Endovascular Therapy in Patients with Mild Ischemic Stroke

Negar Asdaghi, MD
Co-Investigator Core C
5th FL-PR Stakeholder Meeting
Miami
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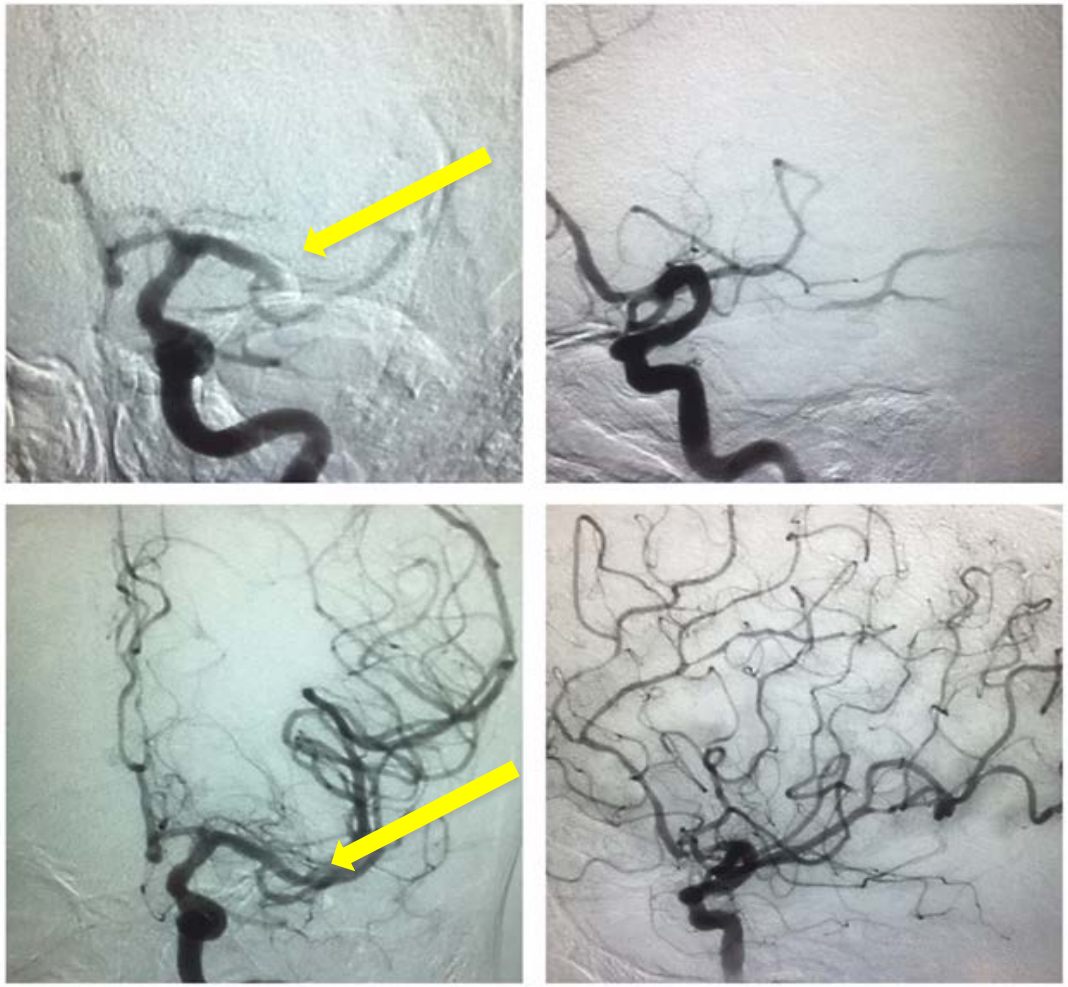
Florida Puerto Rico Collaboration to Reduce Stroke Disparities (FL-PR CReSD)

Revascularization Therapy in Acute Stroke



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New Endovascular Trails in Acute Ischemic Stroke

- MR CLEAN (2015)-Berkhemer et al
- ESCAPE (2015), Goyale et al
- SWIFT-PRIME (2015)- Saver et al
- REVASCAT (2015)-Jovin et al
- EXTEND-IA (2015)-Campbell et al

