Stroke: What you *don't* know can hurt you!

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Overview

Stroke is the 3rd leading cause of death in the United States and a major cause of debilitating illness for those who survive. An estimated 700,000 strokes occur in the US each year, 200,000 of which are recurrent strokes. In this article, I will discuss the symptoms of stroke as well as ways in which you can prevent or lower your risk of developing stroke.

Symptoms

Stroke is a medical emergency and is caused by lack of oxygen to the brain as a result of either a blockage of blood flow or a rupture of a blood vessel. This causes irreversible damage to the brain tissue. Symptoms of a stroke include sudden loss of vision in one eye, weakness or numbness on one side of the body, speech difficulty, facial drooping, blurry or double vision, dizziness with nausea and vomiting, and difficulty with balance/walking, or unexplained headache. These symptoms may only last for a few minutes and are known as a transient ischemic attack, or TIA, a warning sign of impending stroke. In one study, 5% of all patients who had a TIA on presentation to an emergency suffered a major stroke within 48 hours. If the symptoms persist beyond 24 hours, then likely irreversible brain injury has occurred. Some patients go on to regain full or partial function, but many are left permanently impaired. If you experience any of these symptoms, contact your physician immediately.

Risk Factors for Stroke

There are many conditions which predispose patients to having a stroke. I will go through some of the major risk factors for stroke and what you can do to help lower your risk

- **Hypertension:** high blood pressure, or hypertension (HTN), is one of the leading treatable causes of stroke. HTN is defined as a blood pressure of greater than 140/80 generally, and treatment of HTN can reduce the risk of stroke by 30-40%. Your doctor or nurse practitioner may recommend medications to reduce your blood pressure, and these are very effective in helping reduce your risk of stroke. Lifestyle modifications such as regular exercise, maintaining a healthy weight, and avoiding excess salt intake are also important factors in reducing your blood pressure

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- **Diabetes:** patients with diabetes have a higher incidence of stroke, and studies have shown that treatment of diabetes results in improvement in cardiovascular outcomes, including stroke. Additionally, diabetics benefit from more aggressive HTN treatment, with a goal BP <130/80.

- **Hyperlipidemia:** patients with elevated cholesterol or triglycerides have a condition known as hyperlipidemia (HLP). This predisposes you to developing blockages in the arteries supplying the brain, heart, and other organs. A simple blood test can be performed to determine if you have hyperlipidemia. Treatment starts with dietary modification and reduced fat intake, and you may require treatment with medications known to reduce cholesterol levels. Studies have shown reduction of stroke risk by up to 20-30% with the use of cholesterol medications known as "statins" in certain at risk populations. Your healthcare provider can discuss whether or not you would benefit from these medications.

- **Tobacco:** tobacco use/abuse of any kind greatly increases your risk of cardiovascular disease and stroke. Quitting may be difficult, but there are many helpful adjunctive medications to make the process more tolerable, and this is one of the most important actions you can take in reducing your risk not only of stroke, but also cardiovascular disease.

- **Atrial Fibrillation:** atrial fibrillation (AF) is a condition in which the heart beats irregularly, and can cause blood clots to form in the heart. AF is one of the leading causes of stroke, especially in patients over the age of 65. Patients with AF should be on blood thinner medications such as Coumadin which can significantly reduce the risk of stroke by as much as 50%. These medications should be monitored closely with blood tests to ensure that the levels are regulated and this will reduce the risk of major bleeding. Certain patients who are at high risk of bleeding may not be candidates for blood thinners.

- **Carotid Artery Disease:** the carotid arteries are vessels which provide blood flow to the brain. Blockages can develop in these vessels in a similar fashion by which blockages develop in the arteries supplying the heart. Just as blocked arteries in the heart can lead to heart attack, blockages in the carotid arteries can lead to stroke. These blockages can be detected by a physical examination or a special test known as an ultrasound. If there is a significant blockage, you may be referred to a vascular specialist for treatment of these blockages which can greatly reduce your risk of stroke. Currently there are 2 options for treating carotid artery disease: a) Carotid Endartectomy, or CEA, is a surgical procedure by which the blockages are removed from the arteries; b) Carotid Stenting is a less invasive procedure performed without surgery in which the blockages are opened from the inside of the artery using a balloon and a small round metal device known as a stent. If you have carotid artery disease with blockages of >60-70%, you may be a candidate for one of these procedures which will help greatly reduce your risk of stroke.

