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요시험지봉 검사를 이용한 알부민뇨는 한국인에서 당뇨병 발생과 관련이 있다

성균관의대 강북삼성병원 내과

현영율, 이규백, 김향

Dipstick Albuminuria is associated with the Development of Diabetes in Koreans

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Objective: Albuminuria is not only a manifestation of kidney injury from different diseases such diabetes or hypertension, but also well-known risk factor for renal function decline and higher mortality from cardiovascular diseases and all causes. However, there is only a few data on the relationship between albuminuria and the development of diabetes. Furthermore, those studies are just from westerners or Aboriginal Australians as far as we know. The aim of this study is to investigate the association between albuminuria and the development of diabetes in Koreans by analyzing the data from health check-up program.

Methods: We analyzed a retrospective cohort of 63,109 adults from participants who underwent two health check-ups at a tertiary hospital in Korea. Check-ups were done at a 2-year interval during 2002 to 2009 and subjects with diabetes at baseline were excluded. Diabetes was defined as fasting plasma glucose ≥ 126 mg/dL, current usage of diabetes medication, or having history of diabetes. Participants were divided into three groups according to their levels of dipstick albuminuria at baseline. (normoalbuminuria, 0; trace, ±; albuminuria, +1-+4) Logistic regression analysis was used to analyze the association between the amount of albuminuria and the development of diabetes at follow-up exam.

Results: 622 patients with incident diabetes were observed from a cohort of 63,109 participants after 2 years. 553, 43 and 26 cases of diabetes were developed from normoalbuminuria (n=59,366), trace (n=2,655) and albuminuria (n=1,091) groups and cumulative incidences (%) were 0.93, 1.62 and 2.38 for each group. In multivariate analysis, larger amount of albuminuria was associated with the development of diabetes after adjustment for age, sex, body mass index, hypertension, dyslipidemia, fasting plasma glucose, HOMA-IR, LDL cholesterol, HDL cholesterol, eGFR, current smoking status and alcohol intake. The odds ratios for incident diabetes compared with normoalbuminuria group were 1.45±0.27 (1.01-2.08, p=0.042) in trace group and 1.71±0.41 (1.07-2.73, p=0.025) in albuminuria group.

Conclusion: Dipstick albuminuria was associated with the development of diabetes in Koreans and this is the first study that has shown this relationship in Asian population. Dipstick urinalysis could be another tool to screen those with higher risk of diabetes and further studies are warranted to verify the mechanism by which albuminuria is related to the development of diabetes.

Key Words: 요시험지봉 검사, 알부민뇨, 당뇨병 발생
Dipstick test, Albuminuria, Incident diabetes