

Newsweek Health

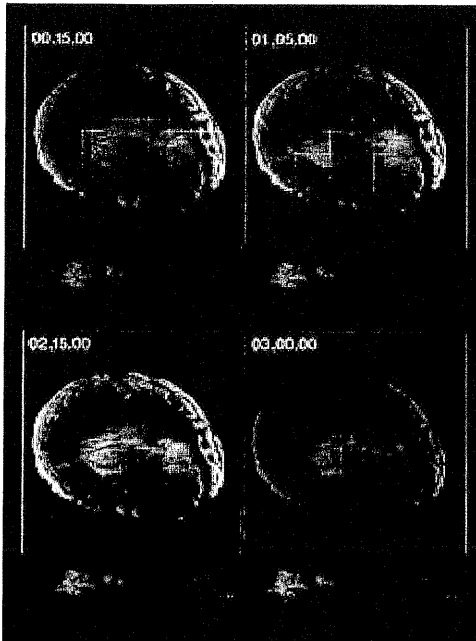


Illustration by Lost In Space for Newsweek

To Save the Stricken Brain

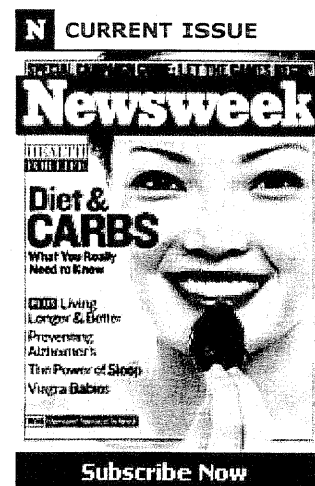
Stroke: 50 percent of U.S. stroke deaths happen before the patient reaches the hospital

By Andrew Murr
Newsweek

Dec. 8 issue - Just two weeks after giving birth to a daughter last November, Michelle Larwood suffered a major stroke. One moment, the Los Angeles woman, 38, sat calmly in a doctor's waiting room. The next, she recalls, "I couldn't speak, and I couldn't move my right side."

Neurologists at UCLA's Stroke Center soon found the cause: a clot blocked the middle cerebral artery feeding the left side of her brain. Watching the blocked vessel on a monitor, an interventional radiologist snaked a tiny catheter tube through a leg artery and into her brain, penetrating the clot. Once he got it past the blockage, the doctor unfurled a tiny corkscrew and gently pulled, much like a sommelier easing a cork from a bottle of vintage merlot. It worked: a week later she was home with her husband and new daughter, Olivia. "I'm just so grateful," she says.

Since 1996, a clot-busting drug called "tissue plasminogen activator," or tPA, has been the sole FDA-approved treatment for strokes, and it can work wonders under some conditions. But even today few patients get its benefits. That's because the intravenous drug is clearly effective only when given within three hours of a stroke's onset. Even then, tPA can cause dangerous bleeding, so many patients whose strokes were caused by brain hemorrhage—or who had recent



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operations like Larwood's caesarean section—aren't eligible at all. As a result, just 3 percent of America's 700,000 annual stroke victims get the tPA treatment. Stroke kills 170,000 Americans every year, and it's the leading cause of long-term disability. Fortunately, the outlook is starting to change. Researchers are exploring several new treatments that, if successful, could make comebacks like Larwood's commonplace.

Until recently no one dreamed of plucking clots from people's brains, but experts now have high hopes for the technique. "Mechanical clot retrieval is a big step for strokes," says Dr. Walter Koroshetz, director of acute-stroke service at Massachusetts General Hospital. "It gets away from using dangerous drugs." The experimental device that helped Larwood was invented by Dr. Pierre Gobin of New York-Presbyterian Hospital. The so-called MERCI retriever (mechanical embolus removal in cerebral ischemia) consists of a nickel-titanium coil that straightens out in the catheter, then springs back to shape to capture the clot (chart). Proponents see several potential advantages. The device can be used up to eight hours after a stroke. It avoids the risk of drug-induced hemorrhage. And whereas tPA can take an hour or more to break down a clot, the device can remove one in minutes. "If you can physically remove something, you are not going to play around with tPA for two hours," says Dr. Thomas Grobelny of St. Luke's Hospital in Kansas City, Mo.

It's too soon to say how often the technique will work, but early results seem promising. In a multicenter trial with 28 patients, the device cleaned out the clot 46 percent of the time. Concentric Medical, which makes the device, has applied for FDA approval using data from more than 110 patients. Roughly 3 percent of them suffered complications such as bleeding from arterial damage.

No single therapy can work for every patient, but stroke doctors are pushing the envelope on other fronts. At Johns Hopkins, interventional radiologist Dr. Kieran Murphy is attacking a deadly form of stroke (vertebrobasilar) with a combination of tPA and stents. Using a catheter, he inserts a tubular stent to widen the blocked artery, restoring blood flow to the affected brain region. "Then we chase the clot with tPA," says Murphy. Vertebrobasilar stroke normally kills nine out of 10 patients, but in a recent study four of the six patients who got Murphy's two-hit treatment survived. Still other researchers are hoping that "neuroprotective" drugs, such as magnesium sulfate, may limit brain damage if administered promptly after a stroke. Researchers at UCLA are training paramedics to administer the drug to patients en route to the hospital. "We'll find out whether magnesium can really help if it's delivered within one to two hours," says UCLA's Dr. Sidney Starkman.

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Better tools are critical, but there's more to be done with the tools already in hand. In fact, researchers have shown that simple education can increase the use of tPA fivefold. Looking at hospitals in three rural Texas counties, a team led by Dr. Lewis Morgenstern of the University of Michigan Medical School noted that tPA treatments spiked from 2.2 percent to more than 11 percent of all stroke patients after his team had conducted an educational blitz to convince docs and patients that strokes were indeed treatable. Morgenstern believes similar campaigns would work in big cities, too, and he thinks the time is ripe. "Now that we have one therapy—and more coming around—it's critical we have greater education and awareness of the need for quick treatment," he says. Patients and their families can only hope for both.

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