

Comparing the Utility and Cost of CT Scans vs CTA for Acute Stroke Treatment

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Background

- Stroke is the 4th leading cause of death in the U.S. and the 2nd leading cause worldwide. On average someone in the U.S. dies from stroke every 4 minutes.
- Stroke occurs when blood flow to the brain is severely reduced or cut off. Tissue plasminogen activator (tPA) is a common medication for stroke but must be given no later than 4 hours after the start of stroke symptoms.
- CT scans are used to help diagnose and distinguish between ischemic and hemorrhagic stroke.
- According to Providence ED stroke protocol patients admitted for stroke will receive CT and CTA scans.

Objectives

Primary:

To evaluate the usefulness of a CTA of the brain in setting of suspected acute stroke when determining treatment and outcomes.

Secondary:

To evaluate the financial costs of CTAs.

Methods and Criteria

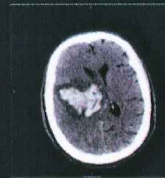
The work ups of Providence acute stroke patients from January 1, 2014 to December 30, 2015 were evaluated for if they received a CT, CTA, and MRI. If a CTA was given, results were analyzed for its effect on treatment, and additional financial costs.

Inclusion Criteria:

- Subject is an acute stroke patient

Exclusion Criteria:

- Subject is not an acute stroke patient
- Subject with a hemorrhagic stroke



CT bleed



CT acute left CVA



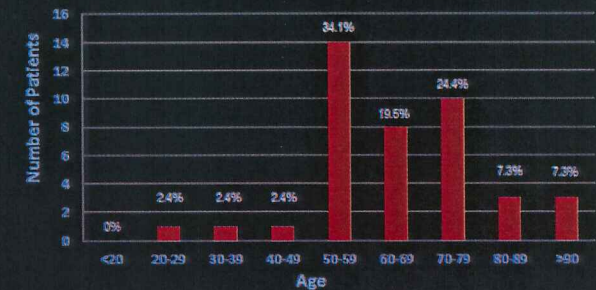
MRI massive right stroke

Results

	tPA Administered?		Total
	No No. of Patients (Column Percentage)	Yes No. of Patients (Column Percentage)	
CTA Results	Negative	21	400
	Positive	11	60
CTA Not Performed		9	183
Total	602	41	643

Results	tPA Administered?		Total
	No No. of Patients (Column Percentage)	Yes No. of Patients (Column Percentage)	
-CT-CTA	21	367	388
-CT+CTA	8	29	37
+CT-CTA	0	10	10
+CT+CTA	3	20	23
Total	32	426	458

tPA Administration by Age



Conclusions

- More tPA treatment was given with negative CTA scans than those with positive CTA scans.
- Removing CTA scans from the acute stroke protocol would reduce patient's cost by 43%.

Citations

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