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The Significance of the Daily Mineral Intake (Sodium, Potassium,
Calcium and Magnesium) on the Genesis of Hypertension in Nepal

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Summary

The aim of this study is to investigate the significance of the sodium (Na), potassium (K), calcium (Ca) and magnesium (Mg) intake on the genesis of hypertension in five different areas in Nepal. A total of 1,115 men and 1,152 women (20–85 years) were recruited for this study from five different areas; i.e. hilly villagers (Kotyang: 206 men, 212 women), suburban villagers (Bhadrakali: 265, 244), Tibetan immigrants (Jawalakhel: 242, 306) and mountain villagers (Mustang: 229, 212 and Helambu: 173, 178). Similar medical, nutritional and anthropometrical procedures were performed on each group. The blood pressure (BP) was measured using a semiautomated device. The 24-h urinary Na and K excretions were calculated using a simple method developed by us. The 24-h urinary Ca and Mg excretions were estimated using the predicted 24-h creatinine values. A forward stepwise multiple linear regression analysis was used for the statistical method to assess the relationship of seven variables (age, BMI, sex, and urinary Na, K, Ca and Mg excretions) with the systolic (S) and diastolic (D) BP. The prevalence of hypertension ranged from 0 to 47% in 5 areas, and was found to be the lowest in Kotyang and the highest in Helambu. The daily salt consumption was estimated to be between 12 and 15 g. The SBP and/or DBP were significantly and positively associated with age, BMI, urinary Na and Ca excretions, while a significantly negative correlation was observed for the urinary K and Mg based on a multiple regression analysis. These results suggest that, in addition to the age and the body composition, not only the salt intake, but the intakes of K, Mg and Ca as well may also contribute to the genesis of hypertension in Nepalese inhabitants.