

INTRACRANIAL ARTERIAL STENOSIS IN THE POSTERIOR CIRCULATION IS ASSOCIATED WITH INCREASED SERUM CALCIUM LEVELS

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Background: Serum calcium levels are positively associated with carotid plaque thickness and the incidence of stroke. There are no data on the association of intracranial artery stenosis (IAS) with serum calcium levels. We therefore evaluated whether higher serum calcium levels would be associated with IAS in stroke-free Korean adults using brain magnetic resonance angiography (MRA). Methods: We retrospectively analyzed the records of 361 subjects who consecutively visited a general health promotion center from February 2006 through April 2009. Included subjects had serum calcium and albumin drawn and underwent brain 3D time of flight MRA as part of their voluntary health checks. The basilar, middle cerebral, intracranial internal carotid and intracranial vertebral arteries were evaluated. The serum calcium concentration was corrected for serum albumin. Results: The subjects were 183 men and 178 women, and their mean age was 52 ± 10 years. Mean serum calcium was 9.0 ± 0.3 mg/dL. Sixty-three subjects (17%) had IAS in the anterior circulation (AC), and 17 subjects (5%) had IAS in the posterior circulation (PC). Subjects in the upper three quartiles of serum calcium concentration had a significantly greater risk for IAS in the AC compared with the lowest quartile with the odds ratios of 3.9 (95% CI 1.5–9.9), 3.5 (95% CI 1.3–9.7), and 4.0 (95% CI 1.5–10.6), respectively. Serum calcium concentration was not associated with IAS in the PC. Conclusions: Elevated serum calcium levels are associated with the presence of IAS on MRA especially in the AC.