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Comment on: Glatz et al. Associations of sodium, potassium and protein intake with blood pressure and hypertension in Switzerland

Zeng Yihua, Han Lingshan, Shi Xiu-E

Department of Internal Medicine, Gansu Province Hospital Rehabilitation Centre, Lanzhou, Gansu Province, China

Hypertension is the cause of most deaths in the world. With 1336 Swiss adults as research subjects, Glatz et al. explored the relationship between sodium, potassium and protein intake, and blood pressure and hypertension [1]. It was found that among the Swiss adult subjects, urinary potassium excretion was negatively correlated with blood pressure, but this correlation was not statistically significant [1]. Nevertheless, this conclusion is still open to question.

A study group analysed the blood pressure and 24-hour sodium and potassium excretion of 10,079 subjects from 52 centres around the world. After adjusting for age, gender, sodium excretion, body mass index (BMI), alcohol intake and other confounding factors, they found that urinary potassium excretion was independently negatively correlated with the systolic and diastolic blood pressure [2]. It follows that the research findings of Glatz et al. were slightly different from those of their predecessors. The difference in their findings may be attributed to different cohorts, research designs and methods.

On this basis, the author believes that the following problems are worthy of consideration: First of all, there are many risk factors associated with rise of blood pressure, such as age [3], gender [4], BMI [5], smoking [6], drinking [7], race [8] and eating habits, etc. But Glatz et al. failed to adjust for the above traditional risk factors before analysing the correlation between urinary potassium excretion and blood pressure. Secondly, secondary hypertension is different from primary hypertension. Secondary hypertension refers to the increase of blood pressure that occurs during the course of some diseases, as a result of a potentially identifiable cause [9]. But Glatz et al. failed to mention in their article whether secondary hypertension was ruled out in the subjects. Secondary hypertension has a certain impact on the results of study. Thirdly, both epidemiological survey and laboratory work have suggested that there is a close relationship between blood pressure and aqueous electrolytes [10, 11]. The relationship between serum electrolytes and blood pressure has already been reported in relevant literature, but it is mainly based on causal blood pressure (CBP) and the results vary, so they have not been recognised by most scholars yet [12, 13]. CBP was also employed in the study of Glatz et al.. This could have influenced the results. Ambulatory blood pressure monitoring (ABMP), as a noninvasive test, is increasingly widely used in clinical practice. It can measure ambulatory blood pressure for 24 hours in a day and is seldom interfered with by psychological or human factors. It can objectively reflect the blood pressure level of people in daily life [14]. For years to come, the relationship between the serum electrolyte, urinary potassium excretion and blood pressure of subjects could be further researched using ABMP.

Correspondence:
Xiu-E Shi, Department of Internal Medicine, Gansu Province Hospital Rehabilitation Centre, CHN-730000 Lanzhou, Gansu Province, kmgqu5[at]163.com

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