

Trace of urine dipstick albumin is associated with coronary calcification in Korean adults

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Background: Previous studies have shown that urine albumin is associated with coronary artery calcification (CAC). Although urine dipstick test is widely used to screen albuminuria, little is known about the association between low grade urine dipstick albumin and coronary artery calcification. **Methods:** We cross-sectionally analyzed 53,805 participants without previous cardiovascular diseases. They underwent coronary multi-detector compute tomography and urine dipstick test in 2012-2014 as part of a health examination program in Kangbuk Samsung Hospital. CAC was defined as coronary artery calcium score > 100. Participants were divided into three groups according to their urine dipstick albumin as follows: negative (-), trace (±) and positive (+1~+4). **Results:** The percentages of participants with CAC were 2.61 (negative), 3.22 (trace), 5.64 (positive) in each group, respectively. According to multivariate logistic analysis, urine dipstick albuminuria was associated with CAC after adjustment for age, sex, BMI, diabetes, hypertension, HDL cholesterol, LDL cholesterol, eGFR, serum calcium, hsCRP, current smoking status, alcohol intake and vigorous exercise frequency. Compared to the negative group, the odds ratio for CAC was 1.63 (1.10-2.41) in the positive group and 1.32 (1.07-1.64) in the trace group. **Conclusions:** Even trace of urine dipstick albumin was associated with subclinical CAC in Korean adults. Further studies are warranted to verify the role of albuminuria in the pathogenesis of coronary artery disease.

Table. The association between urine dipstick albuminuria level and CACS > 100

Urine dipstick test	Adjusted Odds ratio (95% CI)		
	Model 1	Model 2	Model 3
Negative (-)	Reference	Reference	Reference
Trace (±)	1.25(1.04-1.50)	1.23(1.01-1.49)	1.32(1.07-1.64)
Positive (+1~+4)	2.25(1.63-3.20)	1.50(1.05-2.13)	1.63(1.10-2.41)

Model 1: adjustment for age and sex.

Model 2: adjustment for age, sex, BMI, diabetes, hypertension, HDL cholesterol, eGFR, serum calcium, and hsCRP.

Model 3: adjustment for age, sex, BMI, diabetes, hypertension, cholesterol, LDL cholesterol, eGFR, serum calcium, hsCRP, current smoking, alcohol intake, and vigorous exercise frequency.

CACS, coronary artery calcium score; CI, confidence interval

An unusual case of accessory renal artery occlusion presenting with hypertensive emergency

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Renal infarction is a condition resulting from an obstruction or a decrease in renal arterial blood flow, which triggers the release of renin, aldosterone and a secondary elevation in blood pressure. Here, we report a case of renal infarction due to accessory renal artery occlusion presenting as hypertensive emergency. A 18-year old female admitted to the hospital complaining of pulsatile headache, blurred vision and central scotoma for a month. Her blood pressure was 156/78mmHg on admission, and occasional surge in blood pressure was checked during hospitalization. Fundus examination showed papilledema and cerebrospinal fluid analysis showed increased intracranial pressure (25.5 cmH₂O). Hypokalemia and elevated LDH level were noted from the laboratory findings. Further hormonal studies showed high plasma renin level, and abdominal computed tomography angiography showed partial infarction of right (rt.), resulted from focal occlusion due to dissecting aneurysm of renal accessory artery. Selective angiography showed dissecting aneurysm of small accessory renal artery arising from the rt. renal artery root supplying upper pole of rt.kidney. Renal vein sampling revealed high renin level at rt. superior renal vein. Selective embolization of rt. accessory renal artery was performed. Following embolization, her blood pressure normalized over several weeks. In the literature, renovascular hypertension from stenosis or occlusion of accessory artery is rare. In this case, our patient was successfully treated with embolization of renal accessory artery.

