EFFECT OF HIGH SODIUM INTAKE ON THE CALCIUM METABOLISM

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Summary

Effect of sodium intake on the metabolism of calcium and other minerals has been studied in men and rats. In the human study (Exp. 1), subjects were fed the experimental diet including 4 or 20 g of NaCl a day for 9 days for each diet. The high-salt diet intake resulted in elevation of urinary excretion of sodium and calcium, but had almost no effect on the blood pressure and serum mineral concentrations. Since all the subjects were fed the same diet, the increased calcium excretion was ascribed to the increased salt intake. Endurance performance was not affected by the high salt intake. In the animal study (Exp. 2), rats were divided into three diet groups; control (2% NaCl) diet, low-salt (0.5% NaCl) diet, and high-salt (8% NaCl) diet groups. Each group of rats were fed the corresponding diet for 14 days. During the experimental period, urine and feces were collected and mineral absorption and retention were calculated. On the final day of the experiment, rats were killed to obtain serum. Urinary excretion of sodium, calcium, phosphorus, and potassium were higher in the high-salt diet group of rats than in the control and low-salt diet groups. The retention rates of calcium, phosphorus, and magnesium were significantly lower in the high-salt diet group of rats than in the other two groups. However, there was no difference in the urinary excretion and retention rates between control and low-salt diet groups, suggesting that excess salt intake beyond the certain amount promotes urinary mineral excretion.