

News

The University of Texas Health Science Center at Dallas
5323 Harry Hines Boulevard Dallas, Texas 75235 (214) 688-3404

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CONTACT: Susan Rutherford
OFFICE: 214/688-3404
HOME: 214/349-7820

*****Neurosurgeon looks for
best treatment for hypertension-
caused brain hemorrhages.

DALLAS--Life-threatening brain hemorrhages caused by high blood pressure account for 10 percent of all strokes. "Unfortunately these hypertensive 'bleeds' are poorly treatable," reports neurosurgeon Dr. Hunt Batjer at The University of Texas Southwestern Medical School.

He says there is a 50 percent mortality rate for large hemorrhages and a 20 percent mortality for small ones. Survivors are often neurologically devastated to the extent that they can no longer care for themselves at home.

Batjer is examining the degree of success of current standard treatments for "hypertensive intracranial hemorrhage." His study includes analysis of medical and surgical procedures normally given patients, with the hope of determining optimum ways of saving lives. Specifically, he wants to know if removal of a patient's blood clot by neurosurgery will prevent incapacitation or death.

Hypertension, mild and severe, is destructive to the body's arterial system and is particularly damaging to the smallest of arteries called "arterioles." High blood pressure within the arterioles causes the vessel walls to change. Some areas thicken, decreasing blood flow, while other areas dilate and form ballooning blisters called aneurysms. Aneurysms rupture and bleed into the brain. The resulting blood clot dissects into the brain tissue causing injury to normal brain.

The location and size of the bleed and accompanying blood clot determine the patient's neurological dysfunction. Some patients develop a steady, progressive paralysis on one side of their bodies--in only one third of patients does this happen suddenly. Characteristically these people also have partial blindness. Headaches, the most obvious sign of an acute neurological problem, occur in only 30 percent of patients.

Bleeds begin in characteristic areas having the largest concentrations of arterioles. The most common area for hemorrhage is the "basal ganglia" near the center of the brain. "These strokes are always seen in hypertensive patients, particularly in poorly controlled hypertensives," says Batjer, assistant professor of neurosurgery at the medical school. He explains that the average age for stroke from high blood pressure is 60. This is 10 years younger than the mean age for "ischemic" strokes in which cholesterol and scar tissue block off blood flow in an artery and deny necessary oxygen to brain tissue.

Emergency treatment for hypertensive hemorrhage usually begins with drug management. Drugs are used to control blood pressure, prevent rebleeding, reduce swelling and prevent seizures. Small clots can sometimes dissolve without further hospital treatment. More severe cases require a pressure monitor inserted into a small hole in the skull, used to prevent damage from swelling by measuring and draining off excess fluid.

Surgical management is customarily saved for the worst bleeds. Neurosurgery involves removal of the clot, cauterizing the exact site leading to the bleed while sparing healthy brain tissue. Often the blood clot is located between lobes of the brain so surgery doesn't require cutting through healthy brain.

In all cases, blood pressure must be vigorously controlled, says Batjer.

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For some patients, all three treatment methods are used. But doctors don't have documented studies to provide them with evidence of which method is best for which patient.

It is known that drug management, with or without the pressure monitor, lessens the risk of a re-hemorrhage if the patient can recover from the stroke. Surgery carries with it the risk of a re-hemorrhage but adds the benefit of removing clots that can continue to distort brain tissue and cause permanent neurologic injury or death, says Batjer.

In the late 1950s one neurosurgeon, using state-of-the-art medicine, reported in the medical literature that surgery did not increase patient survival. At that time diagnosis of hypertensive hemorrhage was difficult and results after surgery were not clearly understood, Batjer says.

However, in 1978 a Japanese neurosurgeon named Kanaya published an astonishingly low mortality rate of 28.6 percent, contradicting all other reports, while another neurosurgeon from Japan gave a higher mortality figure with non-surgical treatment.

Because of the long-time controversy, Batjer has chosen the topic for study.

Diagnosis is now straightforward with the use of CAT scanners, he says, detecting in 15 or 20 minutes what was sometimes impossible to detect in the '50s. By CAT scan one can tell the extent of damage--whether there is swelling, whether the clot has travelled away from the bleed site into other brain regions. Also the recent perfection of the operating microscope allows neurosurgeons a microscopic view of the surgical field so that greater precision can be achieved in performing tedious surgery.

"In spite of a variety of diagnostic and technical developments, which have occurred in recent years, the true role of surgical intervention in basal ganglia hypertensive hemorrhage is still unclear," says Batjer.

"We hope to learn from this study the optimal way of managing patients who stabilize shortly after their hemorrhage. The central issue centers around whether removal of the blood clot with current techniques will improve survival and hasten recovery or will permit a degree of recovery that would not have been possible otherwise."

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