

Outcome of Endovascular Thrombectomy Patient With Atrial Fibrillation: 5,429 Patients in NIS Data

2006 to 2013

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Introduction

1. Generally, it is thought that patients suffering from an embolic stroke associated with atrial fibrillation/flutter (AF) have a disadvantaged outcome because of:

- (1) Stroke recurrences from repeated embolization events
- (2) Complications related to systemic anticoagulation
- (3) Involvement of more proximal arterial occlusion sites
- (4) Embolic material is often plasma-extravasated, fibrin-rich and calcified

2. However, we were interested to understand whether stroke patients with AF and successful intraarterial thrombectomy of intracranial arterial occlusions may have a more favorable outcome profile than those without AF

Methods

1. Study design – Retrospective observational study
2. Data source – The Healthcare Cost and Utilization Project Nationwide Inpatient Sample database (2006 to 2013; 58,805,848 patients), an all-payer inpatient health care database in the US (<http://www.hcup-us.ahrq.gov>)
3. Patient selection – (Figure 1):
 - (1) Identified 5,429 acute stroke patients (>18 years old) who underwent endovascular thrombectomy using ICD-9* and procedure codes
 - (2) Delineation of chronic cardiovascular risk factors and acute in-hospital morbidity/mortality
 - (3) Dichotomization depending on the presence or absence of AF
4. Statistics – Applying multiple logistic regression analyses (SAS 9.4; SPSS 22) Adjusting for:

- (1) Comorbidities: hypertension, diabetes mellitus, hyperlipidemia, coronary artery disease, congestive heart failure, tobacco/alcohol dependence and morbid obesity
- (2) Socio-economic status, age, sex and race and
- (3) Care complexity, number of comorbidities, numbers of inpatient diagnoses/ procedures
- (4) Outcome definition –
 - In-hospital mortality
 - Discharge disposition (home discharge/short-term rehab, long-term facility/hospice care)
 - Length of hospital stay
 - Hospital cost

Results

- Results I – All Patients
1. Overall:
 - (1) Mean age of acute stroke patients 66 years (SD ± 15 years)
 - (2) 45% >65 years old
 - (3) 49% females
 - (4) 72.7% Whites, 10.1% blacks, 6.6% Hispanics, 10.5% others
 - (5) 62% of patients had AF
 2. Specific Outcomes:
 - (1) In-patient mortality 20%
 - (2) Unfavorable outcome (discharge disposition to long term facility/hospice) 71%
 - (3) Mean hospital length of stay 10 days (SD ± 10)
 - (4) Mean hospital costs \$177,000 (SD ± \$145,000)
- Results II – Patients with AF versus without AF (Figure 2)
- (1) AF patients had a more mean hospital cost (non-A fib; 169,409\$ vs. A fib; 183,332\$ p=0.001)
 - (2) AF patients were less commonly discharged to a long term facility/hospice [68% for AF and 76% for patients without AF; P=0.001, Cox-Snell R2=0.172, Binary multiple logistic regression]
 - (3) In-hospital mortality and Length of hospital stay did not show any differences between AF and without AF [P=0.355, P=0.065 for each]

Conclusions

Employing the NIS cohort from 2006 to 2013 and identifying about 5,500 patients undergoing thrombectomy we identified that patients with atrial fibrillation/flutter (AF) have a significantly more favorable outcome than those without AF

Learning Objectives

The presence of AF can be used to risk stratify the outcome in acute stroke patients undergoing invasive recanalization therapy

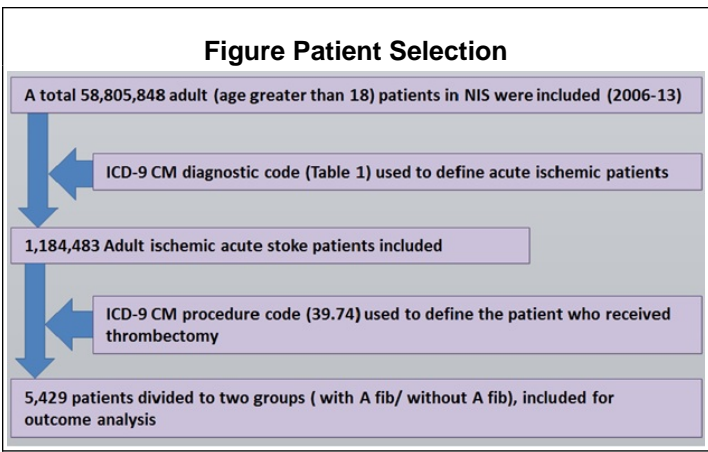


Table 1 Outcome comparison

	In-Hospital Mortality	Length of stay(+SD)	In-Hospital Mortality	Unfavorable discharge	Mean hospital costs (+SD)
Without AF	20%	10 +8.6	20%	68%	169,409\$ (+128,324)
AF	20.5%	10.2 +11	20.5%	76%	183,332\$ (+158,660)
P-Value	0.355	0.065	0.355	0.001	0.001