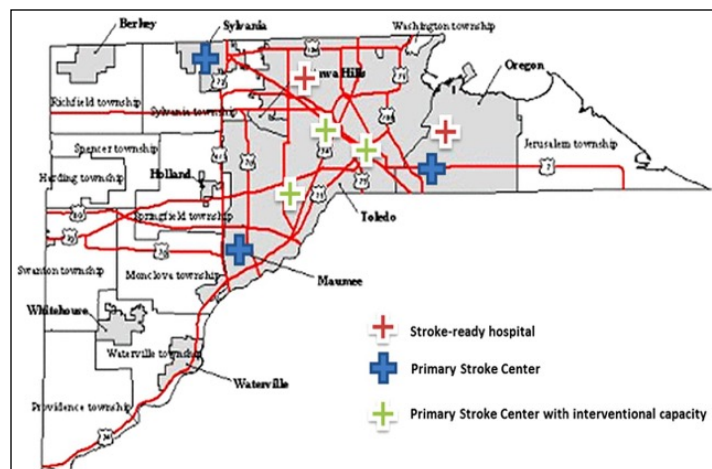


Learning Objectives

To determine if Rapid Arterial Occlusion Evaluation Alert (RACE) bypass protocol implementation significantly delays IV-tPA delivery to patients undergoing mechanical thrombectomy.



Introduction

There is concern regarding hospital bypass protocols potentially compromising IV-tPA treatment due to transit time delay. We compared our IV-tPA time efficiencies before and after Rapid Arterial Occlusion Evaluation Alert (RACE) bypass protocol (RA) implementation in Lucas County (LC).

Methods

The RA protocol whereby RACE score =5 patients are transferred directly to comprehensive stroke center (CSC) for potential mechanical thrombectomy (MT) was implemented in July 2015. All stroke alerts (SA) that underwent MT from July 2013 through June 2015 were compared to MT cases performed following RA protocol implementation. Transfers from other counties, private transport and in-hospital cases were excluded. Basic demographics, risk factors, 911 activation to treatment time, and outcomes were compared.

Results

Between Jul 2015-Jun 2017, 68 RA patients underwent MT of which 38 (55.9%) were given IV-tPA at the CSC. Whereas in the preceding 2 years from Jul 2013-Jun 2015, 56 SA patients underwent MT, of which 22 (39.1%) received IV-tPA. Of these SA cases, 11 (50%) were drip and transfer from other LC ERs and the remaining 11 (50%) presented directly to CSC. The two groups were comparable with regards to baseline characteristics, NIHSS and ASPECT scores. The 911 activation to 1st ER arrival were comparable (RA=30 vs. SA=34 mins, $p=0.4$), whereas tPA administration was significantly faster (RA=58 vs. SA=88 mins, $p < 0.05$) in the RA cohort. A non-significant trend towards higher rate of favorable outcome in the RA cohort was noted (RA=48.5 vs SA=37.5, $p=0.2$). RACE Alert: 22/34 patients underwent further MT. Stroke Alert: 38/48 patients underwent MT.

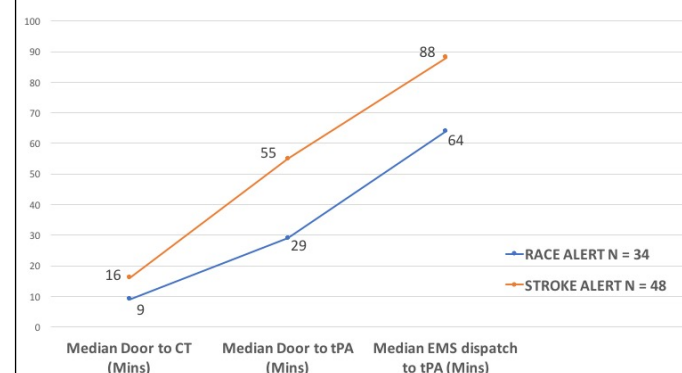
IV tPA Treatment in RACE vs. Stroke Alert

	RACE ALERT (N = 34)	STROKE ALERT (N = 48)	P-value
Median Age	70 (61-81)	71.5 (56.5-82.5)	0.5
Gender – Female (%)	18 (52.9)	27 (56.2)	0.6
Median NIHSS (IQR)	16 (13-20)	18 (13-21)	0.15
Afib %	29.3	37.6	0.6
Hypertension	76	69	0.9
CAD %	45.8	31.1	0.08
Dyslipidemia %	35	37	0.1
Diabetes %	13	18	0.7
Smoking %	15	21	0.6

IV tPA Treatment in RACE vs. Stroke Alert

	RACE ALERT (N = 34)	STROKE ALERT (N = 48)	P-value
Median EMS Dispatch to ER Arrival (Mins)	29 (26-37)	34 (30-38)	0.4
Median EMS on scene time (Mins)	14 (11-19)		N/A
Median Door to CT (Mins)	9 (8-14)	16 (14-26)	0.08
Median Door to tPA (Mins)	29 (21 – 42)	55 (47-66)	<0.05
Median EMS dispatch to tPA (Mins)	64 (49-81)	88 (77-97)	<0.01
3 Months mRS 0-2 (%)	16 (47)	17 (34)	0.12
SICH (%)	3 (9)	4 (6.2)	0.1

RACE vs. Stroke Alert



Conclusions

Within LC, the RA bypass protocol did not result in a significant delay to ER arrival and it significantly expedited IV-tPA delivery to patients undergoing MT. Further prospective studies are warranted to assess the generalizability of this protocol.