2015 American Heart Association/American Stroke Association Focused Update of the 2013 Guidelines for the Early Management of Patients With Acute Ischemic Stroke Regarding Endovascular Treatment: A Guideline for Healthcare Professionals From the American Heart Association/American Stroke Association. Stroke, 2015

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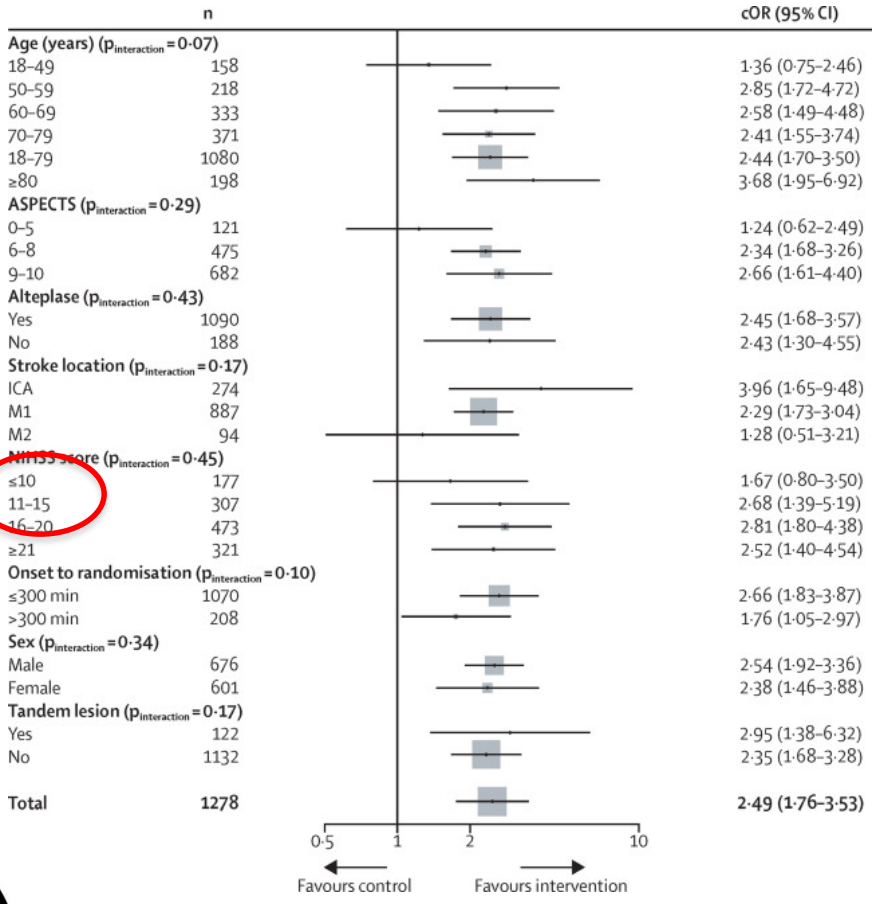
Endovascular Therapy for Minor Stroke Hermes Collaboration



