The Growth of Small, Asymptomatic, Unruptured Intracranial Aneurysms with no History of SAH - Different Risk Factors Associated with Single and Multiple Aneurysms

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Introduction: The International Study on Unruptured Intracranial Aneurysms suggests that small (≤7mm), asymptomatic, unruptured intracranial aneurysms (UIA) in patients with no history of subarachnoid hemorrhage (SAH) should be managed conservatively [1]. Recent research has independently shown considerable variation in the rupture risk of small UIA. As enlargement may indicate increased risk of rupture, the factors related to UIA growth may also influence rupture risk. Information about small UIA growth is limited and heterogeneous due to limited follow-up data [2].

Hypothesis: Growth factors for small UIA with no history of SAH may vary between subset groups.

Methods: A retrospective study was performed based on a total of 508 patients diagnosed with UIA from 2005-2010 in our center. 235 patients with asymptomatic, small UIA and no history of SAH were monitored with high resolution 3D CTA. Patient medical history and aneurysm characteristics (size, location and multiplicity) were analyzed. Multiple logistic regression analysis and the Hosmer-Lemeshow statistic were used to identify the factors associated with growth. The Student’s t-test was applied to compare the aneurysm growth rate between subset groups. Statistical significance level set at p<0.05.

I. 13% of small aneurysms grew; different risk factors relate to single and multiple UIAs.

II. Multiple small aneurysms were more likely to grow: risk factors include number of aneurysms, posterior circulation and history of TIA.

Summary: We found that multiple small aneurysms were more likely to grow, especially those at posterior circulation. Although single aneurysms have a lower risk of growth, a trend of higher growth rates was found.

References