

Systematic Quality Improvement in Stroke Care

Christy Casper, NP

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Christy Casper is an acute care nurse practitioner at Swedish Medical Center in Englewood Colorado. She is the coordinator of the stroke program at Swedish under the medical direction of Dr. Don B. Smith. Swedish Medical Center became the first JCAHO certified Primary Stroke Center in the state of Colorado and in the Rocky Mountain region in September 2004 under Dr. Don Smith's and Christy's direction.

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Swedish Medical Center and the Colorado Neurological Institute have long been dedicated to the diagnosis and treatment of cerebrovascular disease. As leaders in the fight against stroke, it was our intention to become the first certified Primary Stroke Center in Colorado and in the Rocky Mountains. With Dr. Don B. Smith as Medical Director, we began to systematically address the elements of the program.

The first element requires that we consider every patient arriving within three hours of onset of symptoms for administration of t-PA, a clot-busting thrombolytic drug. This drug is only considered in

patients that have suffered an ischemic stroke—due to a clot and not a hemorrhagic stroke which is due to a bleed. TPA was approved for use in the United States in 1996 but has been historically underutilized. The rate of use in Colorado between 1999 and 2001 was only 1.1%. When given within 3 hours, the chance of a good recovery improves by about one third. Giving the drug is not without risk, however. Since the drug breaks up clot, there is potential for serious bleeding. The average risk is around 6% but the value varies with the severity of the stroke. In order to evaluate each patient in a timely manner, the care must be coordinated and goal directed.

We developed our “Stroke Alert Team” to provide this coordinated care. The members of the team consist of the EMS providers, the ED physician, the neurologist, the interventional neuro-radiologist, the stroke nurse practitioner, the ED nurse and the radiology technicians. The EMS providers are frequently the first members to examine the patient. Once stroke symptoms are identified, the EMS calls the emergency department and request that a “Stroke Alert” is paged out to the other members of the team. The patient is met in the emergency

1. Stroke in Colorado: A report to the Colorado legislature from the Colorado Stroke Advisory Board, November 2003.

department by the team, assessed for focal signs and symptoms of stroke and taken quickly to the CT scan for a series of tests. Once finished, the patient is transported back to the ED for a full neurological exam and a complete history and physical. After reviewing the scans and the history, the team together makes the decision if thrombolytic therapy is warranted. At SMC, there are several options for therapy that include intravenous t-PA, intra-arterial therapies using thrombolytics and/or mechanical dislodgement of clot or a combination of intravenous and intra-arterial approaches. Intra-arterial therapies are performed by our interventional neuro-radiologists who provide Swedish Medical Center 24/7 coverage.

This brings us to the second JCAHO element. When the decision is made to give thrombolytics, the goal is to do so within one hour of arrival to the hospital. Prior to the inception of “Stroke Alert Team”, this was done about 5% of the time. Within the first year after the development of the team and the education efforts that ensued, we increased to nearly 40%, with an average time to treatment of 71 minutes.

There are other JCAHO elements that must be fulfilled to maintain Primary Stroke Center certification. These include: deep vein thrombosis prophylaxis so that clots do

not develop in the legs of the inactive patient, performing a swallow evaluation so that aspiration does not occur leading to pneumonia, placing patients with atrial fibrillation on anticoagulation, initiating antithrombotics within 48 hours of admission, discharging patients on the appropriate antithrombotic, obtaining a lipid panel to assess for hyperlipidemia, assessing all patients for rehabilitation needs, providing smoking cessation education and stroke education including cause of stroke and risk factor reduction. At Swedish Medical Center, we have implemented multiple policies and carry out frequent staff meetings directed at achieving these elements on a consistent and reliable basis in order to provide quality care and ultimately improve patient outcome following stroke.

All patients seen with the diagnosis of stroke are entered into a database that allows review of statistics and is a means to monitor the quality of the care in the program. In addition, consent is obtained from patients to allow follow up phone calls at 3 months to assess their status including where they reside, ability to care for themselves, if they are receiving rehabilitation services and whether they have suffered any major medical problems. This information makes it possible to compare the overall program to

JCAHO Quality of Core Measures for Stroke Patients

1. Considering all patients with ischemic stroke presenting within 3 hours for t-PA
2. Swallowing evaluation on stroke patients considered/done prior to any oral intake
3. Deep venous thrombosis (DVT) prophylaxis in non-ambulatory patients initiated within 48 hours
4. Antithrombotic therapy started within 48 hours of hospitalization in ischemic stroke & TIA* patients
5. Lipid Profile blood test obtained during hospitalization on stroke & TIA patients for hyperlipidemia
6. Initializing anticoagulation in atrial fibrillation patients during hospitalization and discharging them on appropriate medication unless contraindicated
7. Patients with ischemic stroke or TIA discharged on appropriate antithrombotic therapy
8. Assessing patients for rehabilitation needs
9. Stroke Education given to patient and care givers about risk factor reduction and causes of stroke
10. Smoking cessation education given to patients and family members that smoke

* Transient Ischemic Stroke (TIA)

other published information. In addition it makes it possible to publish articles on some of the innovative care patients receive through this program.

Although we have made great strides in how we treat the patient once they arrive, the best time to treat a stroke is before it happens. Up to 80% of strokes can be prevented if risk factors are modified¹.

Address comments and questions to:

Christy Casper, NP
Swedish Medical Center
501 E. Hampden Avenue
Englewood, CO 80113