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Challenging TAVR Cases

Announcer:
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Dr. Jain:
This is CME on ReachMD and I'm Dr. Renuka Jain. Here with me today is Dr. Steven Yakubov. We often face challenging cases when identifying and using transcatheter aortic valve replacement.

Steven, can we discuss two examples of the use of TAVR in female patients that have been a challenge?

Dr. Yakubov:
Absolutely. Thanks for having me today.

The first case is a 78-year-old woman who presents with a mean gradient of 48 mm, and she has severe symptomatic aortic stenosis with moderate calcification of the valve that was also identified by the CT scan. But the real interesting finding of the CT scan is how small the aortic annulus is. She would be more appropriate for a 26 Evolut FX or a 23 balloon expandable valve. So, the choice there becomes, which one do we use? We have leaflet calcification, a little bit of left ventricular outflow tract calcification, and we're trying to achieve the best hemodynamics. What advice would you have for me?

Dr. Jain:
No, that's a great case, and a case we see quite often. An elderly woman with symptomatic severe AS by ACC 2020 Valve Guidelines that would be very appropriate for TAVR. It sounds like from her ECHO imaging and her CT imaging that she would be a good candidate for TAVR. And then, the question becomes, what is the best valve for her? We have options and choices. When I hear LVOT calcification and I hear small perimeter I start worrying about an intra-annular balloon expandable valve. That is a valve that has a lower EOA, or effective orifice area, compared to a supra-annular valve, where the leaflets sit above the annulus, and we can really maximize the effected orifice area.

The advantage of the supra-annular, or self-expandable valve is also that in the setting of LVOT calcification, we think that self-expandable valves are probably safer when it comes to preventing a post TAVR VSD, which is an unfortunate and can be a catastrophic complication.

Do you also have a second case?

Dr. Yakubov:
I sure do. This is an 84-year-old woman who presented to us with symptoms of severe aortic stenosis. Unfortunately, her mean gradient was only 34. We did some further imaging of her including the CT scan, which showed a fairly high calcium score on the aortic valve. And her left ventricular function was good, she had normal thickness. She had a work-up for amyloidosis to make sure that we did not have thickening of the ventricle secondary to that. And so, she basically is a case of low-flow, low-gradient aortic stenosis.

What kind of advice would you have for the implanter and the patient?

Dr. Jain:
So, low-flow, low-gradient aortic stenosis is when the gradients of the aortic valve are not greater than 40, which is our guideline for severe aortic stenosis [AS]. But all of the other factors, including valve area, are suggestive of severe aortic stenosis. This is a case of paradoxical low-flow, low-gradient AS in that the ejection fraction is normal. And they do particularly well with TAVR if they have LV dysfunction or if they had anything that would decrease their stroke volume. We know that TAVR itself is a procedure that takes about an hour and gives them significantly less risk than open heart surgery.

We know from surgical literature that low-flow, low-gradient AS in the setting of severe LV dysfunction, so an LV ejection fraction of, you know, less than 30%, those patients also derive benefit from aortic valve replacement, and we know from more recent literature that they also derive benefit from TAVR.

Dr. Yakubov:
In this particular patient we implanted a number 26 Evolut FX valve. Her mean gradient was reduced to 11 mm, even with the thickened LV, and she seemed to improve clinically.

Dr. Jain:
Yeah. No, I think that that sounds great. These are two great cases, Steven. They really illustrate the depth of severe aortic stenosis.

I think the key takeaway is that all of these types of aortic stenoses will benefit from aortic valve replacement. What the ACC 2020 Valve Guidelines tell us is that over a certain agem, 75, patients tend to do better with TAVR and it's recommended. And there is also an age range of what we called shared decision-making. As you've highlighted in these two fantastic cases, ECHO and CT work together to enlighten the valve team which is made up of us imagers, interventional cardiologists, and surgeons on the best approach for the patient.

And finally, as I would really highlight, the choice of valve is so, so important. We now have valve choices, particularly in small perimeter patients, the supra-annular configuration really offers them the maximum effective orifice area.

Announcer:
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