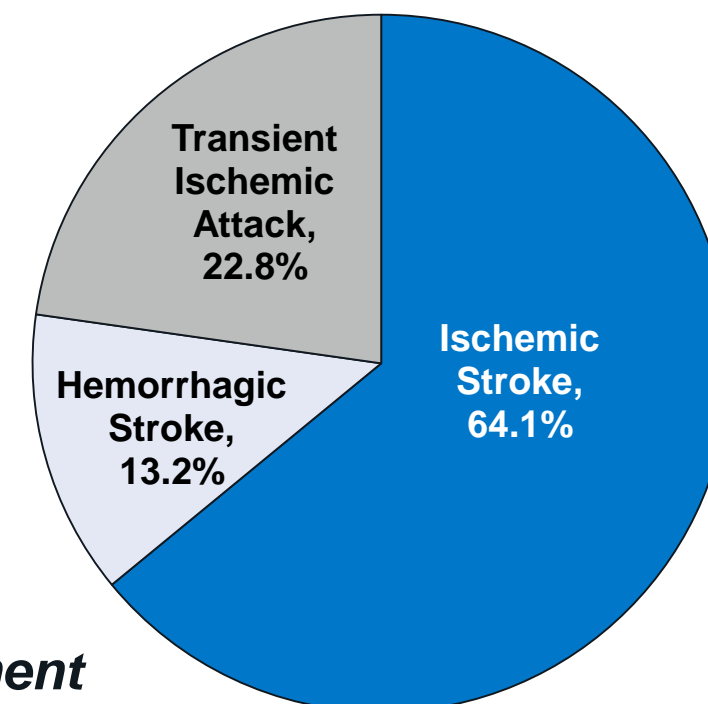


Endovascular Treatment in New York State: Before and After Updated AHA Guidelines

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Introduction

The burden of stroke in New York State (NYS) is significant with stroke and transient ischemic attacks accounting for over 41,000 hospital discharges in 2014. A majority of these discharges are associated with acute ischemic stroke (IS).



Endovascular Treatment

Thrombolysis with recombinant tissue plasminogen activator (tPA) has been the primary treatment for IS with occlusion for the past 20 years. Mechanical thrombectomy devices, approved by the FDA in 2004, were not part of the standard treatment regimen for patients with IS until the 2015 release of updated guidelines recommending the use of endovascular interventions for the early management of acute IS within six hours of last known well for patients who meet specific criteria.¹

What was the Goal of this Study?

The goal of this study was to describe regional and state trends in endovascular treatments in NYS before and after the release of the updated guidelines.

Data Sources and Methodology

Data Source

The Statewide Planning and Research Cooperative System (SPARCS), an all-payer database with patient level data on demographics, diagnoses, treatments, services, and charges for every acute care hospital discharge in NYS.²

Years of Analysis

January 01, 2014 through December 31, 2014 (Q1 through Q4)
January 01, 2015 through September 30, 2015 (Q1 through Q3)

