



HURLEY IN THE MORNING > PODCAST TRANSCRIPT

Understanding Heart Rhythm Disorders

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FEATURED PHYSICIAN

Pedram Kazemian, MD

Electrophysiologist

Harry Hurley

The great Dr. Kazemian is here, as I mentioned. Sir, I talked behind your back and said how impeccable, how immaculate you are, and how many times we've done this together in the past. Dr. Kazemian is to be held harmless — I use that term precisely because he was attempting to get through and couldn't. There was a problem with the phone line. It is my pleasure, and you talk about a great friend, because his time — 30 minutes, scheduled way in advance — is very significant. We just got Dr. Kazemian; he was able to finally get through. I didn't realize he was having trouble getting through, but I knew something unique was happening. I asked, "Do you want to reschedule?" and he said, "No, no, no, let's do it now!"

Dr. Kazemian, I'll do a brief introduction since I covered the full one a bit ago. Dr. Pedram Kazemian, who's been with us for a number of great interviews, is a very talented electrophysiologist, board certified in both cardiovascular disease and clinical cardiac electrophysiology. His special interests include atrial fibrillation, heart failure, and ablations for ventricular tachycardias, along with numerous clinical research projects and articles in peer-reviewed medical journals. Dr. Kazemian also holds a leadership title as Director of the EPS Fellowship Program at Deborah Heart and Lung Center. We have a very important topic this half-hour: understanding heart rhythm disorders. Sorry you had trouble getting through, sir. Welcome.

Dr. Pedram Kazemian

Thank you. Thank you.

Harry Hurley

It's great to welcome you back. Our first question on the topic: what are heart rhythm disorders and arrhythmias?

Dr. Pedram Kazemian

The heart has its own electrical system, essentially, with a natural pacemaker we call the sinus node. It's in the upper chamber of the heart and generates and coordinates each heartbeat in an organized fashion. This electrical signal starts at the top chamber and works its way down to the bottom chambers to create an effective, efficient contraction. Arrhythmias occur when this system is disrupted in some way, leading to heartbeats that are too fast, too slow, or irregular. The clinical impact can range from something mundane, like extra beats, to extreme, life-threatening arrhythmias like ventricular tachycardia that may need treatment.

Harry Hurley

Again, we're visiting with Dr. Kazemian, and the topic is understanding heart rhythm disorders. Typically — and we do float a little if needed — but more than 95 percent of the time, Deborah Heart and Lung Center Presents airs on the second Thursday of every month from 9:05 to 9:35 a.m., where we visit with great doctors like Dr. Kazemian on important topics like today's. What are the different types of arrhythmias, Doctor?

Dr. Pedram Kazemian

Arrhythmias are generally classified based on where they originate and how they affect the heart rate. Some are tachyarrhythmias, meaning fast heart rates, such as SVTs. Others are bradyarrhythmias, slow heart rates, which can result from a problem with the heart's natural pacemaker or the wiring that conducts the electricity. Sometimes we see irregular heart rates that can be fast or slow, such as atrial fibrillation, which is the most common arrhythmia and which we'll hopefully talk about. And as I mentioned, ventricular arrhythmias come from the bottom chamber of the heart — those are often dangerous and require urgent treatment.

Harry Hurley

If you're just joining the program, this is Dr. Kazemian, cardiac electrophysiologist at Deborah Heart and Lung Center. If you'd like to make an appointment, there are two easy ways. If you prefer to speak with someone by phone: 609-621-2080 — operators are standing by. Or on any digital device at demanddeborah.org. Dr. Kazemian is discussing understanding heart rhythm disorders. What causes a heart rhythm disorder? I'll throw out lifestyle, genetics, aging — take a number, all of the above? Your thoughts.

