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## Improving Outcomes in Aortic Stenosis Through Patient-Centric Care

### Announcer:

You're listening to *Heart Matters* on ReachMD, and this episode is sponsored by Edwards Lifesciences.

Here's your host, Dr. Javed Butler.

### Dr. Butler:

This is Heart Matters on ReachMD. I am Dr. Javed Butler, and joining me to discuss how patient-centric care models can improve outcomes in aortic stenosis are Drs. Michael Reardon and Alan Zajarias. Dr. Reardon is a Professor of Cardiovascular Surgery at the Houston Methodist Academic Institute. Dr. Reardon, thanks for being with us today.

### Dr. Reardon:

Thank you for having me.

### Dr. Butler:

And Dr. Zajarias is a Professor of Medicine and Surgery in the Division of Cardiology and the Director of the Structural Heart Disease Program at the Washington University School of Medicine in St. Louis. Dr. Zajarias, it's absolutely a pleasure to have you here with us today as well.

### Dr. Zajarias:

Thank you for the invitation. I look forward to our conversation.

### Dr. Butler:

Great. So, Dr. Reardon, maybe I can start with you. Can you just give us an overview of the natural history of aortic stenosis? When do people become symptomatic? Do we wait for people to become symptomatic before we do anything? Is early intervention important? Just give us a little bit of an overview.

### Dr. Reardon:

Sure. So aortic stenosis really occurs for three primary reasons. Rheumatic fever, in the developed world, we don't see a lot of that, but it's still very prevalent around the world. We see it because of bicuspid valves. One to two percent of the population in the U.S. has bicuspid valves. It can be higher as you move into some of the Asian countries. And then senile calcific degeneration, aging of the valves. All of these are progressive diseases, and they tend to occur at different ages depending on the cause of this. Rheumatic stenosis can occur a little earlier, particularly, in some of the Asian countries where it can be particularly bad when you're young. Bicuspid valves tend to occur in your 40s to 60s to 70s, but even at 80, about 20 percent of the cases we see are bicuspid, and then of course, the senile degenerative valves tend to occur in those that are 65, 70, 80, and 90, or older, but they all are progressive, and they all will get symptomatic over time, and once symptomatic, they need to be treated.

### Dr. Butler:

And is early intervention and early diagnosis important? Or it doesn't really matter when you diagnose the patient?

### Dr. Reardon:

Well, it always matters when you diagnose the patient. There's some really interesting data out of Australia. George Strange has published a national echo database and has shown that any level of aortic stenosis, even mild, has an effect on your mortality. It increases your mortality, and so mild is worse than none, moderate's worse than mild, and severe is worse than moderate, and if you wait until somebody gets symptoms, once they get symptoms, the mortality can start to approach one percent per month, and there is no medical therapy for this mechanical problem. So we want to be careful that we don't want to wait too long because we do put our

patients at risk.

**Dr. Butler:**

So that's some really important information, Dr. Reardon. So, Dr. Zajarias, maybe I can come to you at this point. With that in mind, can you tell us what are some of the best practices for diagnosing patients with aortic stenosis?

**Dr. Zajarias:**

The diagnosis will always start with the physical exam. Patients will always have a murmur that is systolic in nature, and it is best heard in the upper sternal border radiating to the neck. Unfortunately, not everybody takes the time to listen and auscultate it perfectly, and as a result, it is very important that all of our practitioners and cardiologists and general practitioners take the time to really take a listen and to do auscultation. Once we have the diagnosis of a heart murmur, and the potential question of whether or not this is aortic stenosis, an echocardiogram is likely the most useful tool that we have for the identification of the problem, the characterization of the severity of the problem, and potentially, further risk stratification by assessment of the systolic and diastolic function. So once we know that somebody has aortic stenosis, serial echo tests are required in order to document progression depending either on symptoms or time allotment depending on whether or not these patients have mild, moderate, or severe disease. It turns out that as the heart tends to remodel, there is a decreasing survival if this remodeling is pathologic, and sometimes catching these changes earlier on will promote therapy in a quicker fashion, and potentially, improve the survival over the long term. There are a fair amount of artificial intelligence tools that are being developed and are in the process of being validated that help identify these patients so they can seek therapy quicker. Now the most important part of the diagnosis is access to care, and there are certain patient populations that have limited access to care or limited availability of advanced testing, and having these testing options available for them in certain community centers or health fairs may actually improve the catchment of patients who have severe aortic stenosis.

**Dr. Butler:**

Let me come back to you, Dr. Reardon, and ask you, how do you think about risk stratification of these patients once the diagnosis is made?

**Dr. Reardon:**

Well, I think there are risk stratifications for the specific therapies, such as aortic valve replacement, but I think the most important thing is I see a lot of these patients tend to be elderly patients, and for the primary care doctors that have listened to the guidelines, we've always been taught that you treat these people when they become symptomatic. Those are all the class 1 guidelines, are symptomatic patients. The problem is as our patients get more elderly, they often are less active and very often tell me they have no symptoms, but if you really press on them, you find they're not doing much. And often after treatment, they'll come back to me and tell me, 'Well, now that I feel normal, I realize I was symptomatic.' So what I would say for those that are seeing patients with aortic stenosis, particularly, elderly patients, look very carefully for symptoms because if they really have significant aortic stenosis on echo, they may well be more symptomatic than they think or you think, and they will often find out they're better once the aortic stenosis is relieved. If they have a velocity over five meters, which is pretty severe stenosis, we can predict those patients will progress very rapidly, and they're either going to have an aortic valve intervention or they're going to die within the next couple years with a high likelihood, no matter if they have symptoms or not.

