INTRODUCTION

- The national average risk of 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 to improve response time, improve emergent stroke recognition, and provide more streamlined care, frequently through a "code stroke" or a "stroke activation" upon presentation to the Emergency Department.
- At Vidant Medical Center this involves the immediate consultation/presence of a stroke neurologist along with the stroke team, laboratory studies and imaging.
  - This presents a massive financial cost on both patients and healthcare systems.
  - As a result both sensitive and specific recognition of stroke symptoms is important.
  - Current practice centers around rapid stroke identification via use of the NIH Stroke Scale (NIHSS).

RESULTS

In the data set previous work had demonstrated strong correlation between NIHSS performed by EM Physicians and Stroke Neurologists. The data also showed that a large portion of those with elevated scores did not have a stroke and this was more frequent at the lower range of scores. Average NIHSS for stroke patients was 8.8 ± 0.5 (233) and in non stroke patients was 6.1 ± 0.6 (106). Tables below show the NIHSS by Risk Factor where a significant effect was found and divided by stroke presence and risk factor where an interaction effect was seen.

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Mean ± SE (Count)</th>
<th>Effect Type</th>
<th>Significance</th>
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<tbody>
<tr>
<td>No</td>
<td>7.8 ± 0.4 (275)</td>
<td>Independent</td>
<td>&lt;.05</td>
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</table>

HYPOTHESIS

Previously recognized risk factors for stroke will influence probability of stroke when comparing comparable NIH Stroke Scale scores.

METHODS

This is a retrospective review of stroke patients who presented to the Emergency Department at Vidant Medical Center from January 2015 - December 2019 at a Comprehensive Stroke Center. 368 of 1283 charts reviewed met inclusion criteria of "Code Stroke" activation and primary exclusion criteria was transfer from an outside facility or code stroke cancellation. Demographic and comorbidity data was collected along with primary outcomes of emergency physician and stroke neurologist NIHSS scores and final diagnosis of stroke vs non-stroke. Data was analyzed in the software package R with a linear regression model. Risk Factors recorded included Anticoagulant Use, Atrial Fibrillation, BMI, Clotting Disorder, Cocaine Use, Diabetes, Dyslipidemia, ESRD, Hypertension, IV Drug Use, Liver Disease, Malignancy, Sedentary State, Smoking History, Stroke History.

DISCUSSION AND OBSERVATIONS

- Most risk factors for stroke did not influence outcome based on presenting NIHSS in this study.
- Several risk factors had independent effects on NIHSS scores (Increased with Atrial Fibrillation, Cocaine Use, Liver Disease, PFO Presence; Decreased with Dyslipidemia, Sedentary State, Hypertension).
- Stroke History had an interaction effect but was not independently associated with elevated scores and patients with prior strokes had strikingly similar scores regardless of outcome.
- Hypertension uniquely had a significant interaction effect and an independent effect; non stroke patients had significantly elevated NIHSS, Patients with HTN did not have good NIHSS separation while patients without HTN had broad separation. This suggests a strong role of HTN related stroke mimics.
- Several examined risk factors were rare and this limits generalizability however the risk factors with interaction effects were broadly distributed.

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REFERENCES


NEXT STEPS

- Further subgroup analysis of presenting vital signs and laboratory studies on final outcome is warranted.
- Identify if there are specific risk factors and presenting vital signs or laboratory studies that greatly increase the risk for stroke.