Stroke Care At Eisenhower

Brian Herman, MD

Eisenhower Medical Center is recognized nationally for excellence in stroke care. Eisenhower has been designated a Certified Primary Stroke Center by The Joint Commission for Primary Stroke Centers, and is the first hospital in Riverside and San Bernardino counties to earn the organization's Gold Seal of Approval ™, its highest level of certification. For six consecutive years, Eisenhower has been awarded the prestigious HealthGrades Stroke Care Excellence Award™, which is given to the top ten percent of hospitals in the United States that specialize in stroke, for six years in a row. Recently a group of Eisenhower physicians met to discuss advances in the treatment of stroke, and what's new at Eisenhower. Participants included Brian Herman, MD, Medical Director, Eisenhower Imaging Center; Euthym Kontaxis, MD, Medical Director, Eisenhower Tennity Emergency Department; and Eisenhower's Stroke Center Co-Director and Vascular Neurologist, Bishoy Labib, MD. Eisenhower Cardiologist Philip Shaver, MD, moderated the discussion.

Dr. Shaver: Stroke is an injury that occurs when diseased blood vessels or an injury to blood vessels block the supply of oxygen and other vital nutrients to the brain. There are two main types of stroke: those caused by a blockage in a blood vessel and those caused by bleeding within the brain.

There are approximately 700,000 strokes every year in the United States. Most of these are caused by blockage, rather than hemorrhages [bleeding]. Stroke is the leading cause of long-lasting injury, disability and death. Early treatment can reduce the brain damage that occurs because of stroke, so identifying stroke quickly in a patient is very important.

Dr. Kontaxis, stroke is often complex, and usually it's the emergency room [ER] doctor who diagnoses stroke. What particular signs do you look for when a person comes to the ER?

Dr. Kontaxis: There has been a lot of public education over the past few years, so we're getting people coming in with early signs of stroke. Generally, we look at speech impairment, unilateral [one-sided] weakness to an arm or a leg or both, a sudden onset of symptoms. Some people come in with acute dizziness or vertigo as an early sign of a stroke. If we're looking at a cerebral bleed, headache is the primary symptom for that type of stroke.

Dr. Shaver: The symptoms of a stroke may begin suddenly or develop over hours or days depending upon the type of stroke. Dr. Labib, what is a transient ischemic attack [TIA]?

Dr. Labib: Transient ischemic [decreased blood flow] attacks are episodes in which there are signs or symptoms of a stroke that last for a short time, between a few minutes and 24 hours. Typically, symptoms only last for less than an hour. TIAs are a warning sign of a developing thrombus [plaque]. It could present as loss of vision in one eye, double vision, one-sided weakness, onesided numbness, or a speech problem. A transient ischemic attack is actually a golden opportunity to prevent stroke — we take it very seriously. Ten to 20 percent of TIA patients will return within 90 days with a major stroke, and typically, 50 percent of these strokes will happen within two days. If I have a high-risk patient coming in with symptoms like these, I'm not going to let them go home. I will admit them and modify their risk factors appropriately.

Dr. Shaver: I often use the acronym FAST to help people remember the classic symptoms of stroke: Face — sudden weakness of the face, blurred, doubled, or decreased vision; Arm — sudden weakness or numbness of one or both arms; Speech — difficulty speaking, slurred or garbled speech. The "T" is for time, because time is of the essence in stroke treatment. The sooner treatment begins…the better the chances are for recovery.

Dr. Herman: I want to point out that two things we've talked about are actually revolutionary in stroke treatment. First, the fact that patients now come in quickly is a revolution, and the fact that TIA patients are now admitted and worked up with imaging of the vessels of the neck and brain – that's a revolution. Just six years ago, we sent TIA patients home. So, these are huge changes in stroke treatment and diagnosis.

Dr. Shaver: The treatment of a stroke depends upon the type of stroke, the time since the first stroke symptoms occurred, and the patient's underlying medical problems. For people who have an ischemic stroke, the goal of treatment is to restore blood flow to the affected area of the brain as quickly as possible. There are two main types of treatment for ischemic stroke: thrombolytic [clot dissolving] therapy to break up clots, and antiplatelet or anticoagulant therapy, which is use of blood-thinners.

Dr. Labib: We have come a long way in our ability to treat acute stroke, particularly acute ischemic stroke where there is a thrombus or embolus [dislodged clot] in the artery.We need to act very quickly to treat these patients — we always say "time is brain."We would like to have the patient coming to the ER as soon as possible. Any delay in treatment means we're losing brain tissue.

The gold standard is to get an immediate CT [computed tomography] scan, which takes less than five minutes, and it gives us an idea if there is bleeding or not.We also have other modalities such as MRI [magnetic resonance imaging] and MRA [magnetic resonance angiography] of the brain and neck, diffusion perfusion studies to look at the extent of the stroke and to help with the treatment decision if we have time to do these tests.

Dr. Kontaxis: Imaging makes a big difference, particularly if we aren't sure about the onset of their symptoms.

Dr. Shaver: Once you witness the symptoms, that's when the clock starts.

