



The Newest Heart Test Is Low-Tech

Expensive medical tests like CT scans and MRIs help doctors better diagnose disease. But sometimes the best tools physicians use are decidedly low-tech, like a tape measure or bathroom scale.

Now, a new study suggests cardiologists may want to add a stopwatch to their medical bag. More than half of patients who undergo open-heart surgery in the U.S. and Canada are at least 65 years old and growing numbers of them are in their 80s or even 90s. Timing how long it takes an elderly patient to walk five meters, or about 15 feet, significantly improves a doctor's ability to predict whether a patient will be able to withstand the rigor and stress of surgery, the study found.

A test for what is called gait speed is emerging in geriatric research as a validated measure of frailty in elderly people and a predictor of physical and cognitive health. But it hadn't been tried previously in heart-surgery patients, says Jonathan Afilalo, a cardiologist at Jewish General Hospital, McGill University, Montreal, and lead author of the study.

"The beauty of it is the simplicity," says Joseph C. Cleveland Jr., a heart surgeon at University of Colorado Health Sciences Center, Denver. "It's adding some important knowledge to what is there now. It will be embraced by a lot of people." Dr. Cleveland wasn't involved with the study, but wrote an editorial that accompanies its publication online Tuesday by the Journal of the American College of Cardiology.

In the 131-patient study, slow walkers—those who took longer than six seconds to cross the five-meter line—were about three times as likely to die or suffer such complications as a stroke or kidney failure and were twice as likely to have a prolonged hospital stay or be discharged to a nursing home after open-heart surgery as those who covered the distance in less than six seconds. Patients' use of a cane or a walker didn't affect the study's results.

Doctors cautioned that the findings don't suggest surgery should be routinely ruled out for slow walkers. But they say it could help give patients a more accurate estimate of their surgical risk. In some cases it could lead doctors to consider less invasive treatment strategies or perhaps lead patients to decide to forgo aggressive procedures. Patients in the study were nearly 76 years old on average.

The study also highlights the potential usefulness of many everyday tools to help estimate risk and assess symptoms for heart patients and those with other medical conditions.

For instance, doctors and nurses often ask heart-failure patients to weigh themselves daily on a bathroom scale to monitor their condition. Gaining just a couple of pounds can indicate an unhealthy buildup of fluids—a telltale sign that a patient is at risk of serious shortness of breath and other symptoms that could lead to a hospital admission. Information from the scale can lead to adjustments in diet, such as cutting back on salt, or medications to restore fluid balance.

A tape measure can be as useful as tests for cholesterol, blood sugar and blood pressure in quickly screening a patient's risk for diabetes or a precursor to diabetes called metabolic syndrome. Waist measurements over 40 inches in men and 35 inches in women are the thresholds where risk for the conditions rises. Both maladies put patients at heightened risk for such problems as kidney failure, diabetes-related blindness and cardiovascular disease.

Michael Marks, an orthopedic surgeon with Coastal Orthopaedics at Norwalk Hospital, Norwalk, Conn., uses paper clips as an aid in routine tests for some patients. A bent paper clip replaces much more expensive calipers for the "two-point discrimination test," he says.

A patient with symptoms of carpal-tunnel syndrome, for instance, should be able to feel both ends of the paper clip when they are pressed into a finger more than two-tenths of an inch apart. Much more than that indicates nerve impairment, he says.

Before an X-ray, Dr. Marks also tapes paper clips along, say, patients' spines or legs, where they say they are feeling pain. The image of the clip on the X-ray "helps me focus on where they hurt," he says. "It's nice and inexpensive."

Cardiologists and heart surgeons are seeing growing numbers of very old patients with heart disease who are candidates for coronary artery bypass surgery or who have poor-functioning heart valves that need repair or replacement. Recent studies show that such patients benefit overall from surgery, but they also suffer most of the deaths and major adverse events that result.

Heart surgeons regularly consider frailty among other factors when evaluating an elderly patient for surgery, but it is typically a subjective assessment based on what doctors call an "eyeball test." How easy is it for a patient to get out of a chair in the waiting room or get up on a table for an exam?

"There's not a way to write it down other than to say a patient is frail," says Hartzell Schaff, a cardiovascular surgeon at Mayo Clinic, Rochester, Minn. "This is a useful study," he says of the gait-speed-test report, with which he wasn't involved. "It takes what everyone agrees is an important subjective variable and makes it objective."

Dr. Afilalo, lead author of the gait-speed study, says it will take further research—likely with a larger number of patients—to validate the findings and better determine the cut-off time between slow and normal gait speed.

But University of Colorado's Dr. Cleveland thinks it is already a useful companion to another oft-used low-tech test for frailty: the handshake. A weak hand grip is another recognized, if subjective, indicator that patients may struggle to survive or fully recover from a major operation.

Just last month he had a 91-year-old patient who needed a new aortic valve. "When he shook my hand, he about broke it," Dr. Cleveland says. "He passed that test." And he handled the surgery without any serious problems.