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<https://reachmd.com/programs/cme/spotlight-new-guidelines-identify-and-manage-aortic-stenosis/12303/>

Released: 03/08/2021

Valid until: 08/26/2022

Time needed to complete: 30 minutes

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Spotlight on New Guidelines to Identify and Manage Aortic Stenosis

Announcer:

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Dr. Latib:

New guidelines on valvular heart disease from the American Heart Association and the American College of Cardiology have recently been published. These updated 2020 guidelines provide a great framework for how to manage patients with both asymptomatic and symptomatic valvular heart disease.

This is CME on ReachMD and I'm Dr. Azeem Latib.

Dr. Kohnstamm:

And I'm Dr. Sarah Kohnstamm from Ann Arbor, Michigan.

Dr. Latib:

So let's get started. Sarah, tell us about aortic stenosis. How common and how prevalent is aortic stenosis and why should every practicing physician really care about this disease?

Dr. Kohnstamm:

Thank you Azeem, yes. That's a very good question. The main etiologies that we see are most often calcification of a normal trileaflet valve. The congenital bicuspid valve, which we'll obviously see at a younger age, and then rheumatic disease, which we're seeing less and less often in this country but still comes up. And what's patho-pneumonic for that is really fusion at the commissures with reduced mobility of the leaflets, and that extends into the center of the valve over time. The prevalence really increases, sort of, for each decade of life. So for people age 50 to 59, we really only see it 0.2% of the time. Of those, the more common etiology is going to be the bicuspid valve. And this goes up, so 1.3% for the next decade, almost 4% for people age 70 to 79, and then by the time people are 80 to 89, it's almost 10% who have AS. Of them, about 75% are going to have severe AS, 25% are actually going to be asymptomatic but with severe AS. And that's important because, you know, at any time they can develop symptoms.

There's a very well-known graph that was actually published back in 1968, already, by Braunwald that shows this long, latent period that has no symptoms but definitely does have hemodynamic consequence such as myocardial overload. And it's really unclear how long that latent period can go on for. It's obviously pri-variable in many patients depending on risk factors. But once people develop symptoms, and this really hasn't changed over the decades, there are sort of 3 cardinal symptoms: angina, syncope, and then heart failure. And they're associated with an average survival, if we don't intervene, from 5 years for angina to 3 if they're syncope and 2 the moment people develop heart failure. So the key is really to identify people before they develop flagrant heart failure and have a really short survival expectation and to intervene before we get to that point.

Dr. Latib:

Yes, Sarah, that's a really important. We've all been looking at this figure from Braunwald for years, and one of the things I often discuss with my patients is that, sure we do know that depending on the symptom, your prognosis may differ, but we often – it's hard to predict what the first symptom's going to be or the next symptom's going to be. So a patient who presents with, you know, angina, or chest pain, their very next symptom may be sudden death, right? And so when patients develop symptomatic AS, I think what I try to encourage my patients about is that this is a disease that is going to progress and is going to result in probably death if untreated.

Do you do anything different with your patients? How are you convincing your patients when you see them that, you know, they need to take this more seriously?

Dr. Kohnstamm:

Yeah. It's an excellent question, and I think the stages in the new guidelines, actually, are really beneficial to sort of apply to patients. And what they've done differently that I really like is sort of identified stages based on risk. So stage A is people who don't actually have any sort of quantifiable AS, so their valve area is typically still above 2 cm^2 , but they're at risk for it. So they either have a bicuspid aortic valve or they have some degree of aortic valve sclerosis. And in them, I'll monitor them with echo probably, depending on if there's any symptoms or any other reason to get it, every 3 to 5 years, but probably more in the range of 3 years. The next stage is stage B where the AS has clearly progressed, and that can include both mild to moderate AS, so anywhere from a valve area of 2 down to 1. And again, all of these are really diagnosed on good echo measurements. Typically the valve peak velocity at this point is still, you know, below 4 m/s, but people can have some other symptoms. They can have diastolic dysfunction, they'll often have LVH, but their EF [ejection fraction] will still be normal.

