

EDITORIAL COMMENT

Transcatheter Aortic Valve Replacement

Pre-Existing Aortic Regurgitation Is Your Friend, But You Knew That!*

David Hildick-Smith, MD

Sometimes during a transcatheter aortic valve replacement procedure (TAVR), when there is residual aortic regurgitation (AR), I will look back at the initial aortogram and turn to my colleague to say, “Well, they did have some aortic regurgitation to start with.” Perhaps you occasionally do the same?

Why do we do that? Because we believe, inherently, having done TAVR for a decade or more, that those patients who have pre-existing AR tend to tolerate mild AR better than those who had none at the outset.

And of course, it does make sense physiologically. A stiff, small, hypertrophied ventricle that has never had to cope with any volume loading may tolerate even relatively mild AR poorly, with a disproportionate increase in left ventricular end-diastolic pressure. Reviewing a patient such as this a few weeks later in clinic can be a disappointing experience. “Much the same really, Doc” comes the reply to a hopeful inquiry about his or her welfare, because either we underestimated the leak or because patients without pre-existing AR do not tolerate post-TAVR AR well at all, even if it is quite mild.

So, the paper by Chahine et al. (1) in this issue of *JACC: Cardiovascular Interventions* comes as a relief—perhaps our thought processes have been correct? What the investigators nicely show is that patients with severe symptomatic aortic stenosis who have some AR post-TAVR do better, both symptomatically and in terms of longevity, if they had pre-existing AR

(1). For patients who have no AR post-TAVR, logic would dictate that pre-existing AR is not very important, and indeed, the investigators showed this too.

Correlating post-TAVR mild AR with pre-procedural AR is clinically important. This paper suggests that if the patient has pre-existing AR, then a little bit of latitude regarding post-TAVR AR can be granted. This can be helpful, for example, when trying to decide whether the additional risk associated with further post-dilatation is warranted in any given individual. Nothing comes for free, and post-dilatation carries risks of annular rupture, valve embolization, stroke, or coronary occlusion. These risks may be small, but most operators remember a case where they undertook post-dilatation and then wished they hadn't.

We all know how important it is to leave the patient with no AR if possible. Symptom relief among patients with residual AR is poor, and longevity is restricted. But sometimes it is not possible to leave the patient with an optimal result, and in these cases, 1 of many factors to take into consideration can now be the degree of pre-existing AR.

This study has some limitations, as the investigators acknowledge. Patients in the pure aortic stenosis group had more diabetes and a higher body mass index. There were also differences in the rates of previous stroke and atrial fibrillation. However, procedural outcomes between the 2 groups were very comparable, creating 2 well-matched cohorts.

Only 1 previous study has looked at this phenomenon (2). In that Italian study, paravalvular leak post-TAVR dwarfed pre-procedural AR in terms of importance. Pre-procedural AR itself did not appear to influence mortality following TAVR using a balloon-expandable valve, but patients with a larger pre-procedural end-diastolic left ventricular volume

*Editorials published in *JACC: Cardiovascular Interventions* reflect the views of the authors and do not necessarily represent the views of *JACC: Cardiovascular Interventions* or the American College of Cardiology.

From the Cardiology Department, Royal Sussex County Hospital, Brighton, United Kingdom. Dr. Hildick-Smith is proctor/advisory for Boston Scientific, Abbott, Medtronic, and Edwards Lifesciences.

did do better, and these would similarly be the patients who one might expect to tolerate post-TAVR AR better for the reasons outlined earlier in the text.

The message from the current study is clear. Although we all do our best to make sure that a patient leaves the lab without any AR, 1 factor that can be taken into consideration in deciding how vigorously to try to eradicate AR is the degree of pre-existing AR. The more AR was present at the

start, the more latitude may be granted in allowing some a mild degree of AR at the end.

ADDRESS FOR CORRESPONDENCE: Dr. David Hildick-Smith, Cardiology, Royal Sussex County Hospital, Brighton, Eastern Road, Brighton, East Sussex BN2 5BE, United Kingdom. E-mail: david.hildick-smith@bsuh.nhs.uk.

REFERENCES

1. Chahine J, Kadri AN, Gajulapalli RD, et al. Outcomes of transcatheter aortic valve replacement in mixed aortic valve disease. *J Am Coll Cardiol Intv* 2019;XX:xxx-xx.
2. Colli A, Besola L, Salizzoni S, et al. Does pre-existing aortic regurgitation protect from death in patients who develop paravalvular leak after TAVI? *Int J Cardiol* 2017;233:52-60.

KEY WORDS aortic stenosis, transcatheter, valve