

Measuring Impact of Pharmacist Intervention in Acute Stroke Management by Preparing rtPA in the Emergency Department

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Background

A pilot study including a retrospective analysis from 2012 – July 2014 was initiated to identify barriers and to improve our targets in accordance with AHA/ASA guidelines for management of acute stroke; specifically Door to Needle and Decision to Needle times. It was hypothesized that our prolonged times were partially due to the remote location of the pharmacy, a pharmacist not being present to perform dosing calculations and prepare drug, and the lack of a Stroke Kit which contains all necessary tools to prepare and administer rtPA at the bedside. To address these delays, a Stroke Kit was created, and also a pharmacist now has an expanded role on the Stroke Team in an effort to improve our administration times.

Methods

The Stroke Team was expanded to include a pharmacist, which precipitates the following after a Stroke Alert is called:

1. Pharmacist responds to the Emergency Department with a pre-assembled Stroke Kit, which includes all necessary items and supplies to calculate, prepare, and administer rtPA to an eligible patient.
2. If the patient is an appropriate candidate for rtPA, the pharmacist then calculates the dose and prepares the rtPA for administration while the Emergency Department staff prepares the patient for administration of the medication.

After piloting the protocol, it was evident that there was a significant reduction in preparation and administration times. As a result:

1. New guidelines for the Stroke Alert were established, which included adding a pharmacist to our current telephonic alert process.
2. A collaborative approach involving the Departments of Nursing and Pharmacy facilitated the implementation of several hospital-wide educational presentations complete with interactive training.
3. The new process was written into our Stroke Alert protocol, highlighting the importance of a pharmacist responding directly to the Emergency Department.
4. Re-prioritization of the pharmacist response during emergency situations. Factors were examined such as hospital staff's familiarity of ACLS, medication availability on a code cart, and rtPA being a high-alert medication that is infrequently prepared at our institution. The risk-benefit ruling was made that in the event of a concurrent Stroke Alert and a Code Blue during times of limited pharmacy staffing, the pharmacist would first respond to the Stroke Alert.

5. All Stroke Alerts now have real-time debriefing and post-intervention benchmark time feedback. As a measure of our performance, data points are collected which include rtPA ordered to rtPA administration time as well as Door to Needle times.

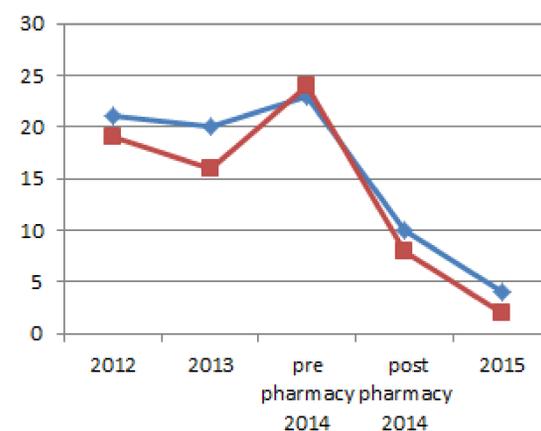
Objectives

Our objectives were twofold - a reduction in both Door to Needle times and rtPA decision to rtPA administration times.

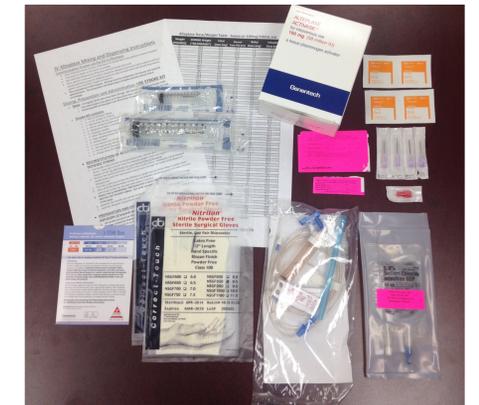
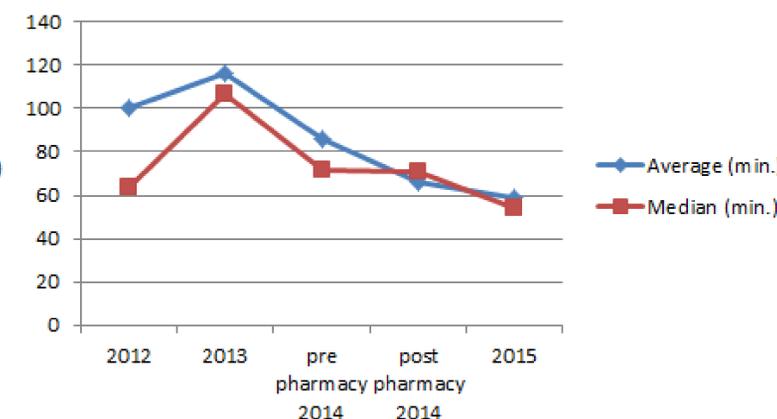
Baseline Characteristics and Preliminary Results

Decision to rtPA Administration			Door to Needle			Comments
	Average (min.)	Median (min.)		Average (min.)	Median (min.)	
2012	21	19	2012	100	64	
2013	20	16	2013	116	107	
Pre-pharmacy 2014	23	24	Pre-pharmacy 2014	86	72	Prior to Pharm Mixing
Post-pharmacy 2014	10	8	Post-pharmacy 2014	66	71	Post Pharm Mixing
2015	4	2	2015	59	54	

Decision to rtPA Administration



Door to Needle (rtPA)



Discussion/Conclusions

This was a collaborative quality improvement and best practice pilot study that has changed the way we provide optimal care in a timely manner to our stroke patients. The addition of a pharmacist to the Stroke Team and the use of a Stroke Kit has become standard practice at UConn Health's Primary Stroke Center. Having a pharmacist present alleviates dosing calculations and preparation of rtPA from Emergency Department, Neurology, and Radiology staff and allows each discipline to focus on their clinical duties during a Stroke Alert. This allows for better collaboration and a reduction in our time to administration, which is imperative to preserve brain function. Based on current data trends, we anticipate the number of our Decision to Needle time cases that are zero to increase, and our Door to Needle times to continue to decrease. A pharmacist utilizing a Stroke Kit to prepare rtPA directly in the Emergency Department played a huge part in UConn Health reaching our benchmarks as a Primary Stroke Center. The unprecedented collaboration between the Stroke Team, Emergency Department staff, and Pharmacy Department demonstrates the high quality stroke care we provide at our organization.

References

"Introducing Target: Stroke Phase II." Target: Stroke. American Heart Association/American Stroke Association, 2015. Web. Accessed 14 October 2015.

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