Methodology

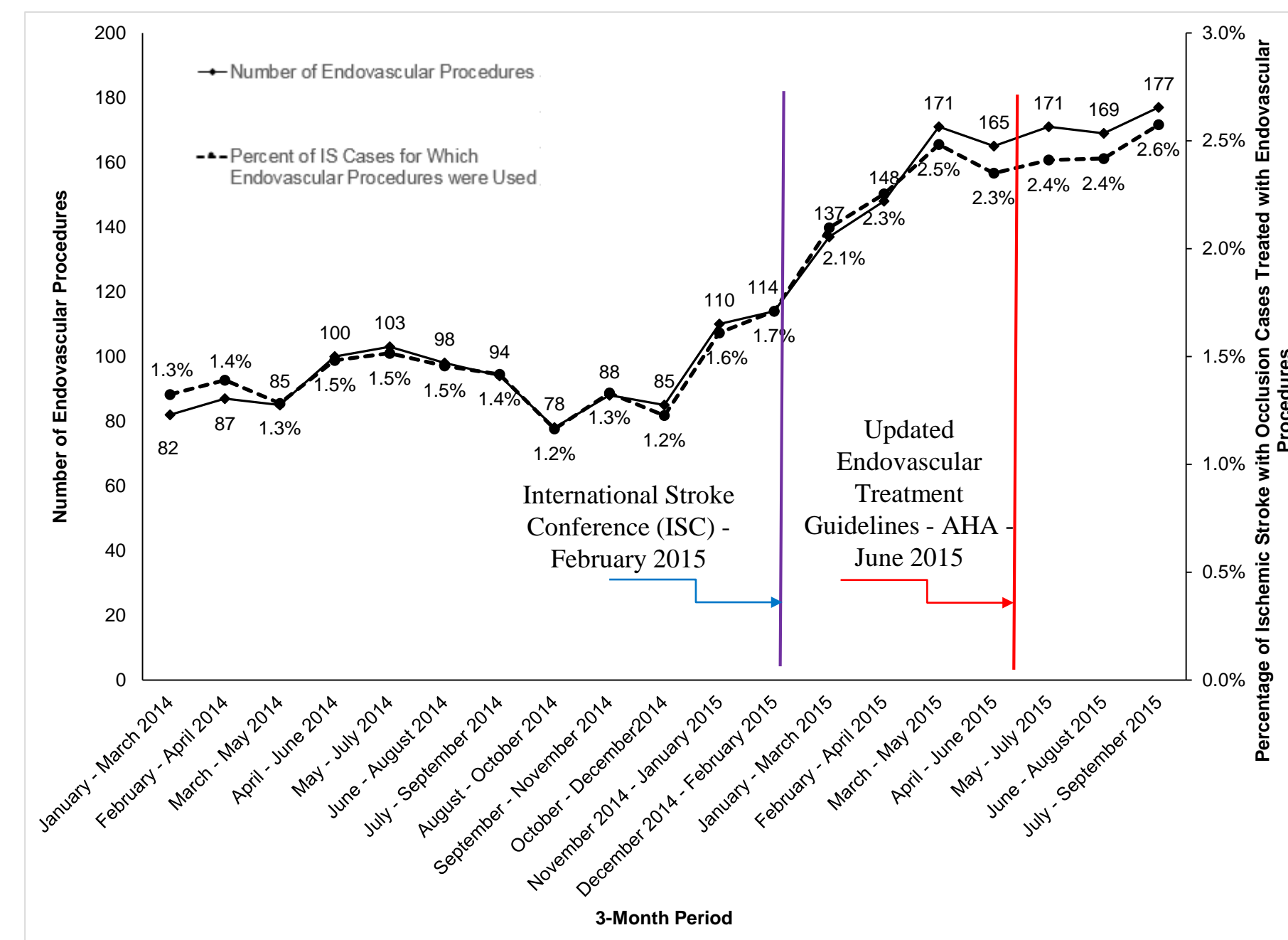
The SPARCS administrative-data was used to identify all discharges associated with acute IS with occlusion (ICD-9 Codes 433.x1 and 434.x1) and the in-hospital treatment(s) administered for IS.² Three-month rolling trends were calculated for the total number of endovascular procedures (39.7x) performed and the percentage of IS with occlusion cases treated using endovascular techniques. Stratified analyses were conducted to describe hospitals performing endovascular procedures by hospital location, teaching status, NYS stroke center designation status, comprehensive stroke center status, and Coverdell participation status.

