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Complication-effectiveness analyses increase the information available with regard to outcome for the management of Unruptured Intracranial Aneurysm Surgery $^{1)}$.

Intervention for brain arteriovenous malformations (bAVMs) should aim at treatment that is safe and effective.

To analyze a prospective database to derive the probability of neurological deficit and adjust this risk for effectively treated bAVMs (complication-effectiveness analysis [CEA]).

First, Morgan et al calculated the percentage of surgical complications leading to a modified Rankin Scale >1 at 12 months after surgery for each Spetzler Ponce classification class (SPC). Second, they performed a sensitivity analysis of these results by including bAVMs not undergoing surgery, to correct for bias. Third, they established the long-term cumulative incidence of freedom from recurrence from Kaplan Meier analysis. Finally, they combined the results to calculate the risk of surgery per effective treatment in a complication-effectiveness analysis.

Seven hundred seventy-nine patients underwent 641 microsurgical resections. Complications of surgery leading to a modified Rankin Scale >1 at 12 months occurred in 1.4% (95% confidence interval [CI]: 0.5-3.3), 20% (95% CI: 15-26), and 41% (95% CI: 30-52) of SPC A, SPC B, and SPC C, respectively. The cumulative 9-year freedom from recurrence was 97% for SPC A and 92% for other bAVMs. The 9-year CEA risk was 1.4% (credible range: 0.5%-3.4%) for SPC A, 22% to 24% (credible range: 16%-31%) for SPC B, and 45% to 63% (credible range: 33%-73%) for SPC C bAVM.

CEA presents the treatment outcome in the context of efficacy and provides a basis for comparing outcomes from techniques with different times to elimination of the bAVM $^{2)}$.

1)

Morgan MK, Wiedmann M, Assaad NN, Heller GZ. Complication-Effectiveness Analysis for Unruptured Intracranial Aneurysm Surgery: A Prospective Cohort Study. Neurosurgery. 2016 May;78(5):648-59. doi: 10.1227/NEU.00000000001113. PubMed PMID: 26562824.

Morgan MK, Wiedmann M, Assaad NN, Heller GZ. Complication-Effectiveness Analysis for Brain Arteriovenous Malformation Surgery: A Prospective Cohort Study. Neurosurgery. 2016 Jul;79(1):47-57. doi: 10.1227/NEU.00000000001144. PubMed PMID: 26606671.

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