N=1287 patients

N=634 endovascular thrombectomy
N=653 assigned to control

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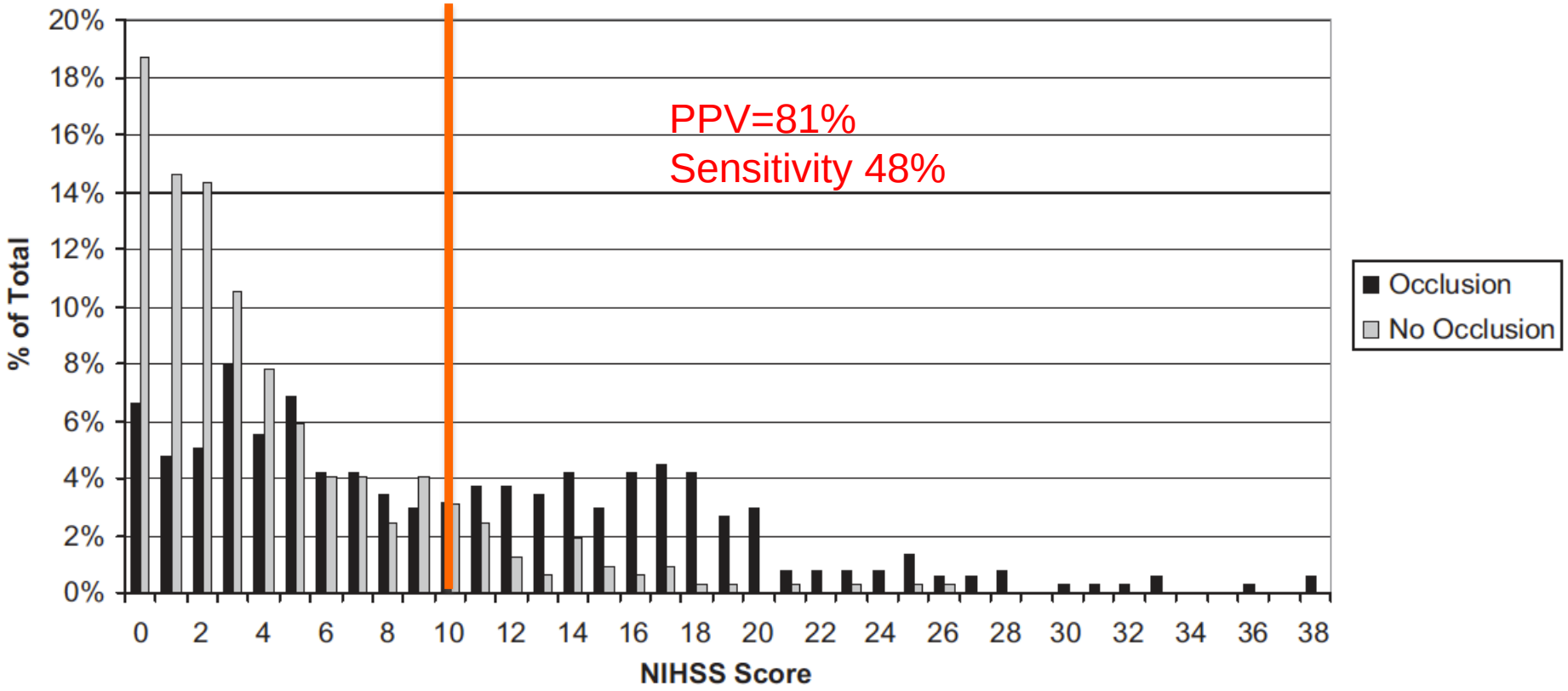
