

Abstract

Unruptured intracranial aneurysms (UIA) are relatively common in the general population and can be found in percentage as high as 6%. UIA are not static vascular anomalies but grow over time and eventually rupture. The subarachnoid hemorrhage that results from this rupture can be a dramatic event causing high morbidity and even death. The impact of a ruptured UIA can be depicted in a Finnish study, where 178 UIAs who were hospitalized, and during a mean follow-up of 13 years, had a 50% excess mortality compared with the general population. In the United States, rates of in-hospital mortality in acute care have reached 6.3%. Therefore the decision whether to treat or not to treat an UIA must take into account the fact that this pathological finding is not benign, affect young individuals and causing significant clinical but social burden. For all the reasons pointed this far, we conclude that, in theory and with complications-free treatment, all UIA should be treated. In favor of this approach is the fact the rate of treatment complications have been reducing progressively in the last decades making endovascular and surgical treatment safer. Sometimes, a wrong decision to exclude a UIA from intervention is related to a falsely belief that small aneurysm are devoid of risk of rupture. This is based on the findings of older studies like the International Study of Unruptured Intracranial Aneurysms (ISUIA). In this study, patients with no history of subarachnoid hemorrhage and IUA <7 mm in diameter did not show ruptures in follow-up. However, ISUIA have been criticized for several reasons. First, the number of patients in certain categories is small, so some of the estimates of rupture risk in the strata shown in are imprecise. The study show some internal inconsistency because some predictors of rupture confirmed at first phase some were not present phase. Additionally, the proportion of patients undergoing an interventional procedure varied tremendously from center to center in this nonrandomized study, in general, the surgeon or radiologist evaluating the patient would only have conservatively managed those patients who were deemed to be at low risk of rupture, and therefore, selection biases could change the risk profile of included participants. Finally, differential follow-up and detection biases could alter apparent rates, and some outcome events may have been missed. In studies with very long follow-up, have found that the rate of rupture can be has high as 29% during their lifetime, and the annual rupture rate per patient was 1.6%. The real picture seems that a patient an IUA may have a more dynamic and serious course and if follow-up is stretched enough all UIA will rupture. The most recent meta-analysis of all studies combined show that studies vary dramatically in size and duration of follow-up, and they included both prospective and retrospective design. As suspected aneurysms <7 mm also showed rupture, at an annual rate of 0.4%. Curiously, family history and previous rupture from a different aneurysm were not identified as risk factors for rupture. This means that we cannot predict really “safer” IUA based on size or in clinical ground. In conclusion, because UIA can have such a catastrophic clinical outcome and treatments are increasingly safer, all UIA are potentially indicated for treatment.