Dr. Pedram Kazemian

In most cases, arrhythmias are caused by a combination of factors — not just one. Sometimes we actually don't know the exact mechanism. Aging plays a major role, as the heart's electrical system degenerates over time — wear and tear, if you wish. Lifestyle factors like alcohol intake, caffeine, stress, and untreated sleep apnea can trigger or worsen arrhythmias. Structural heart disease, like a prior heart attack or valve disease, can also contribute. Genetics can be important too, particularly in younger patients with inherited arrhythmia disorders, though that's a smaller portion of cases.

We also see environmental causes. In New Jersey, for example, we deal with ticks and Lyme disease, which can affect the heart's conduction system and cause bradyarrhythmias, or a slow heart rate. And in occasional cases, we see what are called iatrogenic causes — a patient who's had cardiac surgery, where the conduction system is inevitably disrupted as part of the procedure, and we may need to address that afterward.

Harry Hurley

Dr. Kazemian, I think this would be helpful for your listeners. Are there symptoms of a heart rhythm disorder? And could someone right now be listening, have an arrhythmia, and not have any symptoms at all?

Dr. Pedram Kazemian

Absolutely. Symptoms of arrhythmia can vary significantly and may include palpitations — feeling the heart flutter or race — fatigue, shortness of breath, dizziness, and in extreme cases, even fainting. But one of the most important points is that many arrhythmias, like atrial fibrillation, can also be completely silent, so you can't rely entirely on symptoms. Studies suggest approximately 30 to 40 percent of patients with AFib have minimal or no symptoms at all, while others are symptomatic. This variability is clinically important, because even asymptomatic patients can still be exposed to significant risks, such as stroke. That's why detection and appropriate management are critical.

Harry Hurley

You're listening to cardiac electrophysiologist Dr. Pedram Kazemian from Deborah Heart and Lung Center. The topic is understanding heart rhythm disorders. You mentioned palpitations — for some folks, palpitations can be nothing to worry about, and for others, they can be something to worry about. Is that fair?

Dr. Pedram Kazemian

Absolutely. As I mentioned, the spectrum runs from mild rhythm disorders, like rare extra beats from the top or bottom chamber that may cause palpitations, to more extreme, life-threatening cases like ventricular tachycardia, which originates from the bottom chamber. Both can cause palpitations. But interestingly, palpitation is a subjective feeling that doesn't always correlate with the objective severity. One person might have a 1 percent PVC burden — those extra beats — and be extremely symptomatic, while another might have 30 or 40 percent extra beats and feel nothing. So we can't rely completely on palpitations, but they're usually one of the things that bring a patient to our attention.

Harry Hurley

And palpitations, Doctor, can come and go, right? You could have them, then not have them for a long while, and then have them again?

Dr. Pedram Kazemian

Absolutely.

Harry Hurley

How is an arrhythmia diagnosed?

Dr. Pedram Kazemian

Very good question. Diagnosis often begins with something very simple — checking a pulse. A patient checks their own pulse, or a nurse or primary care provider checks it during a routine exam, and that prompts further investigation into why the heart rate is fast, slow, or irregular. From there, we typically confirm the diagnosis with an electrocardiogram, or ECG, which records the heart's electrical activity using patches placed on the skin, giving us the exact rhythm at that moment.

Because many arrhythmias are intermittent, we often need longer-term monitoring tools — Holter monitors, event monitors, or, nowadays, smartwatches and wearable devices that can catch an episode when it occurs. In cases where symptoms are infrequent, we may go a step further and implant a device that monitors the heart for two or three years, called a loop recorder. It's a very minor procedure that can be done right in the office, and it monitors heart rhythm continuously over months to years to capture those elusive arrhythmias we can't catch when the patient comes into the office.

Harry Hurley

So important. We're going to take our one break during Deborah Heart and Lung Center Presents. Today, Deborah Heart and Lung Center Presents Dr. Pedram Kazemian, cardiac electrophysiologist at Deborah Heart and Lung Center. The topic is understanding heart rhythm disorders, and when we come back, the question on the floor is: AFib is the most common arrhythmia and can lead to an increased risk of stroke. How is stroke risk managed for people with AFib? That's the question when we come back with Dr. Kazemian on Hurley in the Morning, right after this.

