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| --- | --- | --- | --- |
|  | **Overall (%)** | **Ruptured (n=88)** | **Unruptured (n=53)** |
|  | **Clip (n=33)** | **Endovascular (n=55)** | **p** | **Clip (n=15)** | **Coil (n=38)** | **p** |
| Age + SD | 56.6 + 12.5 | 49.2 + 11.2 | 57.8 + 12.5 | **0.004** | 57.3 + 7.7 | 61.2 + 12.6 | 0.256 |
| Female | 106 (75%) | 28 (85%) | 42 (76%) | 0.42 | 7 (47%) | 29 (76%) | 0.053 |
| Total Length of stay (SD) | 15.6 (13.1) | 25.0 (13.8) | 19.0 (10.2) | 0.055 | 14.3 (13.1) | 3.4 (3.9) | **<0.001** |
| **Vasospasm** | 36 (26%) | 19 (58%) | 16 (30%) | **0.013** | 1 (7%) | 0 | 0.278 |
| Endovascular Intervention | 19 (13%) | 11 (33%) | 7 (13%) | **0.03** | 1 (7%) | 0 | 0.278 |
| Related Cerebrovascular Accident | 3 (2%) | 2 (6%) | 1 (2%) | 0.554 | - | - | - |
| **Complications** *Medical* | 14 (9.9%) | 4 (12.1%) | 7 (12.7%) | 1 | 2 (13.3%) | 1 (2.6%) | 0.19 |
| *Technical* | 29 (20.6%) | 3 (9.1%) | 10 (18.2%) | **<0.001** | 1 (6.7%) | 15 (39.5%) | **0.022** |
| *Transient Neurological* | 14 (9.9%) | 9 (27.3%) | 0 | **<0.001** | 4 (26.7%) | 1 (2.6%) | **0.019** |
| *Permanent Cranial Neuropathy* | 10 (7.1%) | 6 (18.2%) | 0 | **0.002** | 4 (26.7%) | 0 | **0.005** |
| *Permanent Neurological Other* | 9 (6.4%) | 6 (18.2%) | 2 (3.6%) | **0.048** | 1 (6.7%) | 0 | 0.283 |
| *Treatment Associated Mortality* | 5 (3.5%) | 2 (6.1%) | 2 (3.6%) | 0.629 | 1 (6.7%) | 0 | 0.283 |
| Hydrocephalus requiring EVD | 77 (55%) | 27 (81.8%) | 46 (83.6%) | 1 | 4 (26.7%) | 0 | **0.005** |
| Permanent CSF Diversion | 30 (21.3%) | 16 (48.5%) | 12 (21.8%) | **0.017** | 1 (6.7%) | 1 (2.6%) | 0.49 |
| Tracheostomy  | 4 (2.8%) | 3 (9.1%) | 1 (1.8%) | 0.146 | 0 | 0 | - |
| Percutaneous Gastrostomy  | 13 (9.2%) | 5 (15.2%) | 8 (14.5%) | 1 | 0 | 0 | - |
| Disposition  *Home* | 82 (58%) | 10 (30%) | 28 (52%) | 0.17 | 8 (53%) | 36 (92%) | **0.001** |
| *Rehabilitation* | 26 (18%) | 9 (27%) | 11 (20%) | 5 (33%) | 1 (3%) |
| *Skilled Nursing Facility* | 21 (15%) | 10 (30%) | 8 (15%) | 1 (7%) | 2 (5%) |
| mRS at Discharge (SD) | 2.07 (1.81) | 3.18 (1.63) | 2.54 (1.76) | **0.044** | 1.93 (1.67) | 0.54 (0.82) | **0.001** |
| *mRS 0-2* | 95 (67%) | 14 (42%) | 34 (63%) | 0.077 | 10 (67%) | 37 (95%) | 0.14 |
| mRS at 3 months (SD) | 1.14 (1.35) | 2.06 (1.21) | 1.27 (1.45) | **0.011** | 1.00 (0.95) | 0.50 (1.14) | **0.049** |
| *mRS 0-2* | 83 (86%) | 14 (78%) | 30 (81%) | 1 | 11 (92%) | 28 (93%) | 1 |
| mRS at 1 Year (SD) | 0.83 (1.24) | 1.47 (0.99) | 0.85 (1.37) | **0.019** | 0.88 (0.83) | 0.40 (1.19) | 0.067 |
| *mRS 0-2* | 73 (90%) | 13 (87%) | 29 (88%) | 1 | 8 (100%) | 23 (92%) | 1 |
| mRS at Last Follow-Up (SD) | 0.87 (1.31) | 1.55 (1.23) | 0.93 (1.42) | **0.009** | 0.58 (0.79) | 0.45 (1.21) | 0.118 |
| *mRS 0-2* | 90 (89%) | 18 (90%) | 34 (85%) | 0.707 | 12 (100%) | 26 (90%) | 0.543 |
| INDEX (SD) | $87,400 ($52,840) | $129,300 ($55,500) | $96,800 ($38,000) | **0.002** | $83,500 ($57,500) | $39,100 ($20,900) | **<0.001** |

