



**HEART**

**TO**

NYU PHYSICIAN 17  
- SPRING 2009

**EXTENDING THE  
LIVES OF PATIENTS  
IN HEART FAILURE**

**BY JANE BOSVELD**

**PHOTOGRAPHS**

**BY WESLEY MANN**

**HEART**

# FORTY-EIGHT-YEAR-OLD MUSICIAN MICHAEL LARSEN

was having Christmas dinner with a friend last December when he started to feel sweaty and out of breath. Suddenly, he felt thumping in his chest (his pacemaker had gone off). “There was this terrible pounding. It was terrifying,” he says now. Larsen was rushed to the nearest hospital and then transferred to NYU Langone Medical Center, where Dr. Larry Chinitz and his team performed an ablation, a procedure to steady heart rhythm.

It wasn’t Larsen’s first encounter with heart disease. Ten years earlier while living in Florida, he’d had a series of small heart attacks. “The doctors there got me back in working order,” he says, “and I really cleaned up my act. I lost weight and quit smoking.”

But despite the lifestyle adjustments, six and a half years later, while working in Seattle, Larsen experienced a near-fatal heart attack. That’s when doctors implanted the pacemaker. Everything was OK until it went off last December, and he was admitted to Tisch Hospital, where he was introduced to cardiologist Stuart Katz, M.D., and nurse practitioner Judith Schipper, R.N., CCRN, MS.

Dr. Katz, the Helen L. and Martin S. Kimmel Professor of Advanced Cardiac Therapeutics, heads the hospital-based Heart Failure Program, an innovative approach that stresses patient education and regular monitoring. With Schipper as its clinical coordinator, the Heart Failure Program assesses every patient admitted to the Medical Center with a heart-related problem to see if he or she is experiencing chronic heart failure (CHF). Once diagnosed, such patients—often more than 25 a week—usually enroll in the program.

Heart failure is a major health problem in the United States. Currently, more than 5 million Americans are living with heart failure, and about 550,000 new cases are diagnosed each year. Among individuals on Medicare, it is the leading

cause of hospitalization. Those numbers are likely to grow as baby boomers age. But what is heart failure exactly? Dr. Katz defines it as the heart’s inability to pump enough blood to meet the body’s needs. He explains that almost any type of heart disease from coronary artery disease and hypertensive heart disease to congenital heart disease can evolve into heart failure. If left untreated, the heart eventually becomes too impaired to pump enough blood to the body.

According to Dr. Katz, “Heart failure is not a curable disease, but if we can get people to recognize the symptoms early on, there are effective treatments. Adjusting their medications and making lifestyle changes can help patients feel better, and even if we cannot improve the symptoms very much, patients and their families often feel better because they understand better where the symptoms are coming from.”

Like many people with CHF, Larsen was unaware his heart had deteriorated. In fact, before his pacemaker went off in December, he was scheduled to fly to Los Angeles and begin work as a pianist for the new Leslie Uggams musical, *Stormy Weather*. He had to cancel and has only recently started to work again. “We’ve found that many patients with heart failure don’t go to the doctor until their symptoms are pretty advanced,” Dr. Katz explains. “They think if they have to rest on their way to the grocery store, they’re just getting older or out of shape. Sometimes if they develop a cough, they think it’s just a cold, even if it goes on for three or four months. It’s not until they experience shortness of breath that they consult a doctor.”

Dr. Katz designed the Heart Failure Program to address this problem. It’s common for heart failure programs to focus on consultation. “Patients can consult a specialist, who may recommend changes in medication,” Dr. Katz says. But often those recommendations aren’t followed.

Dr. Katz wanted the Heart Failure Program to be more hands-on, with a

trained nurse practitioner providing follow-up and engaging in ongoing patient monitoring and education. Citing studies that have looked at the managed care of heart failure patients, Dr. Katz explains that in programs that educate the patient there were fewer hospital stays and sometimes fewer mortalities. “Patients were happier and felt better because they were involved in their own healthcare,” Dr. Katz says.

It was his success in helping a former steelworker suffering profoundly with heart failure that originally inspired Dr. Katz to focus his work in this field. As a resident at Baltimore City Hospital in 1984, he treated the man with a drug that had just recently been approved. The drug produced such a dramatic improvement in his health that the man was able to resume his daily living activities, including walking to a local store and back to his home. “Seeing such a transformation made a big impression on me,” Katz remembers. “In internal medicine, we treat a lot of diseases, but in many cases, we don’t make dramatic changes in patients’ lives. This man’s improvement was incredible.”

