O-012

TRENDS OF RUPTURED AND UNRUPTURED ANEURYSMS TREATMENT IN THE US IN POST-ISAT ERA: A NATIONAL INPATIENT SAMPLE ANALYSIS

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10.1136/neurintsurg-2020-SNIS.12

Background The International Subarachnoid Aneurysm Trial has generated a paradigm shift towards endovascular procedures for treating intracranial aneurysms, but it remains unclear if this has led to a true reduction in the risk for aneurysmal subarachnoid hemorrhage (aSAH). Our study aims to simultaneously quantify the annual intervention rates for ruptured and unruptured cerebral aneurysms, in order to evaluate any association between the treatment burden of unruptured and ruptured aneurysms after the endovascular treatment era.

Methods Admissions data from the National Inpatient Sample (NIS; 2004–2014) were extracted. Patients with a primary diagnosis of subarachnoid hemorrhage or unruptured aneurysms treated by either clipping or coiling were included. Within each year, this combined group was randomly matched to a non-aneurysmal control group, based on age, sex and Elixhauser comorbidity index. Multinomial logistic regression was performed to calculate the relative risk ratio (RRR) of undergoing treatment for either ruptured or unruptured aneurysms in comparison to the reference control group, adjusted for time.

Results After adjusting for the NIS sampling effects, 243,7754 aneurysm patients were identified, 174,580 (71.6%) of whom were female. The mean (SD) age was 55.4±13.2 years. A total of 121,882 (50.01%) patients were treated for unruptured aneurysms, 79,627 (65.3%) endovascularly and 42,256 (34.7%) surgically. A total of 121,872 (49.99%) patients underwent procedures for aSAH, 68,921 (56.6%) endovascular and 52,951 (43.5%) surgical. Multinomial logistic regression revealed a significant year-to-year decrease in aSAH procedures compared to the control group of non-aneurysmal hospitalizations (RRR 0.963 per year, 95% CI 0.944–0.982, $P<0.001$), while there was a no statistical significance for unruptured aneurysm procedures (RRR 1.012 per year, CI 0.987–1.037, $P=0.35$).

Conclusion With each passing year, there is a significant decrease in RRR of undergoing treatment for aSAH, concomitant with a stable annual risk of undergoing treatment for UIA.

Abstract O-12 Table 1 Multivariable relative risk ratio per year passed after 2004, for hospitalizations regarding unruptured or ruptured aneurysms against matched controls hospitalized for other causes, controlling for hospital size, region and type. for hospital size, region and type The RRR represents the ratio of the risk of being hospitalized for unruptured or ruptured aneurysms, respectively, versus being hospitalized for a different cause

Relative Risk Ratio against Matched Controls	RRR	95% Confidence Interval	P-value
Unruptured Aneurysms			
Per year after 2004	1.012	0.987 – 1.037	0.35
Hospital Bed size			
Small	Reference Group		
Medium	1.685	1.008 – 2.817	0.047
Large	4.246	2.65 – 6.802	<0.001
Hospital Region			
Northeast	Reference Group		
Midwest	1.35	1.005 – 1.813	0.046
South	1.332	1.02 – 1.74	0.035
West	1.809	1.304 – 2.51	<0.001
Hospital Type			
Rural	Reference Group		
Urban, non-teaching	2.889	0.97 – 8.61	0.057
Urban, teaching	24.654	8.243 – 73.735	<0.001
Ruptured Aneurysms			
Per year after 2004	0.963	0.944 – 0.982	<0.001
Hospital Bedsizes			
Small	Reference Group		
Medium	2.098	1.413 – 3.115	<0.001
Large	5.479	3.819 – 7.86	<0.001
Hospital Region			
Northeast	Reference Group		
Midwest	1.259	0.974 – 1.628	0.078
South	1.457	1.147 – 1.851	0.002
West	2.142	1.642 – 2.793	<0.001
Hospital Type			
Rural	Reference Group		
Urban, non-teaching	3.211	1.117 – 9.233	0.03
Urban, teaching	23.744	8.211 – 68.656	<0.001

Disclosures M. Salem: None. G. Maragos: None. S. Gomez-Paz: None. L. Ascanio: None. L. Ngo: None. C. Ogilvy: None. A. Thomas: None. J. Moore: None.