Once they progress to the severe stage that's either labeled C if they're asymptomatic or D if they're symptomatic – and the D stage is really what is much more detailed in these new guidelines. And they really look at a combination of EF, flow, and gradient. So if we take a better look at this D stage, D1 is really our classic, what we consider severe AS based on high gradients across the valve. So a valve area that's less than 1, a peak velocity that's 4 meters per square or greater. And these people are going to have the cardinal symptoms. The next stage is D2, which is interesting in that we've seen this a lot. People have low gradients across the aortic valve, but they also are in a low-flow state due to a reduced cardiac output and you know, decreased EF. These are the people that, you know, typically in the past, when TAVI was really not an option, we would try and do a low-dose dobutamine stress to see what would happen with these gradients across the aortic valve to distinguish the AS they had from, you know, true AS and pseudo-AS. But really also to see if there was some augmentation in their cardiac output because it portended really poorly for surgery if they couldn't augment their cardiac output.

So, Azeem, a question for you is, in this new era with TAVR, is there still a role for this dobutamine stress test? Do you see them in patients, do you find them useful?

Dr. Latib:

Sarah, that's a great question and I've been surprised that in my own structural heart program, as it grows and we see more patients, how often we are referred these patients with low-flow, low-gradient AS. And I think, really, the paradigm has shifted, as we will see later when we talk more about how the guidelines have shifted, as well, but I think having a less invasive option has really changed my approach to these patients. So, considering how minimally invasive TAVR is and how low risk it is in well-selected patients, I must admit I've stopped doing dobutamine stress echo, and I'm now, you know, we'll send that patient directly for TAVR. The group that I really struggle with, and I'm hoping you can shed some light, are the ones who also have this low-flow, low-gradient AS but have a normal ejection fraction.

Dr. Kohnstamm:

Yeah. That's a good point. So that's what they call the D3 subcategory. So these are patients who, indeed, have a normal EF but interestingly have a sort of paradoxical low-flow state. So if you look at their stroke volume indexed to their body surface area, the cutoff typically is under 35. There's some dispute whether for women you would lower that a little bit. And with that, they have a low gradient across their valve. And it's an entity that we see more commonly in women, interestingly. It goes hand in hand with small LV cavity sizes, usually LVH diastolic dysfunction. So the idea is really that despite a seemingly normal ejection fraction, they really do have a low cardiac output and with that, low gradients across the valve.

Dr. Latib:

For those just tuning in, you're listening to CME on ReachMD. I'm Dr. Azeem Latib, and here with me today is Dr. Sarah Kohnstamm. We're discussing new guidelines to manage aortic stenosis.

Yeah, Sarah, I think these new guidelines have been great in really stressing the importance of really, one, a multidisciplinary heart team

approach, so getting together in a team to look at the imaging, have the noninvasive cardiologist, have the heart surgeon and the interventional cardiologist look at these patients together. How to use echocardiography, which is so noninvasive, to evaluate these patients. But also, you know, involving the patient in the shared decision-making and their symptoms and how their valve diseases are making them feel. I think it would be great for you to share with our audience what the new class 1 indications are for treatment of severe AS.

Dr. Kohnstamm:

Absolutely. So obviously, the first one is the one we classically have always thought of. So people who are symptomatic, they have severe high-gradient AS either by history or, you know, sometimes people will do exercise testing if they're not necessarily symptomatic due to a fairly sedentary state. The second one is asymptomatic patients, but still with severe, high-gradient AS but whose EF has decreased below 50%. The third one is really the patients we just talked about, the ones who are symptomatic, they have low flow and low gradient. So because they're also low flow, their EF typically is below 50%. And then this last group of difficult-to-interpret patients who are symptomatic, and they're in this paradoxical low-flow state, but once we find that AS is the most likely cause of symptoms, that's a class 1 recommendation.

Azeem, can you speak a little bit about once you get these patients, what is helpful in terms of workup that is done outside of your institution? What makes a really good referral that you can, you know, take the information from the referring cardiologist? What do you sometimes add on at your own institution to really see if they're good candidates for TAVI?