Table 1: Overall demographics for entire cohort, hospital course information, complications, clinical outcomes, and total cost of index hospitalization. Mean values listed. Clip” entails all microsurgical techniques including clipping and bypass/terminal basilar occlusion. “Endovascular” entails all endovascular therapy including coiling, balloon- and stent-assisted coiling. Bold p-values indicate statistical significance (<0.05). mRS = modified Rankin scale. SD = standard deviation. EVD = external ventricular drain. CSF = cerebrospinal fluid. INDEX = Total Cost for Index Hospitalization.

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|  |  | **Endovascular** | **Open** |  |  |  |  |
|  |  | **Coil** | **Stent-Coil** | **Clip (13U/33R)**  | **Bypass (2U/0R)** | **p Clip vs. Endovascular** | **p Clip vs. Coil** | **p of Clip vs. Stent-Coil** | **p of Coil vs. Stent-Coil** |
|  |  | **coil (9U, 20R)** | **BAC (5U, 29R)** | **SAC (17U, 4R)** | **Y-SAC (7U, 2R)** |
| **Unruptured (U)** | **Average (SD)** | $33,500 ($22,600) | $26,200 ($11,600) | $38,500 ($20,900) | $56,900 ($14,400) | $71,400 ($47,100) | $162,800 ($71,500) | **0.001\*** | **0.007\*** | **0.018** | 0.064 |
| **Median** | $28,600 | $25,400 | $33,100 | $64,100 | $52,800 | $162,800 |
| **Ruptured (R)** | **Average (SD)** | $96,600 ($41,000) | $94,500 ($37,000) | $118,600 ($42,800) | $87,900 ($17,600) | $129,300 ($55,500) | - | **0.002\*** | **0.002\*** | 0.384 | 0.434 |
| **Median** | $80,600 | $87,300 | $120,200 | $87,900 | $130,900 | - |

Table 2: Index hospitalization cost based on treatment modality and rupture status. SD = standard deviation. U = unruptured. R = Ruptured. BAC = balloon assisted coiling. SAC = single stent assisted coiling. Y-SAC = “Y” configuration, double-stent assisted coiling. \* = remained significant after adjusting for multiple comparisons.

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| *Unruptured, Index Cost* | **Univariate** | **Multivariate***a* |
|  | **B** | **CI** | **p** | **B** | **CI** | **p** |
| **Vasospasm w/Intervention** | 129.3 | (55.68, 202.91) | 0.001 | 68.23 | (42.41, 94.06) | 0.009 |
| **Permanent CSF diversion** | 104.44 | (53.71, 155.18) | <0.001 | 35.52 | (15.86, 55.18) | <0.001 |
| **Length of Stay** | 3.9 | (3.27, 4.52) | <0.001 | 3.26 | (2.84, 3.68) | <0.001 |
| **Aneurysm Neck** | 4.51 | (0.84, 8.17) | 0.017 | 2.64 | (1.43, 3.86) | <0.001 |
| **Treatment Date** | NS | 2.41 | 1.49-3.32 | <0.001 |
| **EVD** | 115.18 | (87.98, 142.38) | <0.001 | NS |
| **Hypertension** | 23.37 | (0.72, 46.03) | 0.043 |
| **Discharged Home** | -69.5 | (-90.32, -48.68) | <0.001 |
| **Endovascular Treatment** | -44.47 | (-65.88, -23.05) | <0.001 |
| **Aneurysm Height** | 2.92 | (0.82, 5.03) | 0.007 |
| **Complications** | 30.94 | (10.33, 51.56) | 0.004 |

Supplementary Table 3: Univariate and Multivariate variables statistically related to cost of index hospitalization, for unruptured aneurysms. CI = 95% Confidence Intervals, EVD = external ventricular drain, CSF = cerebrospinal fluid. NS = non significant (p>0.05). *a*: Cross-validated R2 = 0.789.

