

Announcer: Welcome back to the Mayo Clinic cardiovascular podcast series, interviews with the experts. I'm your host, Sharonne Hayes. I'm a noninvasive cardiologist and vice chair of faculty development and academic advancement for the Department of Cardiovascular Medicine here in Rochester, Minnesota. Today I'm joined by Dr. Mayra Guerrero. She's professor of medicine, a structural interventional cardiologist here at Mayo Clinic in Rochester, and she leads several international clinical trials. Today our topic is mitral valve repair and replacement in the cath lab. The future is now Welcome, Mayra.

Dr. Mayra Guerrero: Thank you. Well, thank you very much for the invitation. It's an honor for me to be here and I'm so excited to share with you all the options that we have for our patients nowadays.

Dr. Sharonne Hayes: So you're going to share with us the current transcatheter mitral interventional options, including repair replacement, and Dr. Guerrero is gonna speak to the pre and post-procedure evaluation process and importantly when to refer patients to her. So Mayra, let's just start by telling us what's available. What are the types of percutaneous transcatheter interventions for mitral stenosis and regurgitation?

Dr. Mayra Guerrero: Thank you very much. We do have many options actually. In general, we divide them into repair or replacement. And in the repair category there are a couple already approved by the FDA and there are several available under clinical trials in the replacement option. There's nothing available as approved by the FDA yet, but there are multiple ongoing pivotal clinical trials. Some of them already completed enrollment and may get approval soon. So there are many options, particularly for high surgical risk patients.

Dr. Sharonne Hayes: So I mean that leads into how do you go about determining which patients should be considered for repair versus replacement? And I guess as you speak to that question, how does somebody like me sort out the patients who should see you versus not?

Dr. Mayra Guerrero: Thank you very much. Well, in the replacement option, well actually for both of them, it's mostly driven by surgical risk. And let's talk about replacement because there are some patients, particularly in the replacement category, that are always, or almost always high surgical risk. Those are patients who had already a prior mitral valve replacement, a surgical mitral valve replacement with a tissue valve or bioprosthesis, or patients who had a prior surgical repair with an annuloplasty ring. For those patients who need to have a repeat intervention, the risk of the second surgery is usually high and there are already, there's an option for those patients that is actually FDA approved. If the anatomy is favorable, of course you could treat those patients with a completely transvenous transeptal procedure with a mitral valve in valve or a mitral valve in ring using the commercially available transcatheter aortic heart valves, which is what we use for tavr. They can be used to treat a patient who has a failing surgical bioprosthesis or a prior surgical repair with annuloplasty ring that is no longer working.

Dr. Sharonne Hayes: So that's great to hear because I think probably some of those folks aren't even getting referred because we may not know that this is an option. Thank you. So once, yeah, go ahead.

Dr. Mayra Guerrero: Well, I was just going to say those are the ones who had prior intervention. And then the other category for is for patients who have not had an intervention yet, but they have high surgical risk, those patients, if the anatomy is favorable for repair, the patients can be treated with a transcatheter transvenous transseptal repair, either with a mitral clip or a pascal device. You know, try to approximate the two posterior leaflets to decrease the amount of regurgitation. Not every patient has anatomy that is favorable to get an adequate result. Those patients can be evaluated for a transcatheter replacement option and there are already multiple ongoing pivotal clinical trials for those patients.

Dr. Sharonne Hayes: Great, thank you. So once they do come to you, what is involved in the process of evaluation? Who's been considered for this? So we, we, they're we, they've made the initial cut, but what are the considerations that you have that helps you hone in on the best case?

Dr. Mayra Guerrero: Well, we utilize the heart team approach. So patients need to expect that they will be seen not only by interventional cardiologist, but by a cardiac surgeon as well. And we need to obtain advanced cardiac imaging, including a cardiac CT scan, and it's a special protocol. Unfortunately, we cannot just take any CT scan to obtain this measurements. It's a special cardiac CT in a way similar to what is done for tavr. It gets all the cardiac cycles. So we measure the mitral valve both in, in asystole and diastole multiple measurements. And we, with that, we can determine what options are available to that particular patient. So usually it's an appointment or a visit I should say, that requires multiple appointments, but they try to be condensed. We try to condense them in a short period of time, like, you know, two or three days. So patients don't have to make multiple trips to, to our center for evaluation once we obtain all the images that are needed. And if the surgeon agrees that a minimally invasive procedure with a transcatheter repaired or replacement is the best option, then we can proceed with the actual procedure sometimes during the same visit. But if it is in a clinical trial, it takes a little bit of time, it may take up to two weeks for us to obtain the results of the review of the sponsor to see if they have advice that is going to fit the anatomy of the patient. So we ask patients to please be patient, give us a time so that we can complete the extensive evaluation that is needed to give them the best answer possible.

Dr. Sharonne Hayes: Once you've decided we're gonna, we're gonna proceed. What do you tell the patients about their actual inpatient stay? Both, you know, day of the procedure and then how long they're in.