Dr. Latib:

Yeah. That's a great question, Sarah. And both of us work in tertiary referral centers where we get sent patients from all over the community. And one of the things I'm hoping with this program is that we reach more of our community colleagues out there to when they see these patients to send them to us. And usually all I need to start the process with the patient is a good clinical history, an examination that the patient does have symptoms related to their valve disease and a good echo documenting all these features you went through, their gradients, their ejection fraction, their velocities, and whether they have other valvular disease. I mean, that's usually the starting point. From there onwards, probably the next most important test we need and that I do is a CAT scan. And this is a cardiac CT to look at their hearts, to look at their vasculature. So we scan their heart; it's a gated CT scan to look at their heart and to look at their annulus and valve dimensions as well as the coronaries and then the whole vascular tree. And that has really become, for me, the most important test that we do in these patients because with this one test, we can often make a very good assessment about what is the best way to replace this patient's aortic valve. Would that be surgically, or would that be with a transcatheter technique? We then, depending on the patient, we'll also do, you know, a left and/or right heart catheterization to look at their coronary arteries, to look at the pressures in their heart. But it's really the evaluation now has gone into, you know, are they good candidates for transcatheter approach versus a surgical approach? So I don't know, Sarah. I go back to you. When you see the new guidelines and for aortic valve replacement, what is it that strikes you, as the noninvasive clinical cardiologist, as the biggest change?

Dr. Kohnstamm:

I think the change that really has made me, as well as many of my patients, most excited is seeing this age requirement drop pretty significantly. So now anyone really over age 65 even if, you know, just besides their age, if there's no other significant risk factors, can be considered for a TAVI.

Dr. Latib:

Yeah, absolutely. It's a great segue into maybe showing this figure from the new guidelines, which is really a flow chart looking at how we evaluate our patients with aortic stenosis. And really the whole issue of risk is just about finding those patients who are really at extreme risk or prohibitive surgical risk where they may not benefit from any therapy and maybe palliative treatment may be indicated. And really what it does is it divides patients based on their age and life expectancy into 3 groups. They are patients who are less than 65 years of age, who are low risk, who have no comorbidities, in whom surgical aortic valve replacement has a class 1 indication. And many of these patients are probably patients who may end up with even a mechanical aortic valve that will last their entire lives. The minute we go up into 65 or older, we then divide patients into 2 groups. Patients who are greater than 80 now have a class 1 indication for transfemoral TAVI, and this has really been, I think, a big change. The new guidelines actually give a lower indication to surgery for patients who are above 80 years of age and this is irrespective of their risk. The really interesting group, and this is the part that, you know, I think both, like you mentioned, even my patients are so excited about, because they come into my offices now and asking about it, are the patients who are between 65 and 80 years of age where both surgical and transcatheter aortic valve replacement both have a class 1 indication. And this brings us back into the whole part of shared decision-making with the patient and the importance of a multidisciplinary heart team evaluation of these patients.

Dr. Kohnstamm:

That's great. Thank you. This is very helpful, and I think it's a very exciting time to be practicing cardiology. And let me just summarize,

because I think we're coming near the end, the key highlights from these guidelines. So as we heard, obviously the evaluation by the multidisciplinary valve team is really a key addition. The second real sort of interesting expansion of the stages looking at the symptomatic stage based on gradient, flow, and then the EF. The intervention for the severe AS is based on really having symptoms or an indication of LV systolic dysfunction; that's class 1. And then, obviously, the decision between SAVR and TAVI. So those are my summary points. Anything that you want to add, Azeem?

Dr. Latib:

Thanks, Sarah, my final take-home messages are really how the guidelines have changed, taken risk out of it, and really looked at age and shared decision-making. So the fact now that both TAVI and surgical aortic valve replacement are considered both class 1 for patients who are 65 to 80, irrespective of surgical risk, and how patients that are over 80 now have a class 1 indication for TAVI, for me, is certainly impactful and will allow more patients to have a less invasive approach to treat an aortic stenosis.

Unfortunately, that's all the time we have today. So, I really want to thank our audience for listening in and thank you, Sarah, for joining me and for sharing all your valuable insights. It was really great speaking with you today.

Dr. Kohnstamm:

Thank you, very much, for having me. It was great speaking to you, as well.

Announcer:

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