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| *Ruptured, Index Cost* | **Univariate** | **Multivariate***a* |
|  | **B** | **CI** | **p** | **B** | **CI** | **p** |
| **Vasospasm-related stroke** | 92.7 | (40.22, 145.17) | 0.001 | 27.8 | (9.93, 45.67) | <0.001 |
| **Vasospasm w/Intervention** | 56.12 | (33.93, 78.32) | <0.001 | 17.53 | (9.08, 25.99) | 0.045 |
| **Complications** | NS | 6.61 | (0.39, 12.83) | <0.001 |
| **Hunt and Hess Grade** | 4.05 | (1.08, 7.03) | 0.041 |
| **Length of Stay** | 3.52 | (3.12, 3.91) | <0.001 | 3.19 | (2.92, 3.46) | 0.003 |
| **Treatment Date** | 3.04 | (0.03, 6.05) | 0.048 | 2.91 | (1.96, 3.85) | <0.001 |
| **Aneurysm Width** | 4.51 | (0.72, 8.31) | 0.02 | 2.34 | (1.14, 3.53) | 0.019 |
| **Age at Treatment** | NS | -0.33 | (-0.61, -0.06) | <0.001 |
| **Hypertension** | -6.8 | (-13.32, -0.27) | 0.009 |
| **Endovascular Intervention** | -32.49 | (-52.34, -12.64) | 0.002 | -8.42 | (-15.48, -1.37) | 0.02 |
| **Male Gender** | -24.85 | (-49.53, -0.18) | 0.048 | NS |
| **Discharged Home** | -38.05 | (-56.86, -19.25) | <0.001 |
| **Fisher Grade** | 14.55 | (1.67, 27.43) | 0.027 |
| **EVD** | 43.07 | (17.61, 68.52) | 0.001 |
| **Shunt** | 51.73 | (32.88, 70.57) | <0.001 |
| **TCD Vasospasm** | 36.05 | (16.73, 55.36) | <0.001 |

Supplementary Table 4: Univariate and Multivariate variables statistically related to cost of index hospitalization, for ruptured aneurysms. CI = 95% Confidence Intervals, EVD = external ventricular drain. TCD = Transcranial Doppler. NS = non significant (p>0.05). *a*: Cross-validated R2 = 0.866.

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| *Unruptured, 1 YR Cost/QALY* | **Univariate** | **Multivariate***a* |
|  | **1 YR Cost/QALY** | **CI** | **p** | **Ratio** | **CI** | **p** |
| **mRS at Discharge** | 1.67 | (1.42, 1.96) | <0.001 | 1.59 | (1.38, 1.84) | <0.001 |
| **Complications** | 2.01 | (1.22, 3.29) | 0.007 | 1.57 | (1.13, 2.16) | 0.011 |
| **Endovascular Intervention** | 0.42 | (0.25, 0.71) | 0.002 | NS |
| **Aneurysm Neck** | 1.13 | (1.02, 1.26) | 0.026 |
| **Dome:Neck Ratio** | 0.49 | (0.26, 0.94) | 0.032 |
| **Permanent CSF diversion** | 3.27 | (1.13, 9.47) | 0.03 |
| **Higher mRS at Presentation** | 1.67 | (1.27, 2.20) | 0.001 |
| **Retreated Recurrence** | 2.45 | (1.00, 6.00) | 0.05 |

Supplementary Table 5: Univariate and Multivariate variables statistically related to Total Cost/QALY at 1 year, for unruptured aneurysms. CI = 95% Confidence Intervals. CSF = cerebrospinal fluid, mRS = modified Rankin scale. NS = non significant (p>0.05). *a*: Cross-validated R2 = 0.423.

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| *Ruptured, 1 YR Cost/QALY* | **Univariate** | **Multivariate***a* |
|  | **Ratio** | **CI** | **p** | **Ratio** | **CI** | **p** |
| **mRS at Discharge** | 1.69 | (1.53, 1.87) | <0.001 | 1.7 | (1.54, 1.86) | <0.001 |
| **Aneurysm Width** | NS | 1.06 | (1.01, 1.11) | 0.018 |
| **Permanent CSF diversion** | 2.03 | (1.37, 3.03) | 0.001 | NS |
| **PEG** | 4.2 | (2.38, 7.40) | <0.001 |
| **mRS at Presentation** | 1.44 | (1.22, 1.71) | <0.001 |

Supplementary Table 6: Univariate and Multivariate variables statistically related to Total Cost/QALY at 1 year, for ruptured aneurysms. CI = 95% Confidence Intervals, CSF = cerebrospinal fluid, PEG = percutaneous endoscopic gastrostomy. mRS = modified Rankin scale. NS = non significant (p>0.05). *a*: Cross-validated R2 = 0.535.