No. 1229

Effect of Dietary Sodium Intake on the Prevalence of Masked Hypertension and the Progression of Vascular Complications

Takashi Uzu, M.D.

Department of medicine, Shiga University of Medical Science

Summary

Over the past 20 years, it has been well established that blood pressure (BP) measurements taken in the office may not always correctly characterize a patient's typical BP level and ambulatory BP monitoring is better correlated with target organ damage than office BP. In addition, the condition with normal office BP but high ABP, called masked hypertension, is reported to be common and has been associated with increased cardiovascular risks. Masked hypertension was reported to be common in patients with type 2 diabetes. Both diabetes and hypertension increase the risk of cardiovascular disease and tight BP control was associated with a reduction in risk of diabetes-related death, heart diseases, stroke, and progression of retinopathy. Therefore, it is important to identify characteristics that would be suggestive of the masked hypertension in patients with type 2 diabetes. In addition, it is well established that the sodium sensitivity of blood pressure is elevated in the diabetic condition and circadian BP rhythm is disturbed by high dietary sodium intake in patients with sodium sensitive hypertension. Therefore, amount of sodium intake may be a determinant of masked hypertension. Therefore, we examined the effect of dietary sodium intake on the prevalence of masked hypertension in patients with type 2 diabetes.

A total of 193 outpatients with type 2 diabetes and office blood pressure <140/90 mmHg were recruited. Masked hypertension was defined as the office blood pressure <140/90 mmHg and 24-hr mean ambulatory blood pressure ≥130/80 mmHg. Dietary sodium intake was estimated by measuring 24-hour urinary sodium excretion. The masked hypertension was found in 128 (66.3%) of the studied patients. By the age and sex adjusted univariate logistic regression analysis, urinary albumin excretion, the use of the inhibitors of renin-angiotensin system, office systolic blood pressure and the amount of dietary sodium intake were significantly associated with masked hypertension. Multivariate logistic regression analysis also identified that older age, elevated office SBP and high dietary sodium intake were independently associated with masked hypertension. Compared with low salt diet (sodium <120 mEq/day), the odds ratio for the risk of masked hypertension in medium salt diet (sodium 120- <200 mEq/day) and high salt diet (sodium ≥200 mEq/day) were 5.3 ($p<0.001$) and 12.6 ($p<0.001$), respectively. Brachial-ankle pulse wave velocity, a marker of arterial stiffness, was elevated in patients with masked hypertension than those with well controlled.

These results indicated that sodium restriction may play a part in reducing vascular complications in patients with type 2 diabetes.