INTRODUCTION

- The national average from dying from a stroke is 37.2% but in Eastern North Carolina the risk of dying from a stroke is greater than 50%.
- In recent years protocols have been developed in many emergency departments to improve response time, improve emergent stroke recognition, and provide more streamlined care, this is commonly referred to as a “code stroke” upon presentation to the emergency department.
- This presents a massive financial cost on both patients and health-care systems.
- In this retrospective, cross-sectional, observational analysis we studied adult patients that present to Vidant Medical Center Emergency Department with a code stroke activation between 1/1/2015 and 12/31/2019.

HYPOTHESIS

We hypothesized, that by studying code stroke activations and outcomes in the ED, that we would be able to identify predictor variables indicative of a code stroke activation for a true stroke diagnosis.

NIH Stroke Scale

Of the patients who met inclusion criteria, many variables and values were collected from each encounter for further analysis including:
- Demographics: age, sex, race, ethnicity, insurance status
- Times: door to CT, door to TPA, symptom onset, length of stay in the hospital, length of stay in the ICU
- Medical Histories Of: stroke, liver disease, end stage renal disease, diabetes, atrial fibrillation, sedentary lifestyle, cancer, dyslipidemia, hypertension, clotting disorder, patent foramen ovale
- Social Histories Of: cocaine use, IV drug use, smoking
- Medication Histories: anticoagulants, antplatelets, oral contraceptive pills, hormones, chemotherapeutics, insulin
- Diagnostics: CT results, CTA results, CT Perfusion results, MRI results, stroke panel values, vital signs
- Interventions & Outcomes: tPA administration, thrombectomy performed, cranial decompression performed, final outcome, ED diagnosis, discharge diagnosis
- Scores: Initial NIHSS by Emergency Department & Stroke Team, NIHSS at discharge, mRS at discharge

The necessary sample size for this study was calculated to be 341 using STATA®14 assuming an alpha of 0.05 and a power of 0.9.

A logistical regression model will be used to determine an NIH stroke scale level as well as identify variables and values that are predictive of a stroke.

- Thus far, we have successfully completed review of 1283 patient charts. 339 of these charts were activated code strokes and thus were our target population.

Methods and Data Collection

Figure 1: Hemorrhagic stroke. Arrows indicate areas affected by this type of stroke. Lighter areas show the bleeding from the stroke.

Figure 2: Ischemic stroke. The arrows indicate the affected parts of the brain. Darker areas show how this has impacted the brain.

Figure 3: Data input tool used in Microsoft Excel. Each variable was assigned number values and transposed into data sheet to be used for statistical processing.

Discussion and Observations

- Although still waiting for data collection completion before beginning statistical analysis, several trends have been identified in the data.
  - It will be of interest to see if there is a statistical significance to these trends.
- Our Major question for the study is how predictive is the National Institute of Health’s Stroke Scale (NIHSS) in determining whether a patient is having a stroke (and thus, a ‘code stroke’ needs to be called in the ED).
- On visual analysis, it appears that a surprisingly large population of patient’s present to the ED outside of the IPA window.
  - Being outside of the IPA window has implications in the treatment plan and prognosis if the patient is having an ischemic stroke.
- The most common diagnosis for patients who did not actually have a stroke (Were a code stroke, but pt. did not actually have a stroke) was a Transient Ischemic Attack (TIA).
- As expected, many patients that presented as code-stroke to the ED had a medical history with any combination of: Diabetes Mellitus, Hypertension, Atrial Fibillation, and smoking history.
  - It will be of interest to see if having a certain number of chronic medical conditions is a good indicator of an actual stroke.

NEXT STEPS

Once we complete data collection, which we are expecting to complete as quickly as possible (within 5-6 weeks), we will compile all the data and present it for statistical analysis.
- We will be working with a statistician to analyze the data via a linear regression.
- First, as mentioned prior, we will analyze whether the NIHSS is a good predictive tool for determining if a patient is having a stroke or not.
  **Following data analysis this poster will be updated with our data***.

REFERENCES


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