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## How the Game is Changing in Heart Failure Treatment

This is ReachMD.

Welcome to this cardiology-focused program on “How the Game is Changing in Heart Failure Treatment,” developed in partnership with Boston Scientific.

Your host is Dr. John Russell.

Dr. Russell:

Heart failure is a debilitating condition that seems to be growing at an alarming rate. In fact, the American Heart Association predicts that the number of the adults living with heart failure will increase by a staggering 46% by 2030. But, could a simple change in how we approach cardiac care be the key to reversing this trend?

This is ReachMD, and I am Dr. John Russell. Joining me to talk about current heart failure approaches and way to improve patient outcomes is Dr. Devi Nair, electrophysiologist at St. Bernards Heart and Vascular in Jonesboro, AK.

Dr. Nair, welcome to the program.

Dr. Nair:

Thank you so much for having me on this program.

Dr. Russell: Let's jump right in by talking about the ways we currently treat heart failure. How do cardiologists typically approach this condition?

Dr. Nair:

Well, as you said, Dr. Russell, heart failure is a very debilitating condition. We know that heart failure can be cured, but there are different ways that we try to take care of these patients. We usually start off by identifying the root cause and try to fix or correct those root causes, and that might sometimes involve procedures, surgery, or maybe medical devices to treat the underlying problem that lead to the heart failure. Sometimes it includes things like coronary angioplasty, coronary bypass surgery, heart valve replacement, and in many instances devices such as implantable cardiac defibrillators or cardiac resynchronization therapy defibrillators, or what we call CRT-Ds, and sometimes even ventricular assist devices. That is one way that we take care of the root cause.

Now, in addition to that, we typically treat these heart failure patients with a combination of medications, such as beta-blockers, ACE inhibitors, ARBs, so there is an array of medications that we use to take care of these heart failure patients. And in addition to all of this, we prescribe a very healthy lifestyle, which would usually include quitting smoking and maintaining a healthy exercise and diet regimen.

Dr. Russell:

So a lot of these things, I guess, would fall into being reactive—we wait until our patients have some symptoms and then we treat it. What is the impact of all of these things we do, all the devices and medications, and are we making a difference?

Dr. Nair:

You know, if you look at the statistics in the United States and around the world, there are more people that survive heart attacks. There is more aging population, and there is a sharp rise in diabetes and obesity. What has happened with all of this is the heart failure rate is expected to skyrocket by at least 46% by the year 2030. What's more is heart failure is the No. 1 cause of hospitalizations in the developed world. Now, if you take the United States, over 50% of our economic costs for heart failure are related to heart failure hospitalizations. And if you look at that population, just the heart failure population, 25% of these patients that are hospitalized for heart

failure come back to the hospital within 30 days, which truly makes it a much bigger problem. We treat these patients with heart failure with these medications and devices, though we are really not being able to at least make an impact on the quality of life and sometimes even the hospitalization rate and the financial issues that come along with it.

Dr. Russell:

So, if we looked at this in reverse, how would or should a more proactive approach get adopted to a heart failure treatment paradigm?

Dr. Nair:

If you look at our country now, everything is about technology, right? Technology has transformed the way consumers monitor their health. Everything from your sleep, your oxygen intake, can be tracked. The most recent Apple device talks about monitoring your electrocardiogram. So, what does this do to us? It enables realtime changes in our health behavior. So, as we track things with technology, we try to make ourselves better. Now, tracking technology is truly modernizing cardiac care for those at risk of heart failure. So, when we look at the patients, in turn—instead of just treating them with medications and devices and treating their underlying cause, we are trying to be more proactive and intervene only and help reduce patient hospitalizations, because we do believe that every time a patient gets hospitalized, their heart failure status worsens.

Dr. Russell:

So looking at the shift from the reactive to proactive, for you and I as clinicians, what are the tools that would be available for us for our patients to help implement this kind of approach?

Dr. Nair:

Last year the USFDA approved the HeartLogic Heart Failure Diagnostic, which is programmed within implantable cardiac defibrillators and cardiac resynchronization therapy defibrillators, or what we call ICDs and CRT-Ds, and this too can help predict and alert physicians of potential heart failure events weeks before the event happens. There are multiple sensors that usually track key physiologic trends including heart sounds, thoracic impedance, respiration rate and volume, and heart rate and activity over time, and these trends are then combined into a composite index. And what happens is this index is programmable by a clinician, and the clinician can set a threshold. Once this crosses that programmable clinician-set threshold, the clinicians get a very proactive alert that gives them access to a detailed report, which in turn lets them intervene only and help reduce the hospitalization.

