Stroke

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Benjamin Franklin's aphorism, "time is money" has been reworked by Camilo R. Gomez, MD, a neurologist, who coined the phrase "time is brain". The brain, the control center for all systems of the body, is a three-pound organ responsible for pumping of the heart, breathing, movement of the extremities, sensations of the body, as well as memories, thoughts, and emotions (Bussard, 2020). However, a serious medical event referred to as stroke, or brain attack, can cause, in some cases, permanent detriments to these processes. Time is the most crucial element in the care of a client diagnosed with cerebrovascular accident (CVA), or stroke. The brain requires a constant, sufficient supply of blood and oxygen to function properly. A stroke, otherwise known as brain infarct, interrupts the flow of oxygen-rich blood to the brain resulting in the possibility of damage or death of brain tissue and cells ("Stroke," 2022). If medical interventions are not implemented immediately or soon after the event, permanent loss of command of bodily functions can occur.

There are three different classifications of stroke: ischemic stroke, hemorrhagic stroke, and transient ischemic attack (TIA). Ischemic stroke occurs when a thrombus or an embolus blocks the blood supply resulting in a decrease in oxygen to the brain ("Stroke," 2022). A hemorrhagic stroke involves bleeding into the brain tissue which, in turn, increases the intracranial pressure compressing the vessels and impeding the flow of oxygenated blood to the brain ("Stroke," 2022). Lastly, a TIA is defined by small or mini strokes that occur due to intermittent decreases in blood flow to the brain ("Stroke," 2022). Stroke, even when treated in a timely manner, can be extremely challenging for both the client and the family to overcome as it may lead to lifelong debilitation or in the most serious of cases, death. Educating the populations of what a stroke involves, signs and symptoms, prevention and risk factors, as well as types of

treatments is vital for not only increasing the survival rate but increasing the quality of life for those affected by stroke.

Statement of the Problem

In the moments after a stroke is suffered, the prospect of disability or death increases significantly with the passing of time before medical care is delivered. Stroke directly affects the blood flow and therefore the oxygenation and nutrition of the brain and its tissues resulting in neurological deficits. In ischemic stroke, the thrombus is formed in the brain due to trauma or damage to a blood vessel inducing partial or total occlusion (“Stroke,” 2022). Additionally, an embolus is commonly formed in another area of the body (i.e., the heart) and travels via the bloodstream to the brain where it becomes perilous (Feske, 2021). Furthermore, hemorrhagic stroke can present as a ruptured blood vessel that causes bleeding into the brain tissues (intracerebral), or when the cerebrospinal fluid amid the arachnoid and pia mater membranes becomes the location in which the intracranial bleeding pools (subarachnoid) (Bussard, 2020). A type of stroke that may not prompt elicit attention and urgency is a transient ischemic attack. A TIA is a temporary disruption of blood flow to the brain, unlike ischemic or hemorrhagic strokes. Because the dysfunction occurs briefly and a few minutes later blood flow is restored, it is likely signs and symptoms will not be observed (Mendelson & Prabhakaran, 2021). However, a TIA can increase a client’s risk for stroke (“Stroke,” 2022). In sum, whether the cerebrovascular accident suffered is an ischemic stroke, hemorrhagic stroke, or transient ischemic attack, it is crucial to recognize the signs and symptoms of stroke and receive medical attention immediately. After a stroke occurs, a client may begin to experience the following neurological dysfunctions: hemiparesis (weakness or paralysis on one side of the body), facial drooping, dysphagia (difficulty swallowing), sialorrhea (excessive drooling), dysarthria (difficulty speaking),

confusion or disorientation, incontinence, and more (“Stroke,” 2022). At first the effects of stroke may not be severe; regardless, timely medical care is necessary to preserve functions of the body and reverse as much of the damage as possible.

In the United States, stroke is the fifth leading cause of death and affects approximately 800,000 clients each year (Mendelson & Prabhakaran, 2021). In addition to this fact, stroke is one of the leading causes of disability (Mendelson & Prabhakaran, 2021). With this, the recovery from a stroke is frequently a long process involving not only the client, but family, friends, or others close to the client as well. In some instances, those clients recovering from stroke need assistance with activities of daily living and transportation (e.g., to medical appointments, the grocery store, the pharmacy, etc.). It is pertinent to determine if the client has a caregiver to assist in the recovery from a stroke, or if a rehabilitation facility, home health, or a professional caregiver is needed. Due to potential temporary or permanent neurological dysfunction, the client may suffer a diminished role within family, career, and in all aspects of life.