- **Aneurysms:** aneurysms are dilated blood vessels which can rupture and cause bleeding. In the brain, aneurysms can rupture and cause a certain type of stroke known as a hemorrhagic stroke (bleeding in the brain). Unexplained headache is frequently a symptom of patients with aneurysms. Special tests such as CT or MR angiograms are noninvasive tests which image the blood vessels in the brain and determine if aneurysms are present. If the aneurysms are large enough or in dangerous locations, you may be referred to a specialist who can treat these either surgically or with minimally invasive procedures not requiring surgery that can greatly reduce your risk of a potentially fatal hemorrhagic stroke.

Screening and Testing for Stroke

It is important to have a regular check up with your physician or nurse practitioner to determine if you have any of the above mentioned risk factors for developing stroke. A simple physical exam, ECG, basic laboratory tests, and simple noninvasive tests such as a carotid ultrasound can help determine if you have any of these risk factors for stroke and lead to appropriate treatment when necessary. As the old adage goes, “an ounce of prevention is worth a pound of cure”

I also recommend an aggressive initial evaluation for any patient experiencing the symptoms of a TIA or stroke. This should include imaging of the brain and brain arteries (CT or MRI scans), as well as other tests to evaluate cardiac sources of blood clots (echocardiogram). I feel that the initial evaluation should include an exhaustive search to determine if there are any potentially reversible causes of stroke, such as the risk factors mentioned above. You may be admitted to the hospital for some of these tests. If you are experiencing the symptoms of a stroke, it is imperative that you seek immediate medical attention as irreversible brain injury can occur in a matter of hours; additionally some patients who arrive within 3 hours of the onset of symptoms may be eligible for special “clot busting” medications known as thrombolytics which can help dissolve blood clots causing stroke and reduce the risk of permanent disability, although there is a small risk of major bleeding. A collaborative effort between your primary care provider, physicians who specialize in brain disorders/stroke (neurologists), and vascular specialists who can help perform the diagnostic tests and treat certain reversible causes of stroke can greatly impact your chances of surviving a stroke and reducing your risk for recurrent stroke.

Hope for the future and survivors of stroke:

What do you do if you have had the unfortunate experience of having a stroke? It is important to not give up hope, as gradual recovery is possible and many patients may go on to a full recovery of function with the help of a team of rehabilitation specialists. You may be referred to a stroke rehab center and be exposed to caring professionals in fields such as speech, occupational, and physical therapy who can assist in helping you regain function after a stroke. Even in the absence of complete recovery, many patients can go on to lead productive lives despite their disability.

Summary:

It is my hope that this article has raised your awareness of stroke. Make sure that you have regular medical checkups to screen for the risk factors for stroke and cardiovascular disease in general. Should you develop the symptoms of stroke listed above, do not hesitate to seek immediate medical attention, as delay can lead to worse outcomes. Aggressive testing to evaluate for reversible or treatable causes of stroke can also help greatly reduce your risk of stroke, and aggressive treatment of predisposing risk factors is an important factor in a healthy lifestyle.

About Dr. Klemis: Dr. Klemis is a cardiologist and vascular specialist in private practice at the Stern Cardiovascular Center. He completed his training in internal medicine and cardiovascular diseases at the University of Tennessee, where he also served as the chief medical resident and chief cardiology fellow. He went on to compete further training in cardiac and vascular intervention at the Lenox Hill Heart and Vascular Institute in New York City. He has expertise in the minimally invasive treatment of heart and vascular disease with techniques such as carotid artery stenting, and is the primary investigator in many important research trials evaluating treatment of cardiac and vascular disorders. If you would like to schedule an appointment, please contact Dr. Klemis at 901-271-1000.