Discussion to: Repeat Cross-Clamp After Failed Initial Degenerative Mitral Valve Repair is Safe and Successful

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Discussion to: Repeat Cross-Clamp After Failed Initial Degenerative Mitral Valve Repair

is Safe and Successful

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Dr. Arnar Geirsson (New York, NY):

Unfortunately, Dr. Alturi was not available, so he asked me to step in. Well, I appreciate the opportunity to comment on this excellent presentation. I actually wanted to congratulate the author for conducting a very thoughtful and important study, I think. And thank you for providing me with the copy of the manuscript to review. I think it's worth bringing up, this is a really excellent result. You mean, the re-cross-clamping rate of 1.6% is extremely low, and probably demonstrated the excellent mitral repair program at University of
Michigan. It’s probably something that all mitral valve surgeons strive to become like. Interesting, the results in out of the 69 patients required re-cross, can be only 27% to undergo mitral valve replacement. And of the 50 patients underwent repair, they really had excellent 2-years outcome. And actually, recross-clamping really had pretty low rates of kind of significant perioperative morbidity. Another important point, I think, from Ms. Schultz is that if you had SAM as a recent re-cross-clamp in, they were successfully re-repaired in all instances. And then you really shouldn't think about replacing the valve in a case of SAM. So, I have three questions for you, and I would go individually. The study spanned 15 years, despite that the median echocardiography follow-up being 20 months. The intracortical range was 7 to 37 months. A significant number of repairs probably fail in the first 2 years, but a long follow-up could maybe be expected in this series. Can you explain why that is?

Dr. Catherine Wagner (Ann Arbor, MI):

Absolutely. Typically, our group obtains an echo at 1-to-2 years post-repair, and as long as they don't have any residual MR, we generally discharge them from our practice. We are pretty good at our center at capturing folks who develop recurrent MR, and we generally see many of our patients back who develop recurrent MR to be reevaluated for reintervention.

Dr. Geirsson:

So, it might not be the purpose of the study, but I think it would've been helpful to also compare the patients who did not undergo re-cross clamping. People have a successful repair in the beginning. One can argue about whether that should be done or not, but this would include degree of MR, post-surgery outcome, as well as freedom from mild intervention or moderate MR. Can you elaborate a little bit about that?

Dr. Wagner:

As you mentioned, for the purposes of this study, we really wanted to focus on those patients who required re-cross-clamp. We’ve previously published our outcomes on our mitral valve repair outcomes for patients with degenerative MR. And as I somewhat mentioned throughout the talk, these patients who required more than one cross-clamp, their freedom from recurrent MR and reintervention rate really mirrors those other patients. But I think this was a pretty small series of patients, and especially the 50 patients who were re-repaired. It may not be completely valid to compare those 50 to the over 4,000 patients who also underwent repair at that time period.

Dr. Geirsson:
And final question. I know that you're a resident, but I imagine you reviewed a lot of the operative ports. Any particular pathology we should not be repairing based on this series?

Dr. Wagner:

Absolutely. So, most of the time, the patients that we could not repair had very advanced degenerative disease. They'd had degenerative disease for a very long time, and the leaflets were really thickened and different. We couldn't get the posterior leaflet to come up. And so, if anything, that really speaks to the importance of early intervention for degenerative disease to really optimize or increase the chance of achieving a mitral valve repair. But for the most part, aside from those select patients in that specific [inaudible]. We really hope that this study will encourage surgeons to think more about, "How I can re-repair the valve?" when you're recross-clamping, rather than proceeding directly to replacement.

Dr. Geirsson:

Thank you. Congratulations.

Dr. Wagner:

Thank you.

[applause]

Unidentified Speaker 1:

Yeah. Excellent presentation. Thanks for the idea of a second cross-clamp. We started that thing a few years ago, and we wrote the algorithm for this. And I'm happy to see actually it's spreading even in minimally invasive and in pediatrics. Also, there was a second cross-clamp paper to resume for residual lesion as well. Just a comment. As you saw on our protocol, we always wait a little bit before we take the decision to take the second cross-clamp because you can end up in that situation where you have to replace a valve. If you have to do it, you have to do it. There is nothing you can regret about. But very important, you have to have a discussion with a cardiac anesthesiologist or the echocardiographer before you go on the second cross-clamp because you cannot try to guess where a lesion is when you are on the cross-clamp. I guess that's a major thing. You have to have an idea exactly how much is MR and where is the lesion and what's the mechanism of it so we can actually try to fix it. On the other hand, you already got an idea with a residual leak with the valve on echo, so you can even understand the valve better on echo. Assume all these patients had perfect saline testing at the beginning. The last most important
variable is a ventricular function, which I guess also was probably a major
deterrent in replacing some of these cases because if you start through the
same ventricle, you're going to have to be very quick in decision-making. And I
guess the threshold for replacement of the surgeon will be very low. Thank you.