Schipper’s inspiration was even more personal. “A short while after I graduated from nursing school in 1976, my father died of a heart attack,” she says. “Bypass surgery was just beginning, and I thought, ‘If only he could have held out a little longer.’” She decided to specialize in treating cardiac patients. Along with the nursing staff, Schipper now educates patients about the warning signs of progressive heart failure. She helps them to manage their medications and instructs them on how to keep themselves as healthy as possible. This includes warnings about weight gain (even three pounds in a week should send patients to their physician) and the value of exercise. Schipper also makes sure that all patients leave the hospital with a printout of their

# YEAR - N SEN

prescription medications, and she calls them regularly to monitor their condition.

Larsen learned how to reshape his diet. “Dr. Katz and Judith Schipper’s ears perked up when they first heard how much I had been eating out at restaurants since coming back to New York. Especially Asian food, which I love so much. It’s rife with sodium,” Larsen says. Schipper explained how to lower sodium intake (Larsen now consumes less than 1,000 milligrams a day, about a third of his previous intake.) He’s stopped going out to restaurants more than once or twice a week. Instead, he cooks for himself—preparing his own low-sodium tomato sauce, for example. “If I cook, I know how much salt I’m getting,” he says.

In addition, Larsen will soon begin cardio rehab, an exercise regimen that allows heart patients to exercise safely. Patients are on a heart monitor and are supervised as they use a treadmill and other exercise equipment. “I’ve lost a lot of weight,” Larsen explains, “but this should firm up what’s left and improve my activity level.”

Patients in the Heart Failure Program may also benefit from participating in groundbreaking clinical trials. Currently, Dr. Katz is participating in four clinical studies, two that may improve treatment of CHF and two that may help prevent heart failure from occurring. The first is a National Institutes of Health Phase IV trial

**“Heart failure is not a curable disease, but if we can get people to recognize the symptoms early on, there are effective treatments,”** says Dr. Katz.

that focuses on the population that receives little attention—elderly CHF patients with diastolic dysfunction, a condition that keeps the heart from relaxing properly. This raises the pressure inside the heart, which then causes water to accumulate in the lungs

and legs. About half of heart patients have this abnormality. But despite its prevalence, there currently is no effective treatment.

“There is really no definitive test to measure diastolic function or dysfunction, so it’s been difficult to design clinical trials,” Dr. Katz explains. The NIH trial is hoping to change that by testing whether spironolactone, a drug that blocks a hormone that contributes to the retention of salt and water, can be used to regulate the dysfunction. “We have a lot of elderly patients with diastolic heart failure,” Dr. Katz says. “So this is an important study for us.”

patients. They will treat those patients as indicated by the results of the blood test, but for the other patients, they will use a physical exam to assess congestion and treat it accordingly. “We’re hoping,” Dr. Katz explains, “to see that the group that has the test revealed to the physicians will have their meds adjusted to fully treat them.” Patients who receive optimum treatment should have fewer hospital stays and better outcomes. “Using this test, instead of relying only on a physical examination, is applying new technology to better manage heart failure patients,” Dr. Katz says.



Nurse Practitioner Judith Schipper and Dr. Katz counseling their patient, Stanley Coven. A cardio rehab program allows heart patients to exercise safely.

The second trial looks at congestion, a major symptom of heart failure that physicians are trained to detect. But do they? “Although most physicians rely on the physical examination to assess congestion,” Dr. Katz explains, “studies

The studies aimed at preventing heart failure are looking at different ways to protect the heart after a heart attack. The first is assessing how well erythropoietin (EPO), a hormone that controls production of red blood cells, reduces muscle deterioration after a heart attack. Animal studies suggest that EPO can have a positive impact; this study will see if that holds true in humans. “We’re using evaluation by MRI to measure in a very precise way the amount of damage done to the heart in patients being treated with either EPO or placebo,” Dr. Katz says.

The other study is testing how well mesenchymal stem cells, a type of stem cell that can grow into different tissues, including muscle, can help the heart heal after a heart attack. “Most researchers think these stem cells

*(continued on page 36)*

show that they miss a lot.” When congestion is overlooked, patients are undertreated, putting them at greater risk for hospitalization and death. Dr. Katz, principal investigator for the trial, is using a blood test to more accurately reveal the level of congestion. Each patient will be given the blood test, but doctors will only be told of the result in half of the

**Heart to Heart***(continued from page 19)*

respond to injury by becoming factories for healing substances that can prevent further damage," Dr. Katz explains. "The cells themselves don't replace cells damaged by a heart attack. Instead, they create an environment that minimizes further damage and seem to help the heart function better after the heart attack."

