Industry Trends

Stroke Coordinator—One Title, Many Different Hats

Kim M. Shappell, BS RN CNRN EMT

What is a stroke coordinator? What do they really do? Does our organization need one? These are questions medical facilities all over the United States have been, or will soon be, asking themselves. During the past few months, there has been much discussion regarding this topic on AANN's LISTSERV®. It seems that at each organization the stroke coordinator role is used in different ways. However, one consistent theme among stroke coordinators is a fascination with stroke and the goal to have their organization provide the best stroke care possible.

There should be at least one full-time person whose primary focus is stroke care at hospitals that are certified stroke centers and those pursuing Joint Commission certification for stroke. Smaller hospitals receiving fewer stroke patients per month may find it possible to use a part-time employee in this role. That being said, the role of stroke coordinator truly is a full-time—plus overtime—position. This position consists of many different roles.

Different Roles of a Stroke Coordinator

Data Collection and Interpretation

One hat worn by the stroke coordinator is similar to that of a crime scene investigator. The coordinator is responsible for data collection and interpretation, accomplished by scouring the chart for any evidence or information. There are 10 standards of stroke care the coordinator tracks, including smoking-cessation counseling, stroke education, assessment for rehabilitation, early initiation of antithrombotics, antithrombotics continued at discharge, anticoagulation treatment for atrial fibrillation, consideration of the use of tissue plasminogen activator (t-PA), treatment of elevated cholesterol levels, deep vein thrombus prevention, and assessment for dysphagia. Data can be tracked concurrently and retrospectively. In many larger organizations, the stroke coordinator is assisted by health information staff, coders, or the direct-care providers in data collection and entry. Remember that data collection and interpretation are continuous, never-ending processes.

Policy Regulator

The second stroke coordinator hat is that of a police officer, patroling care practices in the organization. The standard of emergency care for stroke patients includes a stroke alert process. In this aspect of the role, the coordinator helps develop an emergency response to stroke and tracks the effectiveness of the whole process. The data important to stroke care include door-to-computerized tomography (CT), CT-to-result, door-to-needle, stroke-team response time, and lab orders-to-results. Because there is only a 3-hour window from the onset of symptoms to administer intravenous t-PA, the ultimate goal is to provide the patient with a thorough work up in the shortest amount of time possible.

Teacher and Cheerleader

Once data are collected and interpreted, the coordinator dons two more hats—teacher and cheerleader. In the teacher role, the coordinator must set out to educate all staff, from patient-care assistants and nurses' aides to physicians. The education must be provided to all areas

involved in stroke care. Some areas often overlooked are laboratory, emergency medical services, and radiology. There may be some resistance, but without providing explanations for procedures to all the departments and staff involved, you cannot make changes for the better. Once staff understand the reasoning behind things—for example, the need to document why a patient is not a t-PA candidate—documentation compliance should increase, as well as the number of patients who receive t-PA. It is important for teachers to share their knowledge and listen to others. It is equally important that educators continue to further their education to make a program a success.

As the cheerleader, the coordinator praises accomplishments, such as staff documenting patient education. The cheerleader looks for what the facility and stroke team are doing correctly and encourages the team to strive to do even better. Just as cheerleaders get the crowd pumped up at a big game and encourage crowd participation, the stroke coordinator needs to look for ways to get all the departments providing some aspect of stroke care to participate in the process and work together. Each department cannot function in complete independence of each other. Optimal care is provided when an interdisciplinary approach to stroke care is utilized.

Thoughts for Success

Although the stroke coordinator wears many hats, he or she cannot do the job alone. The true role of a stroke coordinator is to facilitate the stroke care the facility provides, which is best accomplished when at least one full-time registered nurse is placed in the role with only this responsibility. It is difficult for a coordinator to be effective when his or her responsibilities are greater than the stroke program. If the stroke coordinator attempts to accomplish everything independently, he or she will fail. A good stroke program is based on an interdisciplinary approach with an effective stroke coordinator facilitating the process.

Kim Michelle Shappell, BS RN CNRN EMT, is a stroke coordinator at Pinnacle Health System, Harrisburg, PA. For information or questions about this article, please e-mail her at kshappell@pinnaclehealth.org.