Dr. Kazemian is visiting with us this half-hour and has been very flexible, since we delayed him — he didn't delay us. Dr. Pedram Kazemian is a talented cardiac electrophysiologist at Deborah Heart and Lung Center. You can schedule an appointment by calling 609-621-2080 or on the web at demanddeborah.org. The topic this half-hour on Deborah Heart and Lung Center Presents is understanding heart rhythm disorders, and the question on the floor right before the break was: AFib is the most common arrhythmia, as I've learned from Dr. Kazemian in past interviews, and it can lead to an increased risk of stroke, which Dr. K has also taught us about. How is stroke risk managed for people with AFib, Dr. Kazemian?

Dr. Pedram Kazemian

That's an excellent question. Atrial fibrillation is the most common arrhythmia we see, and unfortunately, it's strongly associated with an increased risk of stroke. Management focuses first on assessing stroke risk, using a validated scoring system called the

CHA2DS2-VASc score, which accounts for comorbidities like hypertension, heart failure, diabetes, and others. For patients at moderate or high risk according to that score, the cornerstone of therapy is anticoagulation with blood thinners. This reduces the risk of stroke — it doesn't eliminate it, but it reduces it by about 80 to 85 percent, which is very good.

For patients who aren't good candidates for long-term anticoagulation — for example, because of a tendency to bleed — we now have alternatives called left atrial appendage closure devices. These are same-day procedures that protect against stroke risk without requiring additional blood thinners. Beyond stroke prevention, we also have to address the symptoms that come with atrial fibrillation. There are two main approaches to treatment: rate management, making sure the heart rate is controlled, and rhythm management, using ablation. Newer ablation technologies are much faster, usually with same-day discharge, and offer up to an 80 to 85 percent success rate in preventing recurrence of atrial fibrillation.

Harry Hurley

Dr. Kazemian, what medications and procedures are available to manage heart rhythm disorders?

Dr. Pedram Kazemian

Another great question. Treatment has to be individualized, but it generally falls into a few main categories. There are rate control drugs, like beta-blockers or calcium channel blockers, which help slow the heart rate in people with fast heart rates. Then there's antiarrhythmic medication, aimed at maintaining a normal heart rhythm. In patients with atrial fibrillation and other high-risk conditions, anticoagulation is also important, as I mentioned earlier.

Beyond medication, there's a range of procedures, including cardioversion — a same-day procedure that restores normal rhythm in many cases of permanent or persistent arrhythmia — catheter ablation, and, in certain cases, device therapy, such as pacemakers and defibrillators. The overall goal isn't just to control the rhythm, but to improve symptoms and reduce long-term risk, including through anticoagulation where appropriate.

Harry Hurley

Dr. Kazemian, a moment ago you mentioned ablation. What is an ablation procedure, and how does it work?

Dr. Pedram Kazemian

The ablation procedure has gone through many changes and advancements over the past few years. Catheter ablation is a minimally invasive procedure that lets us treat arrhythmias at their source — the heart. Through a small puncture, typically in the leg, we advance thin catheters into the heart and use an advanced mapping system to identify

the areas responsible for the electrical abnormality. Once we identify those areas, we treat them using different energy sources — traditionally radiofrequency, which is heat, or cryoablation, which is freezing. Now we also have pulsed field ablation, which is the new kid on the block. For some tachyarrhythmias, especially atrial fibrillation and SVTs, ablation can be highly effective and, in some cases, curative — reducing or even eliminating the need for long-term medication to control the rhythm.

Harry Hurley

What would you say are the benefits of this newer pulsed field ablation technology, compared to traditional catheter ablation?

