Urinary Albumin Excretion and Cardiovascular Risk in Nondiabetic Middle-Aged Adults: the 2011-2012 Korean National Health and Nutrition Examination Survey

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OBJECTIVES

Microalbuminuria is known as a predictor of cardiovascular disease (CVD) in patients with and without diabetes, as well as the general population. Recent studies have suggested that high normal albuminuria levels also indicate an increased risk of CVD in the general population. The objective was to determine whether there was an association between the urinary albumin excretion and CVD risk by estimating the Framingham Risk Score (FRS) in nondiabetic middle-aged adults.

METHODS

This study was based on data from the Korea National Health and Nutrition Examination Survey (KNHANES), which was conducted by the Korean Ministry of Health and Welfare in 2011-2012. From the 16,576 participants, data for 5,165 adults who were 40-79 years of age were included in the analysis. Based on the urinary albumin to creatinine ratio (UACR), the subjects were categorized into normal (< 9.9 mg/g), high normal (10.0 to 29.9 mg/g), and microalbuminuria (30.0 to 299.9 mg/g) groups.

RESULTS

The mean FRS was significantly different in each of the UACR subgroups, and it increased with increases in the UACR: 11.53 ± 0.09 in the normal, 12.50 ± 0.28 in the high normal, and 13.18 ± 0.32 in the microalbuminuria in men; 10.32 ± 0.14 in the normal, 13.10 ± 0.32 in the high normal, and 14.00 ± 0.48 in the microalbuminuria in women. After fully adjusting for potential confounding factors, including lifestyle, sociodemographic factors, known CVD risk factors, and eGFR, high normal levels and microalbuminuria were significantly associated with ≥ 10% 10-year risk of CVD (odds ratio [OR] 1.777, 95% confidence interval [CI], 1.216-2.597) and OR 2.232 [1.197-4.160], respectively) compared with the normal subgroup in men. High normal levels and microalbuminuria were also significantly associated with a ≥ 10% 10-year risk of CVD (OR 2.041 [1.173-3.550] and OR 3.115 [1.538-6.308], respectively) after adjusting for the above covariates in women.

CONCLUSIONS

Urinary albumin excretion reflects CVD risk in middle-aged adults without diabetes, and high normal levels and microalbuminuria were independently associated with a higher risk of CVD.

We propose that urinary albumin excretion may reflect the CVD risk in middle-aged adults without diabetes and that it should be considered a risk factor for CVD.

To effectively prevent CVD in middle-aged adults without diabetes, more attention should be focused on middle-aged adults with microalbuminuria and even those with higher albuminuria levels that are within the normal range.

REFERENCES