

Effectiveness of Surgical Clipping Versus Endovascular Coiling Of Intracranial Aneurysms : A Systematic Review and Meta-Analysis

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Background

Endovascular Coiling is an additional technique that can be used for patients with intracranial aneurysm instead of Surgical Clipping(1). It's still a debate which option can Surgeon take(2). The use of endovascular treatment for aneurysms has increased recently. Our purpose from this review is to evaluate the effectiveness of selecting the Surgical or Endovascular choice with Intracranial Aneurysms.

Methods and Materials

We searched PubMed, MEDLINE in Process, Scopus and Web of Science (previously ISI) for relevant studies, published up to August 2018. We included randomized controlled trials (RCTs) that compared Clipping and Coiling Techniques. Data were pooled as odds ratios (OR) with their 95% confidence intervals (CI) between compared groups in a random meta-analysis model. Subgroup and sensitivity analysis were conducted. We assessed heterogeneity by a Chi square test and I2 statistic.

Results

From a total of 8731 entries identified, 9 RCTs were appropriate for inclusion into the final analysis. Regarding efficacy outcomes, Modified Rankin scale was used to evaluate the Clinical Outcome at 2 Months (Short term) and 1 Year (Long Term). Meta-analysis showed that Endovascular Option was association with higher effectiveness compared to Surgical part through the Modified Rankin scale (OR= 0.87, 95% CI [0.66, 1.14]), (OR= 1.00, 95% CI [0.87,1.14]) at 2 Months and 12 Months, Respectively. Regarding Safety outcome, the pooled studies showed that Coiling was associated with significantly lower death and dependent ratio compared to Surgical Clipping (OR= 1.40, 95% CI [1.21, 1.62]).

Conclusion

Our findings showed that Cryolife O'Brien had lower transvalvular mean gradient at 1 year than Toronto. CM had higher early mortality, cardiac valve not related deaths, and lower haemorrhage than SJM.

Figure 1. Forest plot of Modified Ranking scale at 2 months.

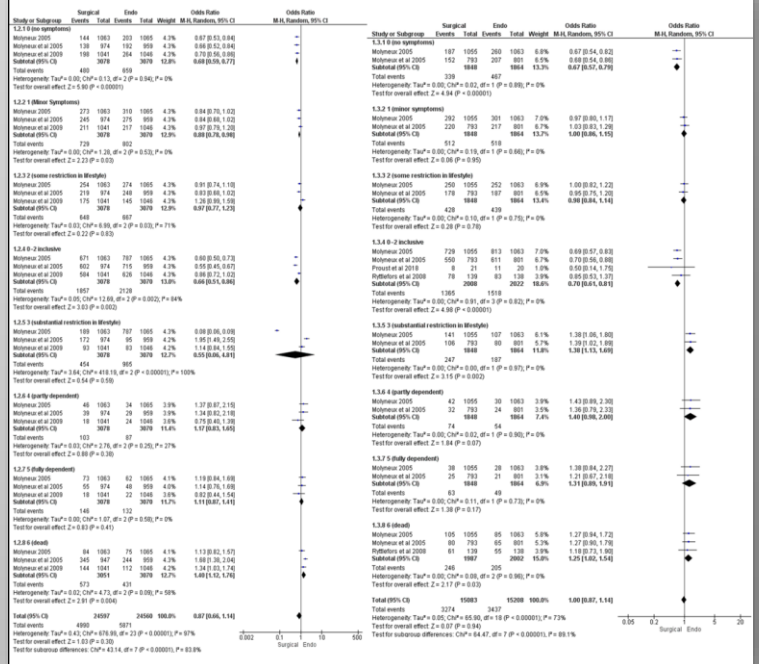


Figure 2. Forest plot of Modified Ranking scale at 12 months.

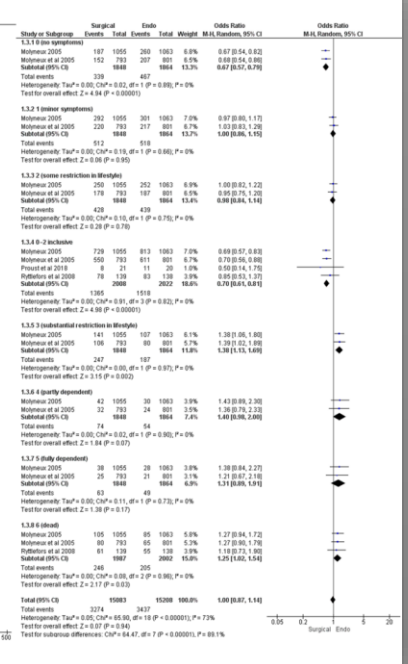


Figure 3. Forest plot of Death.