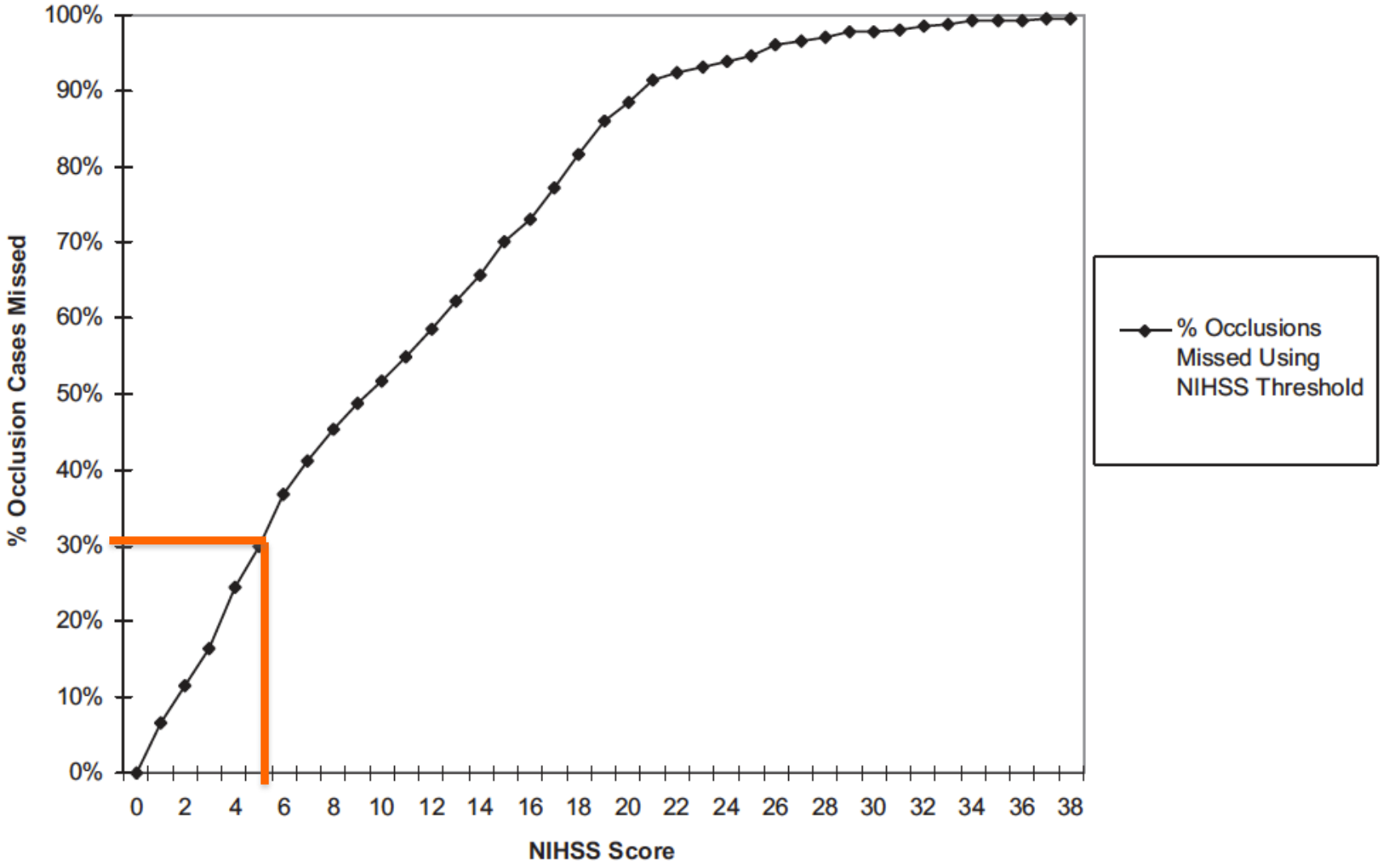
Endovascular thrombectomy after large-vessel ischaemic stroke: a meta-analysis of individual patient data from five randomized trials. Lancet, 2015