Dr. Wagner:

Thank you so much. To speak about your first comment, absolutely, having the
opportunity to look at the valve and look at your repair by echo is really
important. In our institution especially, we've got very skilled
echocardiographers who are very facile with 3D echocardiography, and it really
helps us plan exactly how we're going to successfully re-repair the valve.

Unidentified Speaker 2:

Catherine, I just will reiterate before we stop. I love this kind of data. I think it
really shows what mitral valve repair is supposed to be able to accomplish. I
noted some of your comments-- I just wrote down some notes. I agree with
your decision. After two attempts, maybe it's time for a replacement. But on the
other hand, what does two attempts represent is a group dedicated to doing
valve repair. They are not just-- they're trying to repair things that are complex.
And I wrote down retracted leaflets because that is a much more challenging
subgroup of degenerative patients to repair, with opposing dysfunction in the
posterior leaflets. So, these were markers to me of groups that are really
committed to valve repair. And the fact that all SAM was repaired is important.
We shouldn't replace patients base with SAM. Like, again, the Tirone David
rule, we just go back, and we saw what we did and solved the first time. And I
think that was really an important point of the paper.

And the fact there was no mortality also is meaningful, which means patients,
and especially in the modern era, with cardioplegia will tolerate this. Don't
accept moderate residual MR, almost never. Always go back and try and see--
especially as said. If anesthesia can help you understand where it is-- because
the saline test might still be normal. That's always annoying. You go back. You
already had a normal saline test to close the first time. You really need to have
anesthesia help you give you a blueprint. 3D echo usually can help you get
located in the quadrant. And I'll just always reiterate: the freedom from mitral
valve regurgitation in the series and re-repair, because that means they already
had a second attempt, was outstanding, 94%. Believe me, in any randomized
trial against any transcatheter device, if we had those numbers, then surgery
will always be shown to be the most effective way to take care of patients with
degenerative disease. But that's an excellent presentation, thank you. Okay, hold
on. We have my colleague—

Unidentified Speaker 3:
No, no. Short question. Though impressive results in terms of safety margin in spite of the cross-clamp, so how about cardioplegia protocol, myocardial protection generally speaking? Any specific tips or tricks—

Dr. Wagner:

Absolutely.

Unidentified Speaker 3:

--when you consider second cross-clamp and third cross clamp against a lot. All right.

Dr. Wagner:

I'll say there's variation among the different surgeons. We typically use antegrade and retrograde. Some surgeons use del Nido. Some surgeons use Buckberg. So there really is quite substantial variation among our surgeons. I think the most important thing is to use the most effective—cardioplegia and the protocol that each surgeon is the most comfortable with to achieve the best cardiac protection.

Unidentified Speaker 3:

Fantastic. But I just want to make very short comment because actually what I learned recently as far as safe cardioplegia is concerned, it is just combining both methods. Del Nido plus recardioplegia then goes back for blood cardioplegia and there are a couple of reports recently. So, this is something to think about it.

Unidentified Speaker 2:

Yeah. Steve, you want to make a quick comment about that?

Unidentified Speaker 4:

Thank you for your comment. I mean, obviously we have a-- thank you, David, for your comments too. We have a center where we're dedicated to mitral valve repair. We have three surgeons on the faculty there who are certified by the Mitral Foundation. We all use different types of cardioplegia, but I think we're dedicated to myocardial protection. Some people use del Nido. Which is to say I use del Stevo which is one dose and go like hell [laughter].
Unidentified Speaker 5:

The key is to protect the heart, however you do it, right?

Unidentified Speaker 2:

Yeah. The second clamp and I think something we saw from when we did our publication, but certainly practically is the ventricle that will get you in trouble in the second clamp is usually the right ventricle. So, make sure you get the air out the second time because now you're going to be in a hurry, you're flying through. And always relax. You just make sure you get the air out, so you don't hit the right ventricle. That's what I would tell you.

Unidentified Speaker 4:

David, you're right. I think the point of this paper is to tell surgeons that if you thought it was repairable the first time, it probably still is repairable, and it's safe to do it and it's successful, you'll get a good repair and it'll last just as long as doing it the first time.

Unidentified Speaker 3:

And believe me, the patient appreciates that extra half hour you spent in terms of event-free survival. Thank you very much. Nice job.

Dr. Geirsson:

Let's go on to the next talk.