The effects of stroke diffuse beyond the client and family, as the nursing community is impacted heavily with the care of stroke clients. In the United States, it is estimated that over 70 billion dollars is used to diagnose, treat, educate on, and prevent stroke (Mendelson & Prabhakaran, 2021). Nurses are the foundation of education for hospitalized clients with stroke as teaching the client and caregivers is essential for the highest success of recovery. Nurses advocate for the client to enhance the quality of life after stroke by communicating with the physicians of the desires and needs that the client has expressed. During hospitalization, nurses must be cognizant of the possible complications that could ensue post stroke event. For example, a client can experience cerebral edema, malnutrition, infections, sensory impairment, aspiration, contractures, skin breakdown, deep vein thrombosis, pulmonary emboli, depression, or seizures

(“Stroke,” 2022). Therefore, nurses not only have to treat the admitting diagnosis of stroke, but all complications that may arise due to the event.

Risk Reduction/Treatment of the Problem

Primary prevention of stroke begins with managing modifiable risk factors such as hypertension, diabetes mellitus, hyperlipidemia, smoking, and obesity (Caprio & Sorond, 2018). These risk factors can damage the blood vessels and lead to atherosclerosis increasing the probability of thrombus formation and therefore stroke (“Stroke,” 2022). Secondary prevention involves an antithrombotic medication regimen, if the previous stroke was ischemic in nature, and lifestyle management of predisposing factors as in primary prevention (Caprio & Sorond, 2018). Lifestyle changes such as smoking cessation, maintaining blood pressure and glucose levels within normal limits, and living a more physically active life can decrease the risk of a stroke event.

To screen for a stroke, coagulation studies, computed tomography (CT) scanning of the brain, and magnetic resonance imaging (MRI) of the neurological system are frequently ordered (“Stroke,” 2022). Coagulation studies portray how the coagulation system is functioning, a CT scan displays if the stroke was hemorrhagic or ischemic, and an MRI locates the stroke and how large it was (“Stroke,” 2022). When treating a stroke, the type must be considered. While the main goal for stroke clients is to maintain airway and stabilization of heart rate and blood pressure, there are different treatments for ischemic and hemorrhagic strokes (“Stroke,” 2022). For example, for ischemic stroke, antithrombotic therapy is started, and a carotid endarterectomy can be performed to remove plaque from within the artery to reduce the risk of ischemic stroke (“Stroke,” 2022). For hemorrhagic stroke, antithrombotic therapy is ceased (if applicable) to limit bleeding, and a surgical clipping may be completed to stop the bleeding (“Stroke,” 2022).

In both cases, antihypertensive and diuretic therapy is started to lower blood pressure and intracranial pressure (“Stroke,” 2022). Some preventative procedures to remove thrombi, maintain blood flow, and prevent bleeding include endovascular thrombectomy, carotid angioplasty and stent placement, endovascular coil embolization, and stereotactic radiosurgery (“Stroke,” 2022). All in all, the optimal treatment is prevention.

Planning of Teaching Content

Educating the community on stroke has become increasingly significant as a large proportion of the local community is older adults and the elderly. Age is a major risk factor for stroke. It is important for younger and older people alike to be knowledgeable about the topic due to the ability for it to occur at any age. The community will learn about the signs and symptoms of a stroke as well as how imperative timing is in the case of a brain attack. B.E.F.A.S.T. stands for balance, eyes, face, arms, speech, and time. The acronym conveys both the importance of “being fast” in the event of a stroke and gives a reminder to what signs and symptoms to survey for if a cerebrovascular accident is suspected. Business-like cards with the acronym and brief information explaining each letter can be distributed for people of the community to place in their wallets making it readily accessible in case of an emergency. Along with this, the utilization of the term “brain attack”, similar to “heart attack,” for stroke can be used to express the gravity of the issue. A tri-fold poster can be implemented to elaborate on what a stroke or brain attack is and why time is such a key component when attempting to preserve neurological function of the affected person.

Conclusion

In short, stroke transpires when oxygenated blood and nutrients cannot reach the brain cells due to occlusion of an artery. Cerebrovascular accident, brain infarct, brain attack, or stroke can become disabling and lead to neurological deficits such as hemiparesis, dysphagia, dysarthria, disorientation, etc. if treatment is not sought within hours, or deadly if not sought within days. This portrays just how important B.E.F.A.S.T is to teach the community so awareness, recognition, and survival can increase and the lasting effects and fatality rates can decrease. With earlier identification of stroke, those effected will have an increased quality of life and the nursing community will experience less critical cases and gain the ability to delegate their resources where it is needed next. “Time is brain” and “time is money;” as time passes, the reversibility of the effects of stroke lessens and the amount of money required for treatment grows.

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