NIHSS is a poor Predictor of proximal LVO



National Institutes of Health Stroke Scale Score Is Poorly Predictive of Proximal Occlusion in Acute Cerebral Ischemia. Maas et al, Stroke, 2009

NIHSS is a poor Predictor of proximal LVO



Poor Outcome in Patients with Mild and Rapidly Improving Ischemic Stroke

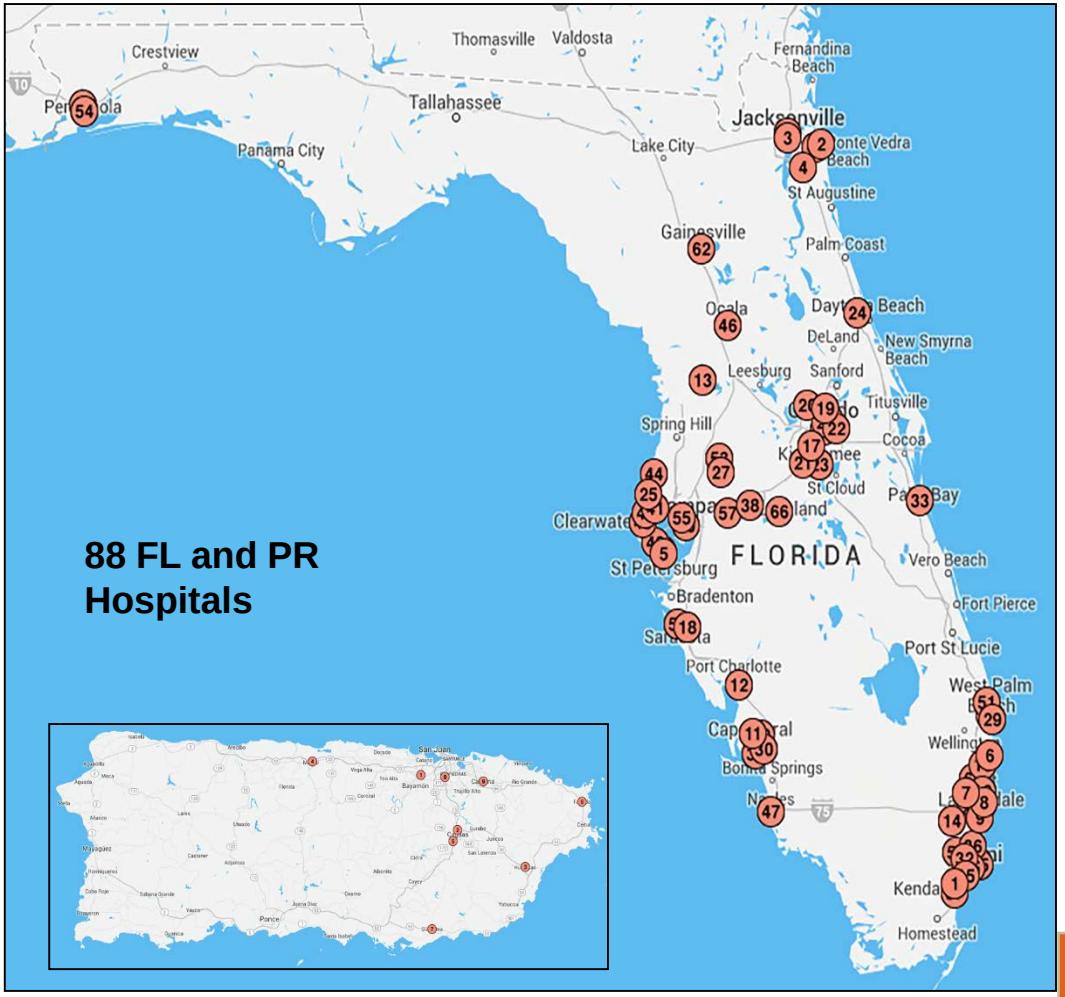
Table 2. Discharge Outcomes According to Stroke Severity for Patients With Mild or Improving Stroke

Mild/ Improving Stroke, NIHSS Score	Discharge Destination			Ambulatory Status at Discharge		
	Total	Not Discharged Home	Percent	Total	Not Ambulating Independently	Percent
0	3229	500	15.5	3025	488	16.1
1	2932	535	18.2	2757	544	19.7
2	3100	735	23.7	2903	695	23.9
3	2475	715	28.9	2305	641	27.8
4	1682	596	35.4	1557	528	33.9
5	1045	411	39.3	971	370	38.1
6–10	2338	1074	46.0	2165	978	45.2
>10	1266	729	57.6	1155	664	57.5

Eric Smith et al. Stroke. Outcomes in Mild or Rapidly Improving Stroke Not Treated With Intravenous Recombinant Tissue-Type Plasminogen Activator. Findings From Get With The Guidelines–Stroke. 2011

Predictors of Thrombolysis Administration in Patients with Minor Stroke in FL-PR Registry