Performing tPA Chart Audits to Improve Patient Care and Compliance

Rebecca Brown, BSN RN

The pursuit of Primary Stroke Center designation from the Joint Commission compels facilities to track patient outcomes and policy compliance. A targeted chart audit is a simple way to help achieve positive outcomes and compliance. An integral part of performance improvement, chart audits can assess quality measurements and support research initiatives. When performed within the boundaries of a facility's policies and protocols, chart audits can be streamlined if those supporting documents are evidence-based.

The audit process should include identification and definition of the measures to be reviewed, the population included in the review, determination of the sample size, data collection and methods, and a summary of the results, including analysis and application. The data collected for the audit must be documented and available in the medical record. Determination of sample size depends on the volume of records to be reviewed and can range from 10% to 100% of charts.

The recombinant tissue plasminogen activator (r-tPA or tPA) protocol at the Western Maryland Health System (WMHS) was originally developed using the 2003 Guidelines for the Early Management of Patients with Ischemic Stroke (Adams et al., 2003) and subsequently updated using the 2007 Guidelines for the Early Management of Adults with Ischemic Stroke (Adams et al., 2007). Developing the audit tool was a simple process once the protocol was completed. A comprehensive tool was devised using a Microsoft® Office Excel worksheet integrating all step-by-step, pre- and post-tPA processes per the protocol. The audit sheet also identifies the patient's medical record number, visit number, and dates of admission and discharge. Because there is a low volume of patients receiving tPA at the WMHS facility (11 cases as of December 12, 2008), it was decided that every tPA patient chart would be audited.

The audit process is initiated by the care manager when a patient receives tPA as part of the concurrent data abstraction process. Concurrent completion permits immediate corrective actions to be taken if a lapse in protocol is detected. If the care manager is not available during the patient's hospitalization, the audit is then completed retrospectively, along with the data abstraction. Once the audit tool is completed, the care manager reviews the tool to measure the quality of care provided, according to policy. The manager addresses any lapses with the involved units to determine what, if any, barriers prevented the staff from providing patient care according to the policy. The audit is then discussed at the stroke committee meetings. In following this procedure, we have been able to identify issues and create performance improvement action plans or make policy changes as indicated.

For example, one of the recurrent issues identified on the tPA audits was the completion of the test for fecal occult blood (FOCB). The policy originally stated that all stools should be tested for FOCB during the patient's hospitalization. This was frequently missed because the patient transferred from the ICU to the designated stroke beds on the telemetry unit. Members of the stroke committee studied the relationship between the half-life of tPA and the incidence of subsequent patient bleeding. After discussion in the stroke committee meeting, it was determined that patient safety and outcomes would not be compromised by implementing policy revision. The policy was changed to require FOCB testing on stools only during the first 48 hours post-tPA. This simple change has improved compliance with protocol while maintaining patient safety.

Performing a chart audit on all tPA patients allows the rapid identification of which processes are going well and assists in identifying issues that need further attention. Summarizing the audit analysis presents a targeted view of the care provided to this specific population and helps monitor and develop performance-improvement initiatives. The audit process provides continuous quality measurement and improvement in the care provided to the patient, a goal for every stroke center.

References

Adams, H. P., Jr., Adams, R. J., Brott, T., del Zoppo, G. J., Furlan, A., Goldstein, L. B., et al. (2003). Guidelines for the early management of patients with ischemic stroke: A scientific statement from the Stroke Council of the American Stroke Association. *Stroke, 34*(4), 1056–1083.

Adams, H. P., Jr., del Zoppo, G., Alberts, M. J., Bhatt, D. L., Brass, L., Furlan, A., et al. (2007). Guidelines for the early management of adults with ischemic stroke: A guideline from the

American Heart Association/American Stroke Association Stroke council, Clinical Cardiology Council, Cardiovascular Radiology, and Intervention Council and the Atherosclerotic Peripheral Vascular Disease and Quality of Care Outcomes in Research Interdisciplinary Working Group. *Stroke, 38*(5), 1655–1711.

EEG-Derived Monitoring in Continuous Neuromuscular Blockade

Janice Mink, RN CCRN CNRN

One of the greatest challenges in neuroscience nursing is caring for the patient who requires continuous neuromuscular blockade (NMB). NMB precludes a nurse's primary assessment, the clinical neurological evaluation. NMB is used in critical care patients for various reasons, including promotion of ventilator synchrony, management of intracranial pressure, and elimination of muscle spasms.

