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### CT Rapid Implementation in a 600+ Bed Hospital Serving 35 Counties in the Southeast

Christopher Burns DO

*HCA Healthcare*, christopher.burns2@hcahealthcare.com

Adam Kassar MD

*HCA Healthcare*, mohammed.kassar@hcahealthcare.com

Jacob Beltz MD

*HCA Healthcare*, jacob.beltz@hcahealthcare.com

Klie Hoffa

Klie.Luise.Hoffa@live.mercer.edu

Peter Britt

*HCA Healthcare*, Peter.Britt@hcahealthcare.com

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# CT Rapid Implementation in a 600+ Bed Hospital Serving 35 Counties in the Southeast.

Christopher Burns DO, Adam Kassir MD, Jacob Beltz MD, Eric K. Shaw PhD, Peter Britt MD.

## Introduction

- As a newly designated Primary Stroke Center, our institution tackled the task of triaging, analyzing, and treating acute cerebrovascular accidents (CVA).
- We chose to implement CT Perfusion (CTP) - termed CT Rapid - in order to direct thrombectomy care.
- This study aims to assess the sensitivity and specificity of CTP in identifying acute CVA over the first year of implementation.

## Background

- Current CVA diagnostic workup at our community hospital is labeled "CT BATT" which is comprised of a non-contrast CT head, CT angiogram of the head and neck, and CT Rapid of the brain.
- CTP allows for the differentiation of penumbra versus core infarct. The results of CTP are one tool used to determine if a patient is a candidate for thrombectomy.

## Methods

- This single center study was performed at a community hospital and examines data collected in 2018-2019.
- Inclusion criteria: All patients that underwent CT BATT with follow up CT head of MRI brain.
- Exclusion criteria: Any patient without follow up CT head or MRI brain or if CTP was non-diagnostic.
- Retrospective analysis of CT BATT examinations were performed in patients with suspected large vessel occlusion (LVO) CVA with follow up MRI brain and/or non-contrast CT head.
- Large region of perfusion defect was defined as involvement of the ICA, MCA, M1 MCA, vertebral artery or basilar artery (1).
- Statistical analysis was performed using: Diagnostic test calculator (2).

## Results

- 226 out of 284 patients met inclusion criteria.
- Initial results: CTP demonstrated 62.7% sensitivity, 92.9% specificity.
- 8.6 positive likelihood ratio, 0.41 negative likelihood ratio
- Diagnosis of small and large vessel CVA's by CTP demonstrated a false negative rate at 51.2% and 0% respectively.

## Conclusion

- In our community based hospital setting, CTP allowed easy, efficient and timely categorization of LVO stroke in order to enable thrombectomy.
- Small vessel ischemic strokes were not well evaluated and we recommend continued use of non emergent MRI to diagnose this patient population.

## References

1. "Large Vessel Occlusion (LVO)." *Large Vessel Occlusion (LVO) (v2018B1)*, The Joint Commission.
2. Diagnostic test calculator (version 2010042101) <http://araw.mede.uic.edu/cgi-bin/testcalc.pl?DT=79&Dt=49&dT=7&dt=91&x2=Compute>

