Neurovascular Crisis: Caring for Stroke Patients

Presented by

Tara Orgon Stamper, DNP, RN, CRNP, CNRN

Dr. Stamper is an adult nurse practitioner who has worked in the field of neuroscience for almost 20 years. She has worked across the continuum of the neuroscience population, including traumatic brain injury, brain and spinal tumors, complex spine surgeries, functional neurosurgery and stroke. Although she has spent time in the long-term acute and rehab settings, she feels most comfortable in the academic hospital setting.

Tara has spoken nationally on neuroanatomy and traumatic brain injury as well as neuromuscular and neurodegenerative disorders and serves on the faculty at the University of Cincinnati College of Nursing in its nurse practitioner program and at Robert Morris University School of Nursing in its doctoral program in Pittsburgh, PA. During her neuroscience career, Tara served on numerous quality and patient committees, in both personal and professional environments. Tara recently left neuroscience after 18 years of clinical practice and joined the supportive care service at Allegheny General Hospital in Pittsburgh. She has launched a supportive care heart failure program in conjunction with the department of cardiology to support and provide quality of life to congestive heart failure patients. Tara thoroughly enjoys teaching about neuroscience and welcomes class participation.

11.75 Contact Hours | Course Length: 650 minutes

Program Description

This course provides a more advanced review of the ischemic and hemorrhagic stroke patient. It also offers a comprehensive review of anatomy, assessments and diagnostics, providing an in-depth refresher on the pathophysiology and care of the stroke patient. It reviews the various types of strokes and interventions, both pharmacologic and endovascular. The course covers the comorbidities of stroke in present-day patients; it also covers the complications and bed-side treatment modalities, such as intracranial pressure (ICP) and targeted temperature management (TTM).

Program Learning Outcomes

This program prepares the learner to:

1. The learner will recognize the continuum of care for the various stroke patients, from initial presentation to discharge and into the community.

Topics Covered

1 Neurovascular Anatomy and Diagnostic Imaging
<div align="right">104 minutes</div>

Module Description
Neurovascular anatomy will provide both the seasoned and novice neuroscience nurse with a firm introduction into the neurovascular system, highlighting the most common vessels involved in stroke. The diagnostic imaging portion will review the birth of two major neurodiagnostic tools in stroke management and explain the way each modality impacts stroke treatment and intervention.

Module Learning Objectives
This module prepares the learner to:
1. Name the most important arteries affected by stroke.
2. Explain the importance of a small infarct core and large penumbra in the management of stroke.

2 Stroke Syndromes and Correlative Assessments
<div align="right">65 minutes</div>

Module Description
This module explores stroke and neurological assessment step by step from level of consciousness through cranial nerves to motor function and eventually even brain death. Clinical findings are correlated to each major cerebral vessel affected by stroke as to enable prompt recognition of area of infarct when a patient presents.

Module Learning Objectives
This module prepares the learner to:
1. Describe which areas of the neurological exam are most important in clinical recognition of stroke.
2. Correlate physical exam findings with the area of stroke.

3 Thrombotic/Ischemic Strokes
<div align="right">38 minutes</div>

Module Description
Ischemic stroke is the most commonly occurring stroke. Ischemia can occur anywhere in the body when tissue is deprived of oxygen and most often occurs in the extremities, heart and brain. The faster a person suffering from an ischemic stroke presents to the hospital, is assessed and has potential intervention, the less likely the patient is to have permanent neurological deficit. This module defines the different instances of brain ischemia and explains the inclusion and exclusion criteria for thrombolysis and patients who may benefit from its use.

Module Learning Objectives
This module prepares the learner to:
1. Differentiate between a transient ischemic attack and ischemic stroke.
2. Identify one absolute contraindication to the use of thrombolytics.
3. Explain the importance of a small ischemic core and large penumbra when discussing thrombolytic therapy.

4 Cardioembolic Stroke
<div align="right">40 minutes</div>

Module Description
Cardioembolic stroke is one of three strokes seen within the neuroscience population. Multiple etiologies exist that cause a cardioembolic stroke, including anatomical abnormalities and arrhythmias. Diagnostics for cardioembolic stroke include ascertaining the most precise cause of stroke and determining the most appropriate intervention to prevent further neurological damage.

Module Learning Objectives
This module prepares the learner to:
1. Identify common etiologies causing a cardioembolic stroke.
2. Explain interventions available in the management of atrial fibrillation.

<div align="right">*(continued)*</div>

5 Hemorrhagic Stroke
52 minutes

Module Description
Hemorrhagic strokes make up a small percentage of strokes and are further broke down into intracerebral hemorrhages (ICHs) and subarachnoid hemorrhages (SAHs). Each stroke type has the potential to cause severe neurological deficit through secondary injury. Nursing interventions and stroke management can deter the development of secondary injury, including potential ischemic stroke from vasospasm.

Module Learning Objectives
This module prepares the learner to:
1. Explain the pathophysiological mechanism of hemorrhagic stroke.
2. Name how cerebral vasospasm is diagnosed.