Dr. Pedram Kazemian

Pulsed field ablation, which has been available in North America for almost a year now and which we have access to, is an exciting new technology that differs fundamentally from traditional ablation methods. Instead of using heat or freezing, it delivers short bursts of a high-energy electrical field that eliminates the abnormal cells causing the arrhythmia, without generating heat. What makes this approach unique is its selectivity — it preferentially affects cardiac cells while sparing adjacent structures in the chest that we don't want to damage, like the esophagus, the phrenic nerves that run around the heart, and other blood vessels. This tissue selectivity is a major advantage, which is why experts believe pulsed field ablation is a safer and potentially superior approach. Procedure times have also dropped drastically — AFib ablation used to take five or six hours back in the early 2000s. Now it's done in about an hour, and most patients go home the same day. It's a dramatic improvement in both efficiency and safety.

Harry Hurley

This has just flown by. We're on the last question, but I also want to give Dr. Kazemian a closing comment. I'll give this brief preamble because we've been doing the television and radio versions of Deborah Heart and Lung Center Presents together for 35 years this July. I remember pacemakers from early on — we'd show them on the television program, and on the radio edition we'd describe them in theater of the mind. They used to protrude noticeably, visible even under a t-shirt. Now they're unbelievably small, and they keep getting smaller — leadless now, with no leads at all. What are the benefits of these next-generation pacemakers?

Dr. Pedram Kazemian

Pacemakers have been around for a long time — the first implantable pacemaker came out in 1960, so you can calculate how many years that's been. The technology has improved drastically since then.

Harry Hurley

By the way, Dr. Kazemian, remind everyone — back then, and for decades that followed, a pacemaker looked like the size of a pack of cigarettes and would protrude noticeably at skin level.

Dr. Pedram Kazemian

Absolutely. Both battery technology and lead technology have improved over the years, so even leadless pacemakers today are significantly smaller than that 1960 prototype. But one step further, we now have pacemakers that don't even require a lead, and you can't see them from outside because they're not placed under the skin in the traditional way. They're about the size of a bullet, roughly an inch in length, and are placed directly inside the heart. There are no wires connecting the device — the device itself contains the circuitry and battery.

There are many benefits to this. A lead can be a source of complications, such as infection, and leads can fracture over time — they're bending hundreds of thousands of times a day — and they can cause obstruction in the veins they pass through. A leadless pacemaker eliminates that, since it's a much smaller, self-contained unit implanted directly in the heart through a catheter, eliminating the need for leads and a surgical pocket, which significantly reduces infection risk. In fact, it's extremely rare for these devices to ever get infected, and recovery is quick.

Cardiac devices in general are becoming more sophisticated and smaller, with longer battery life — some of these leadless devices now have a battery longevity of 20-plus years. They also offer programmability and remote monitoring. Many devices can transmit data wirelessly, so we get information essentially every night, and if an abnormal rhythm is detected, it's automatically sent to us and we contact the patient if needed. That lets us catch potential issues early without requiring an office visit. These innovations have transformed device therapy, and I think it's one of the most exciting areas in electrophysiology — pacing and defibrillators.

Harry Hurley

Remarkable to hear. The future is now — that's an amazing narrative you just shared. To make an appointment at Deborah Heart and Lung Center: 609-621-2080, or on the web at demanddeborah.org. Dr. Kazemian, any closing comment on understanding heart rhythm disorders?

Dr. Pedram Kazemian

First of all, thank you for allowing me to talk to your audience about electrophysiology. Heart rhythm abnormalities are very common — sometimes associated with symptoms, sometimes not. Some are more of a nuisance, but some can be life-threatening. So if a patient experiences symptoms like palpitations, dizziness, or fainting, or notices an abnormal rate — especially now that many in your audience are likely using smart wearables capable of recording heart rate and rhythm — I want them to be mindful of the potential risks and make sure they seek medical attention, so we can diagnose and, if needed, treat them.

Harry Hurley

So great to have you today — look forward to next time. And again, thanks for your flexibility today.

Dr. Pedram Kazemian

Appreciate it. Thank you.

Harry Hurley

Appreciate you right back, Dr. Kazemian. We're going to step aside for a few minutes — you can join us next at 609-407-1450. With Dr. Kazemian, who leaves us now, I am Hurley in the Morning.