

## High Accumulation of Elements in the Arteries of the Lower Limbs with Aging

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### ABSTRACT

*To elucidate compositional changes of the arteries in the upper and lower limbs with aging, the authors investigated age-related changes of elements in both the arteries of the upper and lower limbs by inductively coupled plasma-atomic emission spectrometry. After the ordinary dissection at Chiang Mai University, the brachial, radial, femoral and posterior tibial arteries were resected from the subjects, ranging in age from 25 to 88 yr. The subjects consisted of 15 men and 5 women (average age = 67.5 ± 16.0 yr). It was found that although an accumulation of Ca and P hardly occurred in the brachial and radial arteries with aging, a high accumulation of Ca and P occurred in both the femoral and posterior tibial arteries with aging. Accumulation of Ca and P in the femoral and posterior tibial arteries began to occur in the sixties and thereafter increased remarkably. As for the arteries over 60 yr, the average content of Ca was about 4-fold higher in the femoral and posterior tibial arteries than in the brachial and radial arteries.*

**Key Words:** Artery, Calcium, Phosphorus, Magnesium, Atherosclerosis

### INTRODUCTION

There are a number of reports (Kanabrocki et al., 1960; Yu and Blumenthal, 1963; Elliott and McGrath, 1994; Tohno, S. et al., 1997; Tohno and Tohno, 1998a; Tohno, S. et al., 1998b; Tohno, Y. et al., 2001d) in which direct chemical analysis of elements in human arteries was utilized. Based on age-related changes of elements in the arteries, it was found that in Japanese, an accumulation of Ca and P did not occur uniformly in any arteries with aging and a higher accumulation occurred in both the aorta and the arteries of the lower limb with aging (Tohno and Tohno, 1998a). Few works have been done to study an accumulation of elements in human arteries except for Japanese.