (CKD) such as diabetes and hypertension are common in obesity. Obesity itself without diabetes or hypertension is also known to cause chronic kidney disease. In a previous study, body weight gain predicted the development of CKD in healthy men. In this study we investigated whether fat mass change could predict new chronic kidney disease.

Methods: We analyzed 21,452 participants who underwent health check-up in Kangbuk Samsung hospital. They had check-up in 2002-2004 and had follow-up check-up 5 years later in 2007-2009. We excluded participants who had eGFR under 60 or dipstick albuminuria at baseline exam. Fat mass was measured by Inbody 3.0 (Biospace, Seoul, Korea). CKD was defined as GFR <60 ml/min per 1.73m^2. Logistic regression analysis was used to estimate the odds ratio for CKD. This analysis was adjusted for age, sex, hypertension, diabetes, cardiovascular disease, dyslipidemia, current smoking status, body mass index, baseline eGFR.

Results: Participants were divided into tertiles according to their fat mass change over 5 years: lower tertile (n=6,924, -2.513±1.663 kg), middle tertile (n=7,341, 0.264±0.568 kg) and higher tertile (n=7,187, 2.96±1.574 kg). Baseline BMI (24.506±2.865 vs 23.461±2.82 vs 23.3±2.88, p=0.0000), presence of hypertension (27.5% vs 23.47% vs 24.07 %, p=0.0000), presence of diabetes (7.7% vs 5.03% vs 4.29%, p=0.0000), presence of dyslipidemia (38.85 vs 35.79 vs 36.87, p=0.0000) and eGFR (81.245±10.178 ml/min/1.73m^2 vs 81.489±10.077 ml/min/1.73m^2 vs 82.241± 10.282 ml/min/1.73m^2, p=0.0000) were different between lower, middle and higher tertile groups. After 5 years, 156 cases of new CKD were observed. Multivariate analysis revealed that age, presence of diabetes, presence of hypertension, history of cardiovascular disease, eGFR and the higher tertile of fat mass change were associated with the development of CKD. The odds ratio of higher tertile of fat mass change for CKD was 2.086 (1.375-3.164, p= 0.001).

Conclusion: Fat mass gain over 5 years was independently associated an increased risk for development of CKD in Korean general population. This finding suggests that life style change to prevent fat mass gain could probably be protective to the development of CKD.

Key Words: 체지방, 비만, 만성콩팥병
Fat mass, Obesity, CKD