

The Impacts of Stroke in our Community

Hannah Collins

Margaret H. Rollins School of Nursing

N102: Nursing Care of Adults

Dr. Baich

March 29, 2024

The Impacts of Stroke in our Community

Every 40 seconds someone in the U.S. will have a stroke. With that being said, every three minutes an individual that suffers from a stroke will die. On average, annually there are nearly 800,000 reported strokes in the U.S. (Center for Disease Control and Prevention, [CDC], 2023). A stroke results when there is inadequate blood flow to a part of the brain (ischemic stroke) or there is bleeding (hemorrhagic stroke) into the brain which can then result in death of brain cells (Harding et al., 2023, p. 1515). Education to our community on risk management, signs to recognize, and the overall definition of stroke could significantly lead to a decrease in the annual stroke statistic.

Stroke: A True Medical Emergency

Strokes are often termed by several different names, ultimately having an interchangeable meaning. These names include cerebrovascular attack or a cerebrovascular accident (CVA) and sometimes are also referred to as a brain attack. A hemorrhagic stroke, also known as an intracerebral/intracranial hemorrhage is the most severe and lethal type of stroke an individual could experience. This type of stroke results in hemorrhage in or around the brain that leaves the patient with neurological deficits. A hemorrhage stroke has a rapid onset that occurs within minutes (Goldsmith, 2024). An ischemic stroke results in brain death and deficits in neurological abilities as well as physical abilities. The brainstem, where this type of stroke occurs, contains many nerves that control the function of sensory input, motor output, coordination, alertness, and even autonomic regulation. When ischemia, brain death, occurs the individual suffers from impaired function, long-term disability, and even death. To achieve the most successful outcome for these individuals recognizing symptoms early is crucial (Hall et al., 2024). With a fall of 50% in the amount of blood to the brain patients are still asymptomatic, which means by the time that

they do present with symptoms, there is little blood flow in the brain (Feske, 2021). This is the reason that education on early recognition is crucial. No matter the type of stroke the most common culprit points back to an embolism. These stroke causing embolisms are due to cardiac disease (Feske, 2021).

As previously mentioned, per the CDC there are almost 800,000 strokes that occur each year (CDC, 2023). In cases of hemorrhagic strokes, the mortality rate of those individuals is 30%-40% (Goldsmith 2024). An ischemic stroke, which are the most common type, ranked the third leading cause of death annually have an estimated mortality rate of 137,000 individuals (Hall et al., 2024). In addition to the severity of stroke, the care for a patient that has experienced a stroke can be very costly. In Dr. Feske's article (2021), the 2014-2015 annual cost of stroke was \$45.5 billion. In another study from Harshfield and colleagues (2021), there was a significant correlation between smoking and the development of ischemic stroke. This study also showed that BMI and waist-hip ratio played a key role in the development of ischemic strokes.

Education is the number one way to enhance prevention of stroke. With the help of education, the number of annual deaths should trend down. Deficits may also be decrease with education on early recognition- with stroke minutes matter. Without reduction of risk factors and education for the community, the nursing community will see steady rate of annual deaths if not an increase. The nursing community would mostly likely care for many individuals with remaining deficits as well.

Risk Reduction and Treatment of Stroke in our Community

Regardless of the type of stroke, prevention is possible by enhancing daily routines and modifying lifestyle choices that lead to stroke. Although, risk modifications can be possible, there are some risk factors that we cannot change. Those non-modifiable risk factors include age

and race. As individuals age they are at a greater risk for a stroke. African American individuals also have an increased predisposition for a stroke (Goldsmith, 2024). The two main prevention strategies that Dr. Diener (2020) mentioned in his article were the “high-risk” approach, and the “population” approach. The goal of the “high-risk” approach is to reduce prevalence of stroke and the amount of risk factors for high-risk individuals. The goal of the “population” approach is to decrease prevalence and mortality rates in the individuals participating in their study. Primary prevention strategies related to ischemic strokes as also highlighted by Dr. Diener (2020) includes overall lifestyle modifications including diet modifications, weight loss, smoking cessation, and physical activity. Hypertension, hyperglycemia, and lipid disorders also put patients at higher risk for the development of an ischemic stroke.

In conjunct with lifestyle modification preventative drug therapy may be necessary. The first line drug for patients who have already have an ischemic type of stroke includes antiplatelet therapy- Aspirin and Clopidogrel being the most common. These drugs are undesirable for hemorrhagic types of strokes as they already have a bleeding risk. If patients have a history of atrial fibrillation, they mostly likely will take an antiplatelet drug as well, however, it may be a more potent type such as Warfarin, Rivaroxaban, Dabigatran, and Apixaban. In cases of hyperlipidemia uncontrolled with diet and exercise, statins may be recommended for those individuals (Harding et al., 2023, p. 1524).