Dr. Johnson:

So you don't have to wait until the patient has put on 25 pounds or shown up at the ER, correct?

Dr. Nair:

That's exactly right. That would be the more reactive approach that we used to take where the patient becomes sick, is in the hospital, we treat them, we send them home. This would be a more proactive approach where we reach out to them weeks ahead of time, and that way we can keep them out of the hospital. If you look at it, this is the only tool, the first and only tool approved by the FDA.

The other thing is the cardioMEMs device, which is really we don't have as much data, but as far as the FDA is concerned, this is the only tool that has been approved for monitoring heart failure. Now we do have impedance, OptiVol and thoracic impedance and things of that sort that we monitor and wait and things like that, but as a multi-sensor approach and being proactive, this is the only tool that is available. Almost every other tool that we have is more of a reactive tool.

Dr. Russell:

For those just joining us, this is ReachMD, and I am Dr. John Russell. I am joined by Dr. Devi Nair to offer a different perspective on heart failure treatment and the downstream impacts of this approach.

So, in your office you would have put in a device with this HeartLogic feature attached to it, and someone in your office would get a report in the morning. How would you implement this kind of in the office for keeping that patient out of the hospital?

Dr. Nair:

This, too, has truly given me the ability to pivot from that reactive heart failure treatment to becoming a more proactive heart failure physician. And my goal is to reduce any heart failure-related hospitalization, because I do believe that in addition to everything I provide my heart failure patients, reducing their hospitalization is the key. So, for example, if a patient's alert goes off, I am able to proactively reach out to them, and my heart failure team is proactively able to reach out to them. If they need an appointment scheduled to be seen, that gets taken care of. We talk to them about compliance. We check on their medication status and such and take care of the issue even before it becomes an issue.

Dr. Russell:

What have been some of your experiences with some of your patients in trying to get in front of this issue instead of waiting until it develops?

Dr. Nair:

I had a patient who had the alert go off, and we ended up calling the patient, checking on their status, and what was happening was they were not being compliant with their medications—not because they didn't want to take it, just the financial issue—and really had trouble keeping up with the medications, so was kind of splitting the medications, which is not what we had recommended. We were able to contact the pharmacy and get them into a medication assistance program and get the patient back on the medication on regimen, and that patient has stayed out of the hospital and really not been back in the hospital with heart failure exacerbation.

Talking about another patient who actually had a cardiac resynchronization therapy device implanted for heart failure, who had multiple admissions over the year 2017 for worsening heart failure symptoms, had the alert go off, and what we have done is truly keep the patient on a very regimented dose of diuretics and keeping the fluid levels down based on that alert. And over the past 9 months, the patient has not had a single heart failure hospitalization, whereas in the year 2017, he had almost 7 heart failure hospitalizations, which is a big deal for the patient because this changed the quality of his life. Instead of spending days in the hospital, he is actually out there farming now, which is a big deal.

Dr. Russell:

Wow, they are amazing stories. But you and I are academicians, right? And we want to know about the quality of our evidence. Is there good quality evidence that is being investigated? Has this been looked into at academic centers like yourselves, and are academic centers like your own getting behind this product?

Dr. Nair:

I was part of the MultiSENSE study, and the MultiSENSE study assessed more than 900 patients who had enhanced sensor data collection that was enabled in their CRT-D systems. And if you look at the data that was published in Circulation Heart Failure in July of 2018, the MultiSENSE results showed that the HeartLogic alert showed a clinically significant 10x increase in heart failure event probability when patient had a HeartLogic alert status versus out of alert status. If they had a HeartLogic alert status on, that means that they had a 10% chance of having a heart failure event. Thus, with this technology I think clinicians are able to risk-stratify their patients based on that alert status. And for future, I think when we look at it now, I am actually actively participating in the MANAGE-HF Study, and so are many centers around the country. Through this MANAGE-HF Study, I think we will be able to realize the capabilities of this diagnostic tool fully in clinical practice, and I truly look forward to collecting additional data on how the alert can enable much improved patient outcomes.

Dr. Russell:

That is a great comment for us to think about as we come to the end of our program on heart failure.

I want to thank Dr. Devi Nair for joining me today in discussing a novel approach to this serious condition.

Dr. Nair:

Thank you very much.

The preceding program was developed in partnership with Boston Scientific. This is ReachMD. Be Part of the Knowledge.