Jan 2010-March 2017



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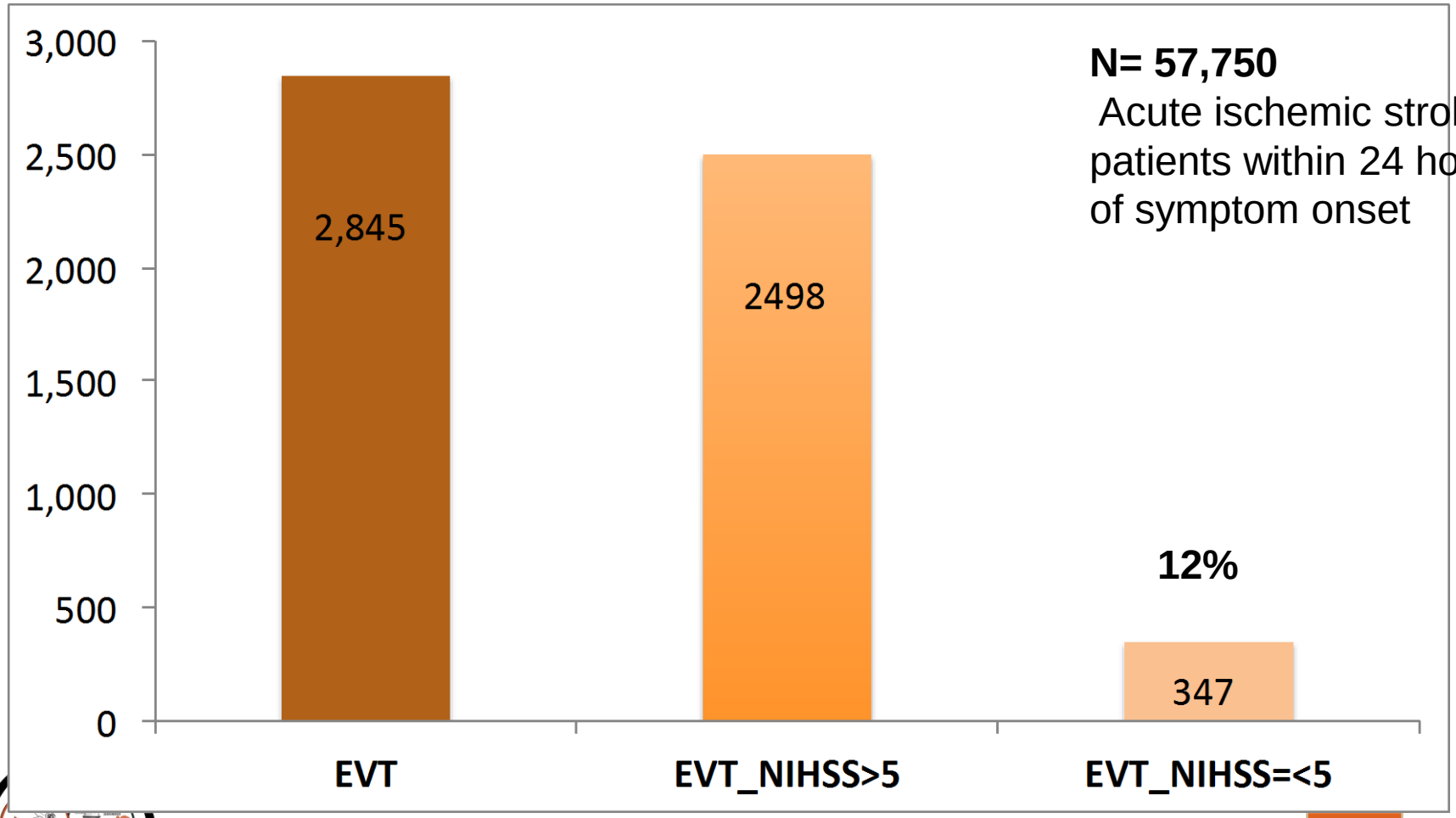
Distribution of EVT Treated Patients based on Stroke Severity



