

Endocr J. 2011;58(5):363-7.

Association of urine acidification with visceral obesity and the metabolic syndrome.

Otsuki M, Kitamura T, Goya K, Saito H, Mukai M, Kasayama S, Shimomura I, Koga M.

Urine acidification is induced by metabolic acidosis which is associated with a high intake of protein-rich diet. The purpose of this study was to investigate the relationship of urine acidification with visceral obesity and the metabolic syndrome. We recruited 1,051 male subjects who underwent health examinations at the Health Care Center in Kinki Central Hospital. Subjects who were treated for hypertension, dyslipidemia, diabetes mellitus, and hyperuricemia and had the past history of chronic liver disease, chronic kidney disease and cancer, were excluded in this study. All subjects were administered to urine pH, blood and physical examinations. Lower urine pH was associated with higher serum urea nitrogen which reflects high intake of protein-rich diet, whereas it had no relation to serum creatinine. Lower urine pH was also associated with an increase in waist circumference, homeostasis model assessment-R, fasting plasma glucose, HbA1c, serum triglyceride, serum uric acid and with a decrease in high density lipoprotein cholesterol. Urine pH was not associated with mean blood pressure. Urine acidification is a characteristic of visceral obesity and the metabolic syndrome. High intake of protein-rich diet may contribute urine acidification, which is associated with various metabolic abnormalities in visceral obesity.