

Direct to CT Protocol Impacts Door to Needle Times

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Results

Delays in door to CT (DCT) time are strongly correlated to delays in tPA administration. In 2014, the American Heart Association/American Stroke Association released a new time target for stroke patients with a goal of door to needle (DTN) of 45 minutes or less. In an effort to improve Upstate's DTN times, we developed a DCT protocol in collaboration with the Upstate Emergency Department.

The objective of this protocol is to determine the feasibility of sending suspected stroke patients directly to CT scanner from the EMS stretcher and its effect on DCT and DTN times.

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Purpose and Objectives

Best practice strategies from the AHA/ASA Target: Stroke Phase II guidelines were reviewed by Stroke Program leadership and a sub-group of the Stroke Committee was formed. This sub-group had representation by ED physicians and nursing, the stroke coordinator, the stroke medical director and radiology. A quality improvement pilot protocol was developed to send potential stroke patients directly to CT scan. Clinical criteria for protocol implementation was also developed for appropriate patient selection and included all patients arriving by EMS with a positive Cincinnati Stroke Scale, last known well of 0-6 hours, blood sugar WNL and EMS pre-notification. Suspected stroke patients meeting the set criteria have an expedited registration, rapid triage by the ED physician, CVA order set initiated and taken directly to CT scan for a non-contrast head CT. Patient remains on EMS stretcher and are transported by EMS personnel to the CT scanner. Data on DCT and DTN were collected and compared before and after protocol implementation. Wilcoxon rank sum test was used to analyze the data.

Methods and Design

The protocol was implemented on September 15, 2015. The Median DCT prior to protocol implementation was 15.5 minutes (N=305) and post-implementation was 6.5 minutes (N=317), p value = 0.002. The median DCT change was robust and sustained (see figure 1). Treatment time (DTN) improved by as much as 11.6 minutes (49.7 min pre-implementation [N=40] vs 38.1 min post-implementation [N=44] p value=0.0007). Much of the improvement in DTN time can be attributed to the improvement in DCT time.

Conclusion and Implications

In collaboration with Upstate Emergency & Radiology Departments and local EMS agencies, development of direct to CT protocol for patients with suspected stroke is feasible. Direct to CT protocol is associated with a significant reduction in DCT. Improvement in DCT leads to significant and sustained improvement in DTN. Further studies are needed to determine the positive impact of this quality improvement project to patient outcome. Furthermore, added consideration of current TPA administration practices will be evaluated as a means of continuous quality improvement.

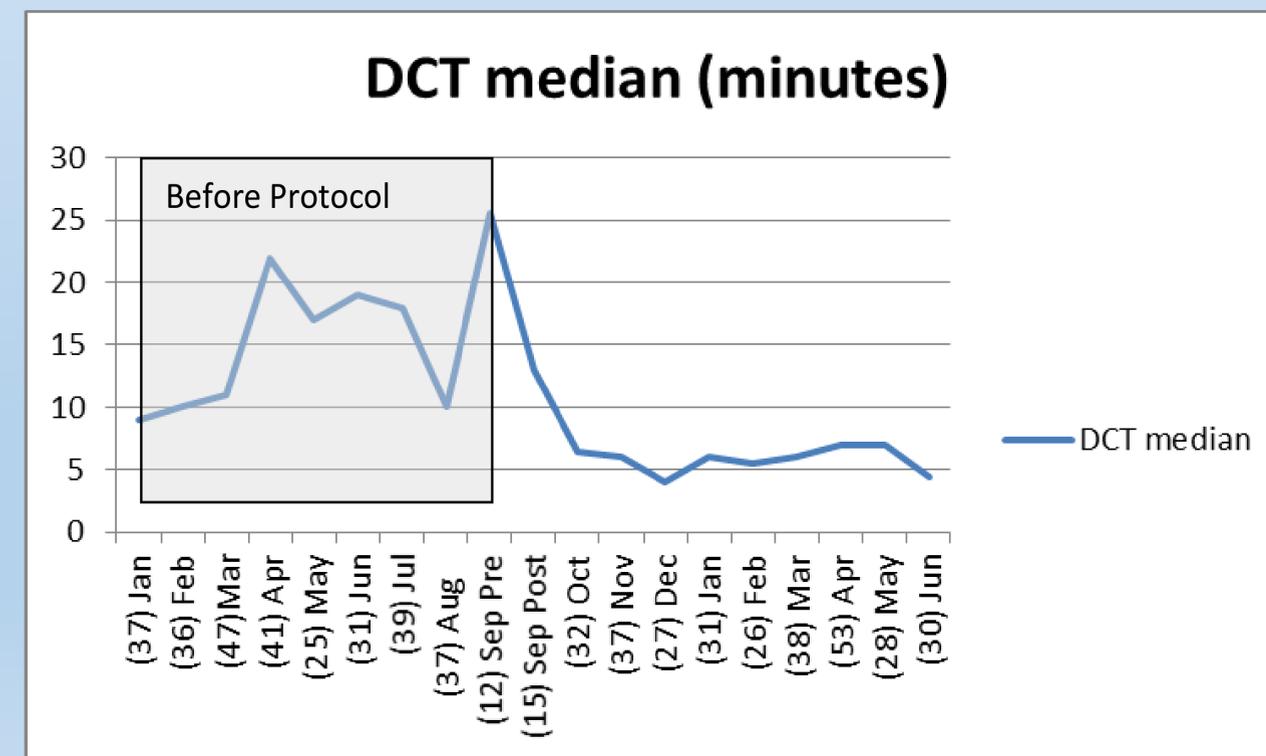


Figure 1. Monthly DCT median times in minutes before and after Direct to CT protocol implementation

