ATTR-CM Podcast, part 1 of 3

- Patty Clemmons, Announcer
- Dr. Amrut Ambardekar
- Dr. Michelle Kittleson
- Patient Richard Hawkins

Patty Clemmons:	00:00	Hello, I'm Patty Clemmons with the communications team at the American Heart Association. Today, we're beginning a three part series on transthyretin amyloid cardiomyopathy, or ATTR-CM. Joining me for this discussion are Dr. Amrut Ambardekar, medical director, cardiac transplant program, associate professor of medicine, University of Colorado. Also joining me is Dr. Michelle Kittleson, director of heart failure research as well as post-graduate education in heart failure and transplantation and associate professor of medicine, Smidt Heart Institute, Cedars-Sinai. And ATTR-CM patient Richard Hawkins will provide insight as well.
Patty Clemmons:	00:39	Welcome to all of you. Let's set the stage first by asking a few basics. Dr. Ambardekar, how about we start with you. What is transthyretin amyloid cardiomyopathy, or ATTR-CM?
Dr. Ambardekar:	00:49	Transthyretin amyloid cardiomyopathy, or ATTR cardiomyopathy, is an underdiagnosed and potentially fatal disease. It is characterized by deposits of amyloid protein fibrils in the walls of the left ventricle, the main pumping chamber of the heart. In ATTR cardiomyopathy, the amyloid protein is made of transthyretin. The amyloid protein deposits causing the heart walls to become stiff, resulting in the inability of the left ventricle to properly relax and fill with blood and adequately squeeze to pump blood out of the heart.
Patty Clemmons:	01:25	So, is there more than one type?
Dr. Ambardekar:	01:27	There are two types of the ATTR-CM. With the first type, hereditary ATTR-CM, there's a mutation in the transthyretin gene, which results in amyloid deposits in the heart, nerves, and sometimes the kidneys and other organs. Hereditary ATTR-CM can run in families. Symptoms may start as early as age 20 or as late as age 80. There are a number of mutations. Different mutations are common in different parts of the world. For example, hereditary ATTR-CM is more common in localized parts of Portugal, Sweden, and Japan. Certain mutations are more common in people of Irish ancestry, while others are more common in people of African descent. In the United

States, the most common mutation occurs in African Americans, prevalent in approximately one in 25, and in older patients who may be misdiagnosed with hypertensis or high blood pressure related heart disease. Different mutations have different patterns of disease progression and involve different organs.

Dr. Ambardekar: 02:24 The second type is wild-type ATTR-CM. With this form of the disease, there's no mutation in the transthyretin gene. Wild-type ATTR-CM does not run in families. It most commonly affects the heart and can also cause carpal tunnel syndrome and peripheral neuropathy, also known as pain and numbness in the hands and feet. The symptoms usually start after age 65. The clinical course is not well understood because the condition is likely underdiagnosed and more common than previously recognized. Some patients may have no symptoms, and others may progress to end stage heart failure. The symptoms of wild-type ATTR-CM may be mild and remain undiagnosed. In its early stages, ATTR-CM may mimic the symptoms of other conditions, such as hypertension or high blood pressure and hypertrophic cardiomyopathy, enlargement and thickening of the heart.

Patty Clemmons: 03:14 What is transthyretin? Dr. Kittleson, let's go to you.

Dr. Kittleson: 03:19 Sure. Well, within our cells, proteins have many jobs. Transthyretin is a transport protein. It's created in the liver, and its job is to carry thyroxine, a thyroid hormone, and retinol, vitamin A, to places in the body where they're needed.

Patty Clemmons: 03:35 And remind us all, what is cardiomyopathy?

Dr. Kittleson: 03:38 Cardiomyopathy is a heart condition that prevents the heart muscle from functioning normally. Some forms of cardiomyopathy are associated with an enlargement and weakening of the heart muscle. Other forms are associated with the stiffening of the heart muscle so that it cannot relax and fill with blood effectively. In both cases, the blood is not pumped adequately to the body and backs up into the lungs, causing fatigue, shortness of breath, leg swelling, and abdominal bloating, a condition known as heart failure.

Dr. Kittleson: 04:13 ATTR-CM can cause both weakening and stiffening of the heart muscle. There are many different causes of heart failure that might be underdiagnosed and treatable. ATTR-CM is one such condition. ATTR-CM can cause both weakening and stiffening of the heart muscle.

Patty Clemmons: 04:34 Richard, can you share a bit of your story with us?

Richard Hawkins: 04:38 Sure. My story began years prior to my first incident. I had a syncope, actually, in 1995, which was unrelated until I started experiencing a few similar events later on. But in 2012, March 3rd, I was at the fitness center on a recumbent bike and I had a lethal arrhythmia. I felt it coming on. Usually when you faint, you do so immediately. It took me probably ten seconds to complete my faint. Knowing that was happening gradually, I had time to prepare for it, so I literally put my feet on the ground, my arms on the handlebars of the bike, and laid my head down. Because I looked comfortable, nobody around me understood there to be a problem.

