

2-2021

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Evaluating the Efficacy of Telestroke Intervention on Stroke Care in a Large Hospital Network



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Introduction: What is Telestroke?

- Telestroke medicine involves clinical stroke care by **digitally** connecting patients and their providers to neurovascular specialists
- Aims to decrease the time to thrombolytic reperfusion during an acute ischemic stroke^{1,2}

Introduction: Why is Telestroke important?

- Rapid administration of intravenous tissue plasminogen activator (iv-tPA) vastly improves stroke outcomes³
- Only 55% of individuals in the U.S. have access to a primary stroke center that is within a one hour drive^{4,5}
- No large scale research to date has evaluated the effectiveness of Telestroke medicine



Objectives & Hypothesis

- **Research Question:** Does Telestroke utilization across the Jefferson Hospital Network increase thrombolytic reperfusion rates and improve overall stroke outcomes when compared to the standard of care?
- **Hypothesis:** Telestroke utilization across the Jefferson University Hospital network will increase thrombolytic reperfusion rates and improve overall stroke outcomes related to morbidity and mortality

Approach & Results

- **Study design:** Retrospective cohort
- **Population:** 9,702 patients across 36 hospital affiliates
- **Intervention:** Telestroke consult with primary neurovascular specialist from main TJUH
- **Data source and collection:** Jefferson Telestroke database using patients evaluated for an AIS through Telestroke from 2014-2019
- **Rationale for Approach:** With outcomes already documented (rate of iv-tPA administration and NIHSS stroke severity score), a retrospective cohort design was employed

Approach & Results

- **Analysis:**
 - Our data was compared to previous studies that represent the current standard of care⁶ without Telestroke through utilization of T-test and ANOVA analysis
 - Analysis is still in progress and significantly behind schedule

Approach & Results

- **Findings:**

- Preliminary analysis demonstrated that 807 out of 9,702 patients (8.3%) evaluated for AIS received iv-tPA when compared to a national average of 3.4%-5.2%⁶
- A statistically significant improvement in NIHSS score from baseline to after administration of iv-tPA ($p < 0.0001$; 95% confidence interval [CI] = 4.27, 7.80) was found in this cohort

Conclusions

- The results of this study support the hypothesis that Telestroke increases the rate of administration of iv-tPA when compared to the national average and improves AIS outcomes
- The study describes the effectiveness of Telestroke and demonstrates a need for implementation nationally to improve stroke care

Future Directions

- Primary goal will be to finish the analysis and paper in the coming months by analyzing more outcome data
 - This includes morbidity and mortality related to dual iv-ivtPA and thrombectomy treatment
 - Complications and functional outcomes after initial recovery beyond NIHSS score

Acknowledgements

- Thank you to Dr. Sweid for being a great mentor and helping me throughout my research career
- Thank you to Daniel Moylan, Charles Morse, Michael Knapp for helping to collect all of the data



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- Image 2: <https://www.aamc.org/news-insights/teaching-hospitals-take-lead-stroke-treatment>
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