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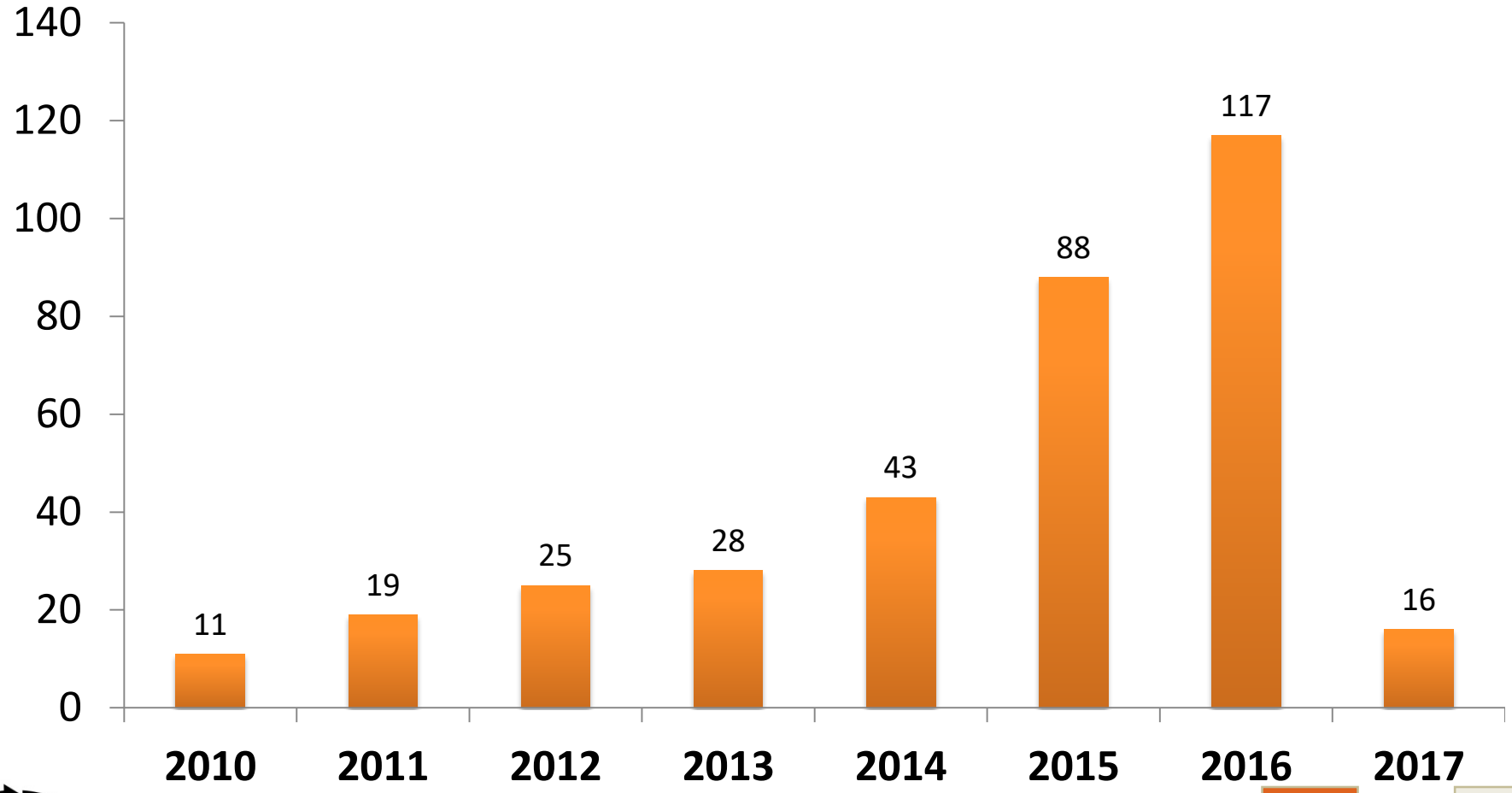
Trends in EVT USE in Patients with NIHSS ≤5



P value for trend <0.001

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Characteristics	EVT (N=2,845)	EVT NIHSS≤5 (N=347)	EVT NIHSS>5 (N=2,498)	Unadjusted P-value	Adjusted P-value
Age (yrs), mean ± SD	71±14	67±14	71±14	< 0.0001	< 0.0001*
Sex (Male), N %	1414 (49.7)	200 (51.9)	1214 (48.6)	0.002	0.81
Race-Ethnicity, N %				0.38	
NH-White	1713 (60.2%)	216 (62.2%)	1497 (59.9%)		Reference
NH-Black	423 (14.9%)	43 (12.4%)	380 (15.2%)		0.008*
FL-Hispanic	701 (24.6%)	88 (25.4%)	613 (24.5%)		0.31
PR-Hispanic	8 (0.3%)	0	8 (0.3%)		Not included for convergence

Adjusted for age, sex, vascular RFs, arrival time, hospital level characteristics

Vascular Risk Factors, N %	EVT (N=2,845)	EVT NIHSS≤5 (N=347)	EVT NIHSS>5 (N=2,498)	Unadjusted P-value	Adjusted P-value
Current smoker	415 (14.6%)	63 (18.2%)	352 (14.1)	0.04	0.92
Hypertension	1820 (64%)	240 (69.2%)	1580 (63.3%)	0.03	0.02*
Diabetes Mellitus	637 (22.4%)	73 (21%)	564 (22.6%)	0.52	Not included
Dyslipidemia	930 (32.7%)	127 (36.6%)	803 (32.1%)	0.10	Not included

Adjusted for age, sex, vascular RFs, arrival time, hospital level characteristics