Appropriate, effective sedation and analgesia prior to NMB is critical to meeting the patient's need for comfort during NMB. The Society for Critical Care Medicine (SCCM) has published guidelines for analgesia and sedation (Jacobi et al., 2002).

Once continuous NMB is initiated, the nurse monitors the level of paralysis using train of four (TOF) monitoring. A longstanding tool in NMB, TOF continues to be a recommendation in the 2002 guidelines for NMB in critical care (Murray et al., 2002). The recommended level of blockade is one or two twitches out of four.

Assessing the patient's level of sedation and analgesia in neuromuscular blockade remains a concern for the bedside nurse. Despite our best efforts and advancing technology, research confirms that critical care patients are still experiencing periods of awareness during paralysis (Ballard et al., 2006). The fear and anxiety of these experiences has short- and long-term effects on circulating hormones, which may result in multiple complications (Arbour, 2004).

Continuous electroencephalographic (EEG) monitoring provides data about patient arousal and brain activity during paralysis. In the subgroup of patients who are being treated for seizures and require paralysis, the SCCM guidelines recommend EEG monitoring. However, the dedication of EEG equipment and technologists to continuous monitoring of other NMB patients in a critical-care environment is costly and impractical.

One useful method of monitoring for effective sedation and analgesia that has been studied in critical care is bispectral index monitoring (BIS™). The BIS™ monitor, developed by Aspect Medical Systems, was first used in the surgery suite to provide anesthesia providers with data to monitor the patient responses during surgery and avoid awareness during surgical procedures. The monitor uses four electrodes to obtain a single channel of EEG activity that is then processed to produce a single value (Arbour, 2004).

This monitoring method has been studied frequently in critical-care environments. Arbour (2006) provided a series of case-study reports demonstrating the usefulness of the bispectral index to indicate oversedation or undersedation, avoid or facilitate the discontinuation of neuromuscular blockade, reduce incidence of hypotension secondary to sedation, identify potential awareness or pain even when paralyzed, and indicate suppressed EEG activity. Bispectral index monitoring is included in the AACN procedure manual for critical care (Arbour, 2005, p. 699–711).

Researchers note concerns about the effect muscle movement of the patient has on the bispectral index value. The electromyography value is measured and identified separately on the monitor as an independent value and may identify arousal or shivering. Researchers also note that the bispectral index was validated in the setting of anesthesia and sedation. A final concern is the exclusion of certain wave frequencies.

Although Aspect Medical Systems's BIS™ is an option for monitoring in neuromuscular blockade, the technology it is not recommended in the 2002 SCCM recommendations. However, BIS™ monitoring has demonstrated usefulness in critical care patients with and without neuromuscular blockade. Bader and Arbour (2005) provide an excellent review of works published in which BIS™ was used in barbiturate coma and a case study of its application (p. 537). The critical care applications for BIS™ monitoring are likely to expand with further research.

Technologies that successfully monitor patient awareness in the surgery suite will gradually be incorporated into the critical-care environment. One newer EEG-derived level of consciousness monitoring technology is the Snap II™ monitor. Stryker Instruments is marketing this product as an EEG-derived parameter useful in critical care, but no data on its use in critical care patients have yet been published.

Much research is yet to be done in monitoring patients receiving continuous neuromuscular blockade in critical care. Studies are needed that show relationships between levels of sedation and analgesia, patient awareness, and EEG-derived measurements.

References

Arbour, R. (2004). Using bispectral index monitoring to detect potential breakthrough awareness and limit duration of neuromuscular blockade. *American Journal of Critical Care, 13*(1), 66–73.

Arbour, R. (2006). Impact of bispectral index monitoring on sedation and outcomes in critically ill adults: a case series. *Critical Care Nursing Clinics of North America, 18*, 227–241.

Arbour, R. B. (2005). Bispectral index monitoring. In D. J. L. Wiegand & K. K. Carlson (Eds.), *AACN procedure manual for critical care* (pp. 699–711). St. Louis, MO: Elsevier/Saunders.

Bader, M. K., & Arbour, R. (2005). Refractory increased intracranial pressure in severe traumatic brain injury: Barbiturate coma and bispectral index monitoring.