6 Interventional Radiology and Procedures
37 minutes

Module Description
Endovascular therapy for stroke has been termed one of the greatest medical advancements in the management of stroke. Clot-busting medications can be delivered intravenously or intra-arterially though these interventions but carry substantial exclusion criteria and a sensitive time window that omits countless stroke patients. Clot retrievers, aspiration and stent devices have also been Food & Drug Administration (FDA) approved for the management of acute ischemic stroke.

Module Learning Objectives
This module prepares the learner to:
1. Describe interventions used in the treatment of ischemic stroke.
2. Identify complications associated with endovascular therapy.

7 Primary, Secondary Stroke Prevention
31 minutes

Module Description
Nurses can impact the occurrence of stroke through the reinforcement of primary and secondary prevention of stroke. Knowledge of nonmodifiable and modifiable risk factors as well as mechanisms to empower patients to change can greatly affect stroke outcome. Nurses are positioned in countless areas throughout healthcare and are able to reach patients and reinforce primary and secondary stroke prevention.

Module Learning Objectives
This module prepares the learner to:
1. Discern the difference between modifiable and nonmodifiable risk factors.
2. Describe those modifiable risk factors that most impact stroke.

8 Anticoagulation and Medical Management of Strokes
44 minutes

Module Description
Even with the advent of endovascular and thrombolytic therapy, antiplatelet and anticoagulant management of an ischemic stroke is necessary either as monotherapy or following the latter interventions. Each medication inhibits certain factors in the extrinsic and intrinsic pathways of the clotting cascade that protect patients against further ischemic injury. This module will review the most common and currently used antithrombotic medications and their associated reversal agents.

Module Learning Objectives
This module prepares the learner to:
1. Differentiate between antiplatelet and anticoagulant medications.
2. Explain the two distinct pathways of the clotting cascade.
3. Name commonly used antithrombotic medications and their corresponding reversal agents.

9 Chronic Comorbid Factors in Stroke Patients   49 minutes

Module Description
Several comorbidities exist that contribute to the historical poor outcomes that follow stroke. Such diseases as hypertension, diabetes and obesity plague millions and exacerbate the risk of stroke. This module will go through each disease process and how it contributes to the pathophysiological process of stroke and touch on medications and interventions necessary to combat these diseases, thus improving stroke outcomes.

Module Learning Objectives
This module prepares the learner to:
1. Identify the pathophysiological mechanism of common comorbidities in stroke.
2. Describe interventions that can decrease the incidence of common comorbidities in stroke.

10 ICP Monitoring   50 minutes

Module Description
Uncontrolled intracranial pressure (ICP) is the leading pathophysiological mechanism behind secondary neurological injury. By monitoring ICP and intervening at the appropriate time, secondary injury, and therefore lasting functional deficit, can be derailed. ICP monitoring encompasses investigating pressure, temperatures and oxygen levels of brain parenchyma and ensuring that none are affected and can cause neurological harm to patients.

Module Learning Objectives
This module prepares the learner to:
1. Identify areas in the brain amenable to ICP monitoring.
2. Explain available interventions to control increased ICP.

11 TTM in Stroke Patients   39 minutes

Module Description
The use of hypothermia as a neuroprotective agent is well-established; however, its efficacy and appropriate utilization in ischemic and hemorrhagic stroke continues to be cause for investigation. In this module, current cooling practices will be reviewed including methods of cooling, complications of cooling and their management.

Module Learning Objectives
This module prepares the learner to:
1. Define target temperature management (TTM).
2. Identify a side effect of cooling.
3. Explain the pathophysiological process of shivering.

12 Cerebral Vasospasm   38 minutes

Module Description
Cerebral vasospasm is a known risk factor for ischemic stroke in patients who have suffered a subarachnoid hemorrhage. Following a review of aneurysmal subarachnoid hemorrhage (SAH), the pathophysiological mechanism behind spasm as well as clinical management will be explained. Nurses are in a pivotal position at the bedside to recognize signs and symptoms of spasm and prevent further secondary injury to the stroke patient.

Module Learning Objectives
This module prepares the learner to:
1. Explain the underlying pathophysiological mechanism of vasospasm.
2. Identify at least one intervention aimed at the treatment of cerebral vasospasm.

13 Rehabilitation and Palliative Care   **61 minutes**

Module Description
Stroke survivors suffer physical and mental disabilities ranging from the most minor to the most severe. A multidisciplinary approach to rehabilitation is necessary for the stroke survivor to be able to return as closely as possible to his or her prestroke baseline or learn coping mechanisms to accept a "new normal." Supportive care is a branch of medicine that can provide symptom management and support to the stroke patient and family when involved promptly in the stroke survivor's continuum of care.

Module Learning Objectives
This module prepares the learner to:
1. Describe disabilities that the stroke patient can potentially suffer.
2. Explain the importance of supportive care in stroke.

Accreditation

RN/LPN/LVN/Other: 11.75 Contact Hours

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