Dr. Mayra Guerrero: If it's a transseptal procedure, which is just fully transvenous, you know, through the right femoral vein into the right atrium, and then through the interatrial septum into the left atrium, you know, that's the least invasive way to deliver a valve. Those patients, usually, if there are no complications, they do recover very quickly. Many, maybe already walking in the hallway the same day and they may be discharged the following day. I still ask patients to be mentally prepared to stay with us, you know, two to five days just in case we need to keep them a little longer. But if there are no complications, some patients can be discharged the following day. So it's a big, you know, game changer compared with the recovery, the usual recovery from a surgical mitral intervention, which it takes longer, a few days in the hospital and you know, a few weeks of cardiac rehab.

Dr. Sharonne Hayes: Yeah, I'm sure those who've had a prior cardiac surgical procedure are really appreciative of, of the quick recovery. So what do you then tell the patients about their going home? Do they qualify for cardiac rehab? What are your recommendations in the first days or weeks after they go home?

Dr. Mayra Guerrero: Thank you. Yeah, the cardiac rehab, it's highly recommended for any patient who has any type of cardiac intervention. So we still would recommend that in and also medical treatment and for replacement, patients may need to take a blood thinner for at least six months, although we most likely we would recommend it longer if the patient can tolerate that without complications. There's a difference that I need to mention between repair and replacement because the replacement technologies, they all will require a blood thinner, an anticoagulation for at least six months and ideally longer versus the repair options do not require that. So there's an important distinction. So perhaps an older patient who is at higher risk of bleeding complications, if the anatomy is favorable for a repair, we would favor that option. So in summary, cardiac rehab is what we would recommend. Medications that may include anticoagulation depending on the type of device that the patient receive.

Dr. Sharonne Hayes: And if they don't need anticoagulation, do they get antiplatelet therapy or dual antiplatelet therapy for any duration of time?

Dr. Mayra Guerrero: Well, most of these patients, interestingly, will already be on either an anticoagulation because they have already atrial fibrillation, either as a consequence of mitral regurgitation or causing mitral regurgitation. And many of them will already be on antiplatelet. But for repair options, they don't necessarily need to be an antiplatelet for replacement. Following the surgical literature, we may, you know, for just for the six months, as I mentioned, anticoagulation and antiplatelet. And then after six months, ideally just aspirin, you know, for forever if the patient can tolerate that.

Dr. Sharonne Hayes: For those who are listening to you tell about the, these procedures, which really are game changers for our patients, when should they send their patients to a structural interventionalist for

consideration? What are the, whether it's either symptoms or testing or the type of patient, because I presume just like surgical repair for MIT regurgitation, there is a timing issue

Dr. Mayra Guerrero: That is true. Well, I would say anytime that the patient has high surgical risk, the patient would probably benefit from the heart team approach to see if they qualify for a treatment that is less invasive than surgery. So I think that would be the number one high risk. And within that category, automatically, any patient who had a prior mitral repair or a prior mitral replacement will be in that category. So if someone already had a tissue valve and is no longer working or a repair is no longer working, I think they would benefit from this type of evaluation. And then patients who have high surgical risk for other reasons like mitral annulus calcification, which is a condition that we're seeing more and more lately when there's massive calcium in the mitral annulus, the surgical risk is usually high because of the technical challenges that are, are related to the calcium, but also due to the comorbidities that are associated. So if a patient has severe mitral annular specification, they also would benefit from this type of evaluation. And then last, patients who have secondary mitral regurgitation due to heart failure, those patients don't necessarily need, need to have high surgical risk. I think those patients deserve the heart team approach also with a heart failure specialist involved. Those patients also would benefit from this type of comprehensive heart team evaluation for possible transcatheter repair or replacement.

Dr. Sharonne Hayes: I'll ask you one last question. Where do you see this field going in the next two to five years? Because it's, it's really blown up. It, it's been exciting for this cardiologist to watch, but what, what do you, with your crystal ball, what do you see?

Dr. Mayra Guerrero: I'm trying to hide my excitement. It, I'm super excited. Of course it is like tavr, when you look back, you know, TAVR is, you know, already 20 years of TAVR. This year we celebrated the 10th year of Valve in MAC you know, the Transseptal valve in MAC. So it is very nice to look back and see how much TAVR has changed. Now, patients who have aortic stenosis, as you know, most of them can be treated with an overnight procedure that is completely percutaneous and most of them are treated in a less invasive way. I think that with the continued work that we all are doing, there's a high likelihood that that's where the field is going. For all remaining valvular pathologists, the, you know, both mitral as well as tricuspid pathologists may be treated both with either transcatheter repair or replacement. And immediately in the two years, I think there may be approval of the approval for transcatheter mitral valve replacement, but also for tricuspid, as I mentioned. So I think the field of valvular disease and valvular interventions is going to change in the near future, hopefully similar to tavr.

Dr. Sharonne Hayes: And I think for those of us who don't do the procedures, this is really exciting as I sit with patients and I no longer say, you know, at some point you're gonna have a cardiac operation because we're seeing your valve degenerate or the progression of their stenosis or dysfunction of a prosthetic valve, and I don't have to say that anymore. So that to me is very exciting. Thank you so much,

Dr. Guerrero. This wraps up this week's episode of Interview with the Experts. I'd really like to thank Dr. Guerrero, Mayra for joining me today and discussing this important topic.

Dr. Mayra Guerrero: Well thank you, Dr. Hayes, for the opportunity and I'm excited not only for us, but mostly excited for our patients.

Dr. Sharonne Hayes: Exactly. So we look forward to you joining us again next week for another interview with the experts. Be well.