Treatment for acute ischemic strokes include fibrinolytic agents such as recombinant tissue plasminogen activator (tPA). The action of this medication is to bind to fibrinogen in the thrombi to create a localized fibrinolysis action. Ultimately this drug can break down the thrombi causing ischemia in the brain. This treatment therapy must be given within three to four hours of onset of symptoms to be effective. If tPA therapy is unsuccessful, stent retriever placement

may be the next option. These removable stents are placed via a catheter into the artery with the clot, expanding the wall of the artery to allow blood flow in the brain. The clot then seeps into the stent and removal of the stent and clot can occur (Harding et al., 2023, p. 1525).

Acute treatment for hemorrhagic stroke includes management of hypertension. The goal for a patient is a systolic blood pressure less than 160 mm Hg. Seizure prophylaxis measures may also be taken. For aneurysm-induced hematomas greater than 3 cm in size, they must surgically be removed (Harding et al., 2023, p. 1526-1527).

Stroke Education

The main points of teaching for the community health fair will include lifestyle modifications and recognition of the signs associated with stroke. Lifestyle modification teaching will include what type of diet these individuals at risk should implement, the recommended activity level, and what groups of individuals are at risk. Teaching will also include the acronym from American Heart Association: FAST. This acronym is an easy way for individuals to identify someone having a stroke and can allow for early treatment as time is a crucial matter. The acronym stands for Face: does the individual have facial drooping, or is the face numb? Have the patient smile, is their smile equal? Arm weakness: Is the patient experiencing numbness in their arm(s)? Can the patient hold their arms up and hold them up? Speech: Is the patient's speech slurred, or are they having a hard time talking? Time: Time is super important in these patients, call 911! Also, it is important to note the time when the onset of symptoms began (American Stroke Association, 2024). Teaching strategies for the project will be geared towards many different learning styles. My group will have a trifold presentation along with teaching aligned with the presentation for those who are visual and/or auditory learners. We are also planning on having a short quiz for the participants to take to assess the individuals learning,

offering a small prize for the participants. A hands-on game may also be a good idea to reinforce teaching for kinesthetic learners. This topic is very important for community members to be aware of and gain knowledge on, encouraging participation will achieve this learning outcome.

Conclusion

Education is the best way to provide awareness and enhance prevention of strokes. A stroke is a medical emergency that requires immediate action, and with proper education the nursing community should see a decrease in severe cases of stroke that result in deficits. Good education for the community should include teaching on lifestyle actions to take regarding modifiable risk factors as well as early recognition of a stroke which overall results in a better prognosis for individuals.

References

American Stroke Association. (2024). *Stroke symptoms: F.A.S.T. warning signs*.

<https://www.stroke.org/en/about-stroke/stroke-symptoms>

Center for Disease Control and Prevention. (2023). *Stroke facts*.

<https://www.cdc.gov/stroke/facts.htm#:~:text=Stroke%20statistics,disease%20was%20due%20to%20stroke.&text=Every%2040%20seconds%2C%20someone%20in%20the%20United%20States%20has%20a%20stroke.&text=Every%203%20minutes%20and%2014%20seconds%2C%20someon%E2%80%A6%203/4>

Goldsmith, C. E. (2024). *Stroke, hemorrhagic*. ClinicalKey.

https://www.clinicalkey.com/#!/content/derived_clinical_overview/76-s2.0-B9780323755764008693

Hall, Hayden, Kass, Joseph. (2024). *Brainstem ischemic stroke syndrome*. ClinicalKey.

https://www.clinicalkey.com/#!/content/derived_clinical_overview/76-s2.0-B9780323755764001393

Harding, M. M., Kwong, J., Hagler, D., Reinisch, C. (2023). Stroke. Kwong, J., Hagler, D., Reinisch, C. (Eds.), *Lewis's medical-surgical nursing: Assessment and management of clinical problems* (12th ed., pp. 1515-1527). Elsevier.

<https://evolve.elsevier.com/Lewis/medsurg/>

Harshfield, E. L., Georgakis, M. K., Malik, R., Dichgans. M., Markus H. S. (2021). Modifiable lifestyle factors and risk of stroke: A Mendelian randomization analysis. Vol. 52, No.3, 931-936. <https://www.ahajournals.org/doi/10.1161/STROKEAHA.120.031710>

Diener, H. C., Hankey, G. J. (2020). Primary and secondary prevention of ischemic stroke and cerebral hemorrhage. Vol. 75, No. 15, 1805-1818.

<https://doi.org/10.1016/j.jacc.2019.12.072>

Feske, S. K. (2021). Ischemic stroke. (12th ed., pp. 1457-1464). *The American journal of medicine*. <https://doi.org/10.1016/j.amjmed.2021.07.027>