Pedal to Metal, Stroke in the ER

-Joseph Schramski DO

Goals

To understand the need for quick door to needle times

To discuss ways to improve these at your hospital

To discuss ways to overcome obstacles I have faced

To see into the future of stroke care initiatives.

Why it is important

1) Time is brain, improves good outcomes

1) Time is brain, less risk, decreases bad out comes

1) Joint Commission guidelines and hospital stroke certification

Time is Brain

From: 8 Dec 2005 Stroke. 2005;37:263-266

In patients experiencing a typical large vessel acute ischemic stroke, 120 million neurons, 830 billion synapses, and 714 km (447 miles) of myelinated fibers are lost each hour.

In each minute, 1.9 million neurons, 14 billion synapses, and 12 km (7.5 miles) of myelinated fibers are destroyed.

Decreased Bad outcomes

25,504 acute ischemic stroke patients treated with tPA within 3 hrs of symptom onset at 1082 hospital sites.

After adjustment, every 15 minute reduction in DTN time was associated with 5% lower odds of in-hospital mortality

Fonarow GC et al. Circulation. 2011;123:750-758.

Overall TPA is helpful and safe

For every 100 patients treated with tPA, 32 benefit, 3 harmed.

Most harmed, are bleeding, other rare reactions are seen.

As the time passes

From: Stroke 2009, Jun;40(6) 2079-2084

0-90 min:	NNTB 3.6	NNTH: 65
91-180 min:	NNTB: 4.3	NNTH: 38
181-270 min:	NNTB: 5.9	NNTH: 30
271-360 min:	NNTB: 19.3	NNTH: 14

Joint commission/CMS

Joint commission visits start in the ER.

First thing they asked to review were 2 door to needle cases

Guidelines are door to needle under 60 mins.

Their goal is to standardize stroke care.

How to have fast times

Have a system set up to get the patients in a room, examined, IV access, CT scan, medication given.

This requires coordination from EMS, ER, Pharmacy, Radiology.

Our set up

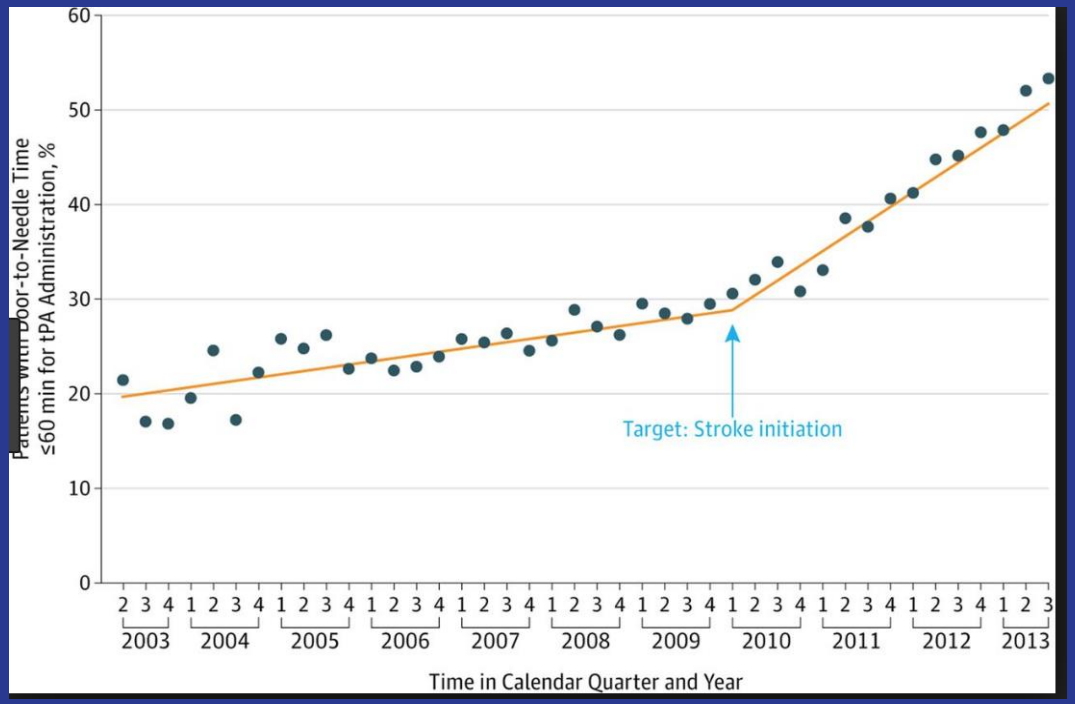
EMS activation >>> Pt seen on arrival >>> Stroke code activated>>> exam/NIHSS done>>> IV obtained>>> Labs sent>>> Pt taken to CT>>> Neurology call back>>> CT viewed/resulted>>> TPA ordered>>> TPA mixed>>> TPA administered.

Obstacles I have encountered

Getting the Physicians to buy in.

A Lot of ER docs hate strokes and TPA, TPA was approved by the FDA in 1996

This Stroke/ door to need initiative started in 2010, several were not trained in it. Most newer doctors were not trained by those who were not trained in it.



It is 60 mins!!!

90 mins is door to balloon,

4.5 hours is the limit from Last known well

60 mins is the door to needle goal.

“If we have 4.5 hours to give it why do I have to give it now?”

It does not take long to figure out the case. If this were a board question you could do it in 60 seconds.

Obstacles continued

Radiology: not calling results, you must call them

Neurology: no obstacles, they want to give TPa to everyone,

Lab: This can be the hardest to overcome.
-most cases don’t need labs
-Get Istat/POC, if you can (we currently don’t have this)

Getting parallel processes

The more you can do simultaneously the better.

-getting consent, getting the CT getting pharmacy to mix the medication

Don’t be afraid to get the process going

-TPA comes in 2 vials, powder and solution. It takes at least 5 mins to mix. And it cost $6400/100 mg.

-We made a deal with our pharmacy to start mixing it when we see the CT.

-If anyone has doubts about my disclosures:

-Trust me, your hospital will get refunded.

Genenetec is not allowed to ask questions. (HIPPA)

-dropped bottle, resolved symptoms, family refuses, ect

Looking forward

During our last inspection I was told goal will be lowered to 45 min.

The Cleveland clinic has Mobile Stroke Units

-Ambulances that have CT scanner, labs, and telemedicine with a neurologist. They are allowed to give TPA en route to the hospital.

Hospital stoke teams

-specialized group to see these patients in ER, and facilitate the process and joint commission guidelines,