Medical History, N%	EVT (N=2,845)	EVT NIHSS≤5 (N=347)	EVT NIHSS>5 (N=2,498)	Unadjusted P-value	Adjusted P-value
CAD/prior MI	599 (21.1%)	76 (21.9%)	524 (20.9%)	0.68	Not included
Previous stroke/TIA	585 (20.6%)	87 (25.1%)	498 (19.9%)	0.03	0.38
A-fib	1031 (36.2%)	87 (25.1%)	944 (37.8%)	<0.0001	<0.0001*

Adjusted for age, sex, vascular RFs, arrival time, hospital level characteristics

Predictors	All (N=6,826)	Received tPA (N=1,281)	No tpA (N=5,545)	Unadjusted P-value	Adjusted P-value
NIHSS (Median), IQR	2 (3)	4 (2)	2 (2)	< 0.0001	< 0.0001*
Clinical Signs/symptoms, N %					
Weakness	3,420 (50.1)	738 (57.6)	2,682 (48.4)	< 0.0001	0.44
Aphasia	2,253 (33.0)	533 (41.6)	1,720 (31.0)	< 0.0001	0.04*
Altered Level of Consciousness	494 (7.2)	67 (5.2)	427 (7.7)	0.002	0.66

Florida Puerto Rico Collaboration to Reduce Stroke Disparities (FL-PR CReSD)

Adjusted for age, sex, vascular RFs, arrival time, hospital level characteristics

	EVT (N=2,845)	EVT NIHSS≤5 (N=347)	EVT NIHSS>5 (N=2,498)	Unadjusted P-value	Adjusted P-value
Time to Arrival (min, IQR)		128 min	102 min	0.02	0.01*
Arrival < 2 hours	1513 (53.2%)	164 (47.3%)	1349 (54%)		
Arrival 2-3.5 hours	440 (15.5%)	52 (15%)	388 (15.5%)		
Arrival 3.5- 4.5 hours	198 (7%)	23 (6.6%)	175 (7%)		
Arrival Time (%)					
On –hours	1331 (46.8%)	177 (51%)	1154 (46.2%)	0.09	0.11
Off- hours	1514 (53.2%)	170 (49%)	1344 (53.8%)		

Adjusted for age, sex, vascular RFs, arrival time, hospital level characteristics

In Hospital Metrics	EVT (N=2,845)	EVT NIHSS≤5 (N=347)	EVT NIHSS>5 (N=2,498)	Unadjusted P-value	Adjusted P-value
DTCT within 25 min (%)	60%	55%	62%	<0.01	0.03*
Time to puncture	176 min	192 min	128 min	<0.0001	0.01*

Adjusted for age, sex, vascular RFs, arrival time, hospital level characteristics

Hospital Size	EVT (N=2,845)	EVT NIHSS≤5 (N=347)	EVT NIHSS>5 (N=2,498)	Unadjusted P-value	Adjusted P-value
IV tPA Volume				<0.0001	0.20
High IV tPA Volume	2458 (86.4%)	268 (77.2%)	2190 (87.7%)		
Low IV tPA Volume	387 (13.6%)	79 (22.8%)	308 (12.3%)		
Teaching Hospital Status				0.001	0.30
Non Academic Hospital	1851 (65.1%)	253 (72.9%)	1598 (64%)		
Academic Hospital	994 (34.9%)	94 (27.1%)	900 (36%)		

Adjusted for age, sex, vascular RFs, arrival time, hospital level characteristics

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	EVT (N=2,845)	EVT NIHSS≤5 (N=347)	EVT NIHSS>5 (N=2,498)	Unadjusted P-value	Adjusted P-value
Regions in Florida, %				<.0001	
South Florida	55.3	66.9	53.6		REF
East Central	12.1	10.7	12.3		0.8
West Central	22.5	13.3	23.8		<0.0001
North and Panhandle	9.8	9.2	9.9		0.56

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Summary

- More than 1 in 10 cases that received EVT had mild neurological symptoms.

- Many factors including hospital expertise and time of presentation affect the use of this treatment.

Florida Puerto Rico Collaboration to Reduce Stroke Disparities (FL-PR CReSD)

Summary

- Disparities are heightened in the areas of Medicine that are in the forefront of research and are not considered “standard of care”