NYS Hospitals Performing Endovascular Treatments by Number of Procedures

Endovascular Procedures (N)	Q1 to Q3 2014		Q1 to Q3 2015	
	Hospitals (N)	Hospitals (%)	Hospitals (N)	Hospitals (%)
Less Than 5	9	33.3	4	13.8
5 to 9	7	25.9	6	20.7
10 to 14	6	22.2	7	24.1
15 to 19	0	0.0	5	17.2
20 to 24	2	7.4	3	10.3
25 to 29	0	0.0	0	0.0
30 to 34	2	7.4	2	6.9
35 to 39	1	3.7	0	0.0
40 to 44	0	0	0	0.0
45 to 49	0	0	1	3.4
50 or More	0	0	1	3.4
Number of Hospitals	27	100.0	29	100.0

Results

3-Month Rolling Trends



Endovascular Treatments in NYS by Region and Teaching & Stroke Center Status

	2014 (Q1 to Q3) Claims		2015 (Q1 to Q3) Claims		% Change
	N	%	N	%	
Total (Q1 through Q3)	276	100.0	479	100.0	73.6
HSA Region					
New York City	112	40.6	199	41.5	77.7
Western NY	48	17.4	89	18.6	85.4
Nassau/Suffolk	28	10.1	43	9.0	53.6
Central NY	30	10.9	42	8.8	40.0
Hudson Valley	11	4.0	35	7.3	218.2
Northeastern NY	11	4.0	32	6.7	190.9
Finger Lakes	14	5.1	24	5.0	71.4
NY/Penn	22	8.0	15	3.1	-31.8
Teaching Hospital Status					
Non-Teaching	0	0.0	19	4.0	--
Teaching	276	100.0	460	96.0	66.7
NYS Stroke Center Status					
NYS Stroke Center	274	99.3	479	100.0	74.8
Not a NYS Stroke Center	2	0.7	0	0.0	-100.0
Comprehensive Stroke Center (CSC) Status*					
Not Comprehensive	177	64.1	343	71.6	93.8
Comprehensive*	99	35.9	136	28.4	37.4

*Designated by Joint Commission or DNV

Endovascular Procedures at NYS Stroke Ctrs	2014 (Q1 to Q3) Claims		2015 (Q1 to Q3) Claims		% Change
	N	%	N	%	
Total (Q1 through Q3)	274	100.0	479	100.0	74.8
Coverdell Center	161	58.8	298	62.2	85.1
Non-Coverdell Center	113	41.2	181	37.8	60.2

Discussion and Conclusions

Discussion (3-Month Rolling Trends)

- In 2014, 1.2-1.5% of IS with occlusion cases received endovascular treatments versus 2.1% to 2.6% of cases in Q1 to Q3 of 2015.
- The 3-month rolling trends show an increase in endovascular treatments (from 1.7% to 2.5%) in the months following the 2015 ISC.
- There was a slight increase in endovascular procedures after the release of the June 2015 endovascular treatment guidelines, but the procedures remained relatively stable in count and percentage between May and September 2015.

Discussion (Stratified Analyses)

- Approximately 41% of the endovascular treatments in NYS were performed in New York City.
- Endovascular treatments were provided at 29 hospitals in 2015. All of the treatments were at NYS stroke centers, 96% were at teaching hospitals, 62% at Coverdell centers, and 28% at centers also designated as a CSC.
- The number of endovascular procedures performed at Coverdell hospitals increased by 85% between Q1 to Q3 of 2014 and the same time period in 2015.

Key Findings

- There was a 74% increase in the total number of endovascular procedures performed during the first three quarters of 2015 compared to 2014.
- There was an increase in endovascular procedures after the 2015 ISC followed by a slight dip during Q2 of 2015. While there was a slight rise in procedures again after the release of the updated guidelines, endovascular procedures remained relatively flat between Q2 and Q3 of 2015.
- The results of this study provide a baseline for tracking endovascular treatments and regional trends over time.

Future Work

- Ongoing data analysis is needed to track rates of stroke cases with occlusion treated with endovascular procedures, investigate the outcomes for those patients who received endovascular treatments compared to similar patients who did not receive endovascular treatments, and to monitor rates of complications in both groups.

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