When Dr. Katz first began his career in 1984, cardiologists didn't worry about the long-term health of their heart failure patients. They didn't advise them about diet, cholesterol levels, or exercise, because, as he puts it, "We knew that they would probably all be dead within two years." But today, thanks to earlier detection and more effective medications, Dr. Katz, like other doctors who treat CHF patients, expects that his patients will be alive for many years if they get the right treatment and maintain heart-healthy habits. As Schipper puts it, "There are ways to prevent the progression of heart failure." And that's what the Heart Failure Program is really designed to do.

Of course, Dr. Katz and Schipper can do only so much. The rest is up to their patients. "They need to be ready to change behavior," Schipper explains. "And we have to intervene at the right time. We need to get at that teachable moment." Such moments can inspire patients to take charge of their own health. Whether it's Larsen making low-sodium tomato sauce, or the man in his sixties Schipper saw after he was treated at NYU for heart disease. "He didn't have heart failure, but he was at risk for it," Schipper recalls.

"I was able to reach him in a way that made him see that at this point in time, he could make a difference, that he could exercise and do the right things and allow his heart to recover in a way that would prevent him from being a disabled elderly person." And he did just that, according to Schipper. "He turned it around, and now he's doing very well." ●

## Dr. E. Roy John

**E. ROY JOHN, PH.D., PROFESSOR OF PSYCHIATRY**, died on February 28, 2009, at the age of 84. A pioneer in the use of quantitative electroencephalography (QEEG), Dr. John founded the Brain Research Laboratory at the School of Medicine in 1974 and served as its director for over three decades, working alongside his wife, Leslie Prichep-John, Ph.D., the lab's associate director. He was also a research scientist at the Nathan S. Kline Institute for Psychiatric Research of the New York State Office of Mental Health.



Dr. John was famous for his wide-ranging intellect and keen scientific insight, as well as for his warm heart and passionate interest in both humanity and the workings of the human brain. He is credited with inventing the field of neurometrics, which analyzes abnormal brain function by measuring the brain's electrical activity. Dr. John was also fascinated by the nature of consciousness and was among the first to postulate that memory is distributed throughout the brain, rather than encoded in specific groups of neurons.

His 1967 textbook, *Mechanisms of Memory*, remains a classic in its field. His colleague Robert Thatcher, Ph.D. (who coauthored the book *Functional Neuroscience* with

Dr. John), recalls, "There were so many occasions when difficult concepts were being discussed, when Roy would perceptively cut to the heart of the matter and immediately transform everyone in the room toward a simple and elegant solution. Sometimes this would almost take your breath away."

During the early years of World War II, Dr. John worked in an airplane plant and machined plutonium for a program later revealed to be the Manhattan Project. He volunteered for the U.S. Army in 1943 and fought in the Battle of the Bulge and the invasion of Germany. Following the war, he attended the University of Chicago on the G.I. Bill, earning a degree in mathematical biophysics and a doctorate in physiological psychology. After working as a brain researcher at the University of California at Los Angeles, he established the Center for Brain Research at the University of Rochester, then moved to New York City in 1963 to direct the brain research lab at Flower Fifth Avenue Hospital for 10 years before joining the School of Medicine's faculty.

Dr. John's interest in EEG brain research coincided with the development of computers, which allowed EEG data to be systematically analyzed for the first time. As computers became more powerful and their database of QEEG readings accumulated, Dr. John and his colleagues developed algorithms that let them quantitatively identify a wide range of mental abnormalities, from depression, dementia, and schizophrenia to traumatic brain injury and alcoholism. He also worked actively to translate these discoveries into clinical treatments for neurocognitive and psychiatric disorders. More recently, he developed a QEEG algorithm for monitoring patients' brain activity during surgery, to detect when they were receiving too much or too little anesthesia.

Dr. John is survived by his wife and colleague, Leslie Prichep-John, his children, Sarah John, Sheila Fischer, S. Sandor John, Martha John, M. Sasha John, and Joshua Turner, and his eight grandchildren and five great-grandchildren. ●