Ballard, N., Robley, L., Barrett, D., Fraser, D., & Mendoza, I. (2006). Patients' recollections of therapeutic paralysis in the intensive care unit. *American Journal of Critical Care, 15*(1), 86–94.

Jacobi, J., Fraser, G. L., Coursin, D. B., Riker, R. R., Fontaine, D. Wittbrodt, E. T., et al. (2002). Clinical practice guidelines for the sustained use of sedatives and analgesics in the critically ill adult. *Critical Care Medicine, 30*(1), 119–141.

Murray, M. J., Cowen, J., DeBlock, H., Erstad, B., Gray, A. W., Jr., Tescher, A. N., et al. (2002). Clinical practice guidelines for sustained neuromuscular blockade in the adult critically ill patient. *Critical Care Medicine, 30*(1), 142–156.

Mission Hospital's Rapid Response Team Program

Mary Kay Bader, MSN RN CCRN CNRN CCNS FAHA

In 2005, the resuscitation committee at Mission Hospital in Mission Viejo, CA, reported to the Quality Leadership Council that a 2-year review of cardiac and respiratory arrests revealed that 46% of arrests occurred on medical or surgical floors, with a resulting 62% mortality. During the same time, patients admitted to floor beds were sicker, with increasing acuity. Critically ill patients were being held in the emergency department (ED) while awaiting an open intensive care unit (ICU) bed. All of these patients were deemed "vulnerable" and were experiencing critical events leading to increased mortality. Mission Hospital's administrative, quality, and nursing leadership, recognizing that these vulnerable patients needed to be rescued, worked to establish a dedicated nurse-driven rapid response team (RRT).

The nine specially trained RRT nurses were deployed to serve in a role that was crafted using guidance from the evidence-based literature. During each shift, the RRT nurses conducted rounds on high-risk patients and reviewed the patients with each floor unit's charge nurse. The RRT nurses assessed the high-acuity patients and consulted with the patient's nurse on specific care issues. The RRT nurses were available for calls, arriving within 2 minutes to any unit in the hospital, including the ED. Within 6 months, the RRT was responding to an average of 350 calls per month. Approximately 125 calls were in support of high-acuity patients in the ED (stroke, ST-segment elevation myocardial infarction, sepsis, and other critical or complex patients presenting to the ED in extremis). The most frequent call to the floor was for nursing consults. These ranged from a technical question on equipment to a concerned bedside nurse who sensed that "something wasn't right" with his or her patient, although no specific physiologic change had occurred. Pulmonary issues, hypotension, arrhythmias, and changes in neurologic status were the leading patient-focused cause of calls.

Data collected from shift to shift were analyzed. The RRT responded to 360 calls per month, with an average call time of 40 minutes. Mortality associated with out-of-ICU arrests fell from 62% to 23%. Transfers into critical care from the floor decreased significantly. One of the most important outcomes was the approach that the RRT and quality team took in analyzing reasons for patient deterioration. The critical analysis of the calls revealed specific subpopulations that appeared vulnerable to deterioration. Patients admitted to the hospital with sepsis were deteriorating 24 to 48 hours after admission and sustaining a high mortality and morbidity. Upon reviewing 6 months of data, the team discovered that approximately 10 patients per month were deteriorating on the floors. An ED physician and key nurse champions presented a report to the Quality Leadership Council identifying the issues surrounding the management of sepsis patients and recommended initiating a sepsis initiative. This effort led to a decrease in mortality in the sepsis population. Other subpopulations have emerged, and efforts have been initiated to improve the quality of care or to alter the system to facilitate care.

Mission Hospital's efforts in establishing an RRT have brought together administrators, practitioners, quality leaders, and patients and have created a new conceptual model for caring for this special population. This model led to a decrease in mortality and improvements in care to vulnerable subpopulations of patients at risk for deterioration. The RRT initiative has united the entire hospital staff with the primary goal of rescuing vulnerable patients and improving the quality of their hospital stay.

Mary Kay Bader, MSN RN CCRN CNRN CCNS FAHA, is a neuro-critical care clinical nurse specialist at Mission Hospital Regional Medical Center, Mission Viejo, CA.

American Association of Neuroscience Nurses
888/557-2266, 847/375-4733
www.AANN.org