**Dr. Butler:**

Wow. So let me keep on with you, Dr. Reardon, and can you then tell us as an extension, what are some of the treatment approaches that are available today for these patients then?

**Dr. Reardon:**

Well, the two main treatment approaches are surgical aortic valve replacement and transcatheter aortic valve replacement. There is no effective medical therapy for this at all. The U.S. guidelines now say that if you're less than 65 or going to live 20 years, you should still have surgery. If you're 80, you're going to live less than 10 years, and you're a good candidate anatomically for transcatheter TAVR, you should have a transcatheter valve replacement, or TAVR. Between 65 and 80, we should look at the physiologic risk of surgery, the anatomic risk of TAVR, and the patient's wishes as we make a decision, and that's why it's really important, if you're seeing these patients in your office, to consider sending them to an institution that has a well-established heart team that can look over these things and help make a multidisciplinary decision for your patient.

**Dr. Butler:**

And can you quickly also bring our audiences up to speed as to is it only the anatomy and the risk that determines that somebody needs a procedure?

**Dr. Reardon:**

Well, all severe aortic stenosis should be considered for treatment, unless that you're just completely futile. I mean, there's some people

who we're not going to treat. There are some people that have bad metastatic cancer; they're not going to live six months. Treating their aortic stenosis is probably not going to be helpful to them, but once we exclude that type of patient, then we should consider treatment, and again, the guidelines guide us as to how we think about surgery versus transcatheter aortic valve replacement, but the patients get to play a role in this, too, as we ask them what are their expectations? And work our way through what they think is going to be best for them. Now it's also important to realize that although we've run randomized trials in extreme-risk, high-risk, intermediate-risk, and low-risk trials, and all those trials have been positive for TAVR, since TAVR's now approved at all risk levels, it's very important to understand these randomized trials only apply to the populations that were tested. So the physicians need to understand who was not tested and who really this low risk does not apply to, and again, here's where a well-versed heart team can help your patients with some information and make a well-educated decision.

**Dr. Butler:**

For those just tuning in, you're listening to Heart Matters on ReachMD. I am Dr. Javed Butler, and I'm speaking with Drs. Michael Reardon and Alan Zajarias about the diagnosis and treatment of aortic stenosis.

Dr. Zajarias, can you just tell us how we think about this concept of heart team? Who are the members of the heart team? And which patients would benefit from advanced care?

**Dr. Zajarias:**

Sure. So according to our current valve guidelines, we do recommend that any patient who has a valvular problem, either symptomatic or at risk of becoming symptomatic, should be assessed by a multidisciplinary team; we can call it the heart team, we can call it the valve team, we can just call it a multidisciplinary team. These teams should involve any individual who provides care to the patient. In our case, we have cardiac surgeons, we have cardiologists, interventional cardiologists, geriatricians are part of our heart team, and the anesthesiologists. Anybody who would participate in the preoperative/postoperative care of the patient is part of our team. We include individuals who are physical therapists or nutritionists in order to assess what type of extra help or support these patients will need, and that is one of the benefits of coming to a large multidisciplinary valve center. We do echo that patients who have a limited survival for other reasons that are not related to the aortic stenosis should likely not seek very innovative therapies. Now whether or not to seek a surgical valve replacement or a catheter valve replacement will depend on the anatomy. We don't want to sacrifice the procedural success or durability for the level of invasiveness. We also want to make sure that we only treat patients with aortic stenosis with a catheter procedure if they only need treatment for the aortic stenosis. If they need concomitant aortic surgery, then there is no point in just limiting that to a catheter-based procedure, and potentially, surgery is a better option. Also, when patients have other comorbidities like atrial fibrillation that could be assessed at the same time, this may weigh our decision process one way or another.

**Dr. Butler:**

So that's really important information. So thank you so much, both of you, and as we now draw close to the end of the program. Dr. Reardon, maybe I can ask you first, any final takeaways for our audience members regarding diagnosis and management of aortic stenosis that you want our audience members to specifically focus on?

**Dr. Reardon:**

Yeah. Aortic stenosis untreated kills you. Try to find it in your patients and get them to the right place, and then we try to sit down and ask patients what their expectations are so that we can match the treatment to their expectations.

**Dr. Butler:**

Well, thanks. Thanks very much. Those are some really good words of wisdom. And, Dr. Zajarias, I'll give you the final word.

**Dr. Zajarias:**

Well, I would definitely encourage anyone who either has a heart murmur or who diagnoses a heart murmur to take the extra step and obtain an echocardiogram to further qualify or characterize that heart murmur and identify a valve-related process. Valve disease becomes more common as patients age, and it has an important impact on survival and quality of life if left untreated. So I do want to emphasize that early detection is important, and continuous follow-up is equally important in order to assess the perfect timing of therapy.

**Dr. Butler:**

Well, those are some really great final thoughts. Thank you so much, and as we close our discussion today, I really would like to thank Drs. Michael Reardon and Dr. Alan Zajarias for joining us today, for giving us all the insights on what we can do to improve the outcomes of our patients with aortic stenosis. Drs. Reardon and Zajarias, it was really great to have you on this program today, and thank you so much for joining us.

**Dr. Reardon:**

Thank you.

**Dr. Zajarias:**

Thank you.

**Announcer:**

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