Richard Hawkins: 05:37 After several minutes, a lady on a treadmill behind me finally came up and shook me and realized I didn't respond, so she went over to get her husband who was lifting weights in front of the mirrors and impressing all the girls. He came over and shook me as well, and I didn't respond, so then they went to get a fitness center staff person who came and shook me and didn't respond. They had defibrillators on the wall, but nobody was trained to use them. They called the Riverside Fire Department, who arrived, as they said, five minutes later. They dragged me off the bike and defibrillated me. Got to the hospital by ambulance, I recognized a half hour later, the attendant, a female attendant who dropped me off, she dropped off a patient in an adjacent room. She came and stood in the threshold of my door and looked at me, because I was gabbing with my bride who was also at the hospital at the time, and she looked at me aghast and said, "You have no idea what happened to you, do you?"

Richard Hawkins: 06:50 I says, "No, I really don't. I feel fine. I don't know why I'm here. I should be at home with my bride." And she looked at me and said, "You were gone," very matter-of-factly. And I said, "I have no idea what you're talking about."

Richard Hawkins: 07:06 They kept me in the hospital because they knew something was amiss with my heart, something was totally foreign and unexperienced. They did a number of tests and several days later, I was brought to the cath lab for a procedure and I actually passed in the cath lab. They came out and told my bride after the procedure, "Well, we lost him, but it's okay, because we got him back again."

Richard Hawkins: 07:33 Anyhow, that led, the testing that they did in the cath lab, for them to conclude that there was something wrong with my heart that was invasive. They couldn't figure it out. The hospital was not really equipped for that. So they transferred me to

another hospital to do an MRI in an open canopy, whatever it is, open machine. While there, I also had a defibrillator pacemaker placed because I was having arrhythmias that were very erratic. Anyhow, after having the defibrillator pacemaker placed, they told me I should immediately start feeling better. That was March of 2012. In August, I went back to my cardiologist and I asked, "When again should I start feeling better? Because I don't." He said, "What are you experiencing?"

Richard Hawkins: 08:36 I said, "Well, it's very difficult to breathe sometimes. That's incremental and irregular. Especially at elevation and in the mountains." We went on a vacation in Lake Tahoe and I could barely endure the week. I had to go down the hill several times. And I had other symptoms that came along. I said, "I am not feeling better." And he said, "Then I need to get you to Cedars-Sinai to have a biopsy to find out what it is that's triggering this."

Richard Hawkins: 09:06 They put us through some tests and after the lengthy array of tests and whatnot, they eventually, in November 4th of 2012, I was approved as a transplant patient. They said, "You have about a one year wait out here," and one year and one month later, I was able to receive a total artificial heart, TAH, because that morning I went into a v-tach that lasted an hour and 40 minutes. Nobody could quell it. The doctor, cardiologist came in and said, "Mr. Hawkins, you've got minutes to hours to live. You're not going to survive this day unless you go now for an artificial heart."

Richard Hawkins: 09:58 So I went for an artificial heart immediately. It just was uncanny how quickly they actually raced me on the gurney up to the OR. Had the transplant, hurt like heck, and recovered. The donor heart came 30 days later. My understanding, I've been told this a number of times, once they do a transplant, you are given a 30 day window from after receiving the mechanical heart, the TAH, a 30 day window to receive a donor heart. After that, you're too far into the healing process. So on the 29th day, I began to believe I was not going to qualify or get a heart in time, that I would be released from the hospital with a battery pack and the total artificial heart. And the 30th day, I actually told my surgeon and a couple other cardiologists and staff, "I'm sorry, but I'm not going to qualify for a heart now. There are no donors."

Richard Hawkins: 11:08 But then at the very latest hour of the day, my bride had already left to go to our apartment by the hospital, I got a call from Jenna, my transplant coordinator, who said, "Mr. Hawkins, we

have a heart for you." I wept like a baby and called my bride, my brother, and a few other friends. Shortly thereafter, I began the transplant process with the heart that I now have that's five years and five months old.

Patty Clemmons: 11:37 We certainly covered the fundamentals today. Thanks to Dr. Amrut Ambardekar and Dr. Michelle Kittleson for laying the groundwork on transthyretin amyloid cardiomyopathy. I also want to thank Richard Hawkins for helping us to understand the patient's point of view. Join us for part two in this series when we discuss causes and symptoms.

Patty Clemmons: 11:54 Thank you for taking the time to check out this podcast, and that's it for today's discussion. Please visit us at heart.org/ATTRCM for additional information. The American Heart Association would like to thank Pfizer for funding these educational resources through a grant. Thank you all for your time today.