"Door to CT time is 10 minutes. Read the imaging by 30 minutes. Dooe to therapy, 60 minutes is the goal."
—Dr. Kontaxis

Dr. Kontaxis: The imaging allows us to see the area of the brain affected by stroke, as well as to confirm the type of stroke [ischemic versus hemorrhagic]. The blood vessels that supply the brain can be imaged using CT and MRI scans. Ultrasound can also be used to discover blockage in blood vessels.

Dr. Herman: It is my belief and has been shown in many studies that intra-arterial thrombolysis is superior to intravenous thrombolysis. Our research at Eisenhower has shown that with devastated stroke patients who had the opportunity to be treated with intra-arterial thrombolysis, within three hours, 66 percent of these patients were living on their own, highly functional, with nearly normal lives. In fact, almost one-third of our patients were normal before leaving the hospital or even the surgical suite. Although it is also known that the accessibility of physicians who can perform intra-arterial thrombolysis is limited, we are fortunate at Eisenhower to have this capability to do this.

Dr. Shaver: You raise an interesting issue — the three-hour window after onset of symptoms. Hasn't that recommendation been changed to four and one-half hours?

Dr. Labib: ECASS III [the third European Cooperative Acute Stroke Study], came out last year indicating we can extend the window of IV [intravenous] thrombolytics to four and one-half hours. The American Heart Association and American Stroke Association approved an amendment expanding the window for IV tissue plasminogen activator [tPA], from three to four and one-half hours, but this is not FDA [Food and Drug Administration] approved yet. There are different protocols still under investigation.

Dr. Herman: Recanalization [opening the blocked vessel] rates for intra-arterial thrombolysis are far superior to intravenous thrombolysis…and that makes sense because we can see the clot and treat the clot directly.

Dr. Shaver: What are the other tools can you use besides intravenous lytic [cell dissolving] drugs to treat a clot? Can you administer lytic drugs locally at the obstructed arterial site or mechanically break up the thrombus?

Dr. Herman: Well, we have ultrasoundassisted thrombolysis, angioplasty, stenting, and clot retrieval devices.

Dr. Shaver: Eighty percent of strokes are ischemic, meaning that either a thrombus or embolus is blocking an artery. About 20 percent of strokes are hemorrhagic, and Dr. Kontaxis, you touched on the fact that this is someone who often has headache as part of their symptoms. The example everyone knows about is actress Natasha Richardson. Dr. Labib, is there some advice you could pass on to patients with head trauma? How about if they just have a concussion, should those people all come to the ER?

Dr. Labib: Concussion or brief loss of consciousness is always a very serious sign. Definitely, if someone loses consciousness, then the patient should be evaluated by a neurologist or go to the emergency room and get a CT scan to make sure there is no hemorrhage.

Dr. Shaver: I want to remind people that a stroke is a medical emergency, and just like with heart attacks, the place to go is not the doctor's office or clinic, it's the emergency room because that's where all the imaging is. What sets Eisenhower apart is that we have state-of-the-art imaging to get the answers quickly. We

have a 24-hour stroke team. Dr. Labib, if you could just talk briefly about our certification as a stroke center. What did that involve?

Dr. Labib: A stroke center provides optimum care for stroke patients. It needs a multidisciplinary team. You need neurology, preferably vascular neurology, interventional radiology and neurosurgery specialties to be able to treat all kinds of strokes.We are the only hospital in a hundred mile radius to be stroke certified, and actually we have had patients being flown from surrounding cities that are a couple of hours away since we received the certification for stroke. We also have to focus on prevention and rehabilitation. Once a patient has had a stroke, they are at very high risk for having secondary strokes…hence, modifying their risk factors is very important.

Dr. Shaver: If someone has symptoms of stroke, don't let your family member drive you to the emergency room. Call 911…because time is of the essence. Am I correct in saying that the door to starting treatment time, getting the assessment by the ER doctor, activating the stroke team, getting the imaging study — our goal is to start treatment by 60 minutes from the time they get here?

Dr. Kontaxis: Yes. Door to CT time is 10 minutes. Read the imaging by 30 minutes. Door to therapy, 60 minutes is the goal.

Dr. Shaver: As a stroke center we do offer a number of options to patients, and the dedication of our physicians, who are on call 24/7, really needs to be recognized.

Dr. Kontaxis: There's no more inspirational experience than seeing somebody who had a huge deficit, talk and get up.

Dr. Shaver: What do you see as the future of treatment?

Dr. Herman: I believe that future studies will bear out that intra-arterial thrombolysis and the new clot removal tools are going to prove to be far superior to peripheral intravenous tPA…. When the treatment devices get to that point,we can just pull the clot out in a matter of minutes. I also want to make one other point about Eisenhower. Not only are we a stroke center and provide all the things we talked about, but there are many disease entities that mimic stroke: aneurysm ruptures, dissections, arteriovenous malformations and tumors. At Eisenhower,we can fix all of those things, and you need to go to a place, in that emergency situation, that can manage all of those problems.

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