Discussion to: Surgically implanted endovascular, micro axial left ventricular assist device: A single institution study

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PII: S2666-2507(23)00394-2
DOI: https://doi.org/10.1016/j.xjtc.2023.10.014
Reference: XJTC 1543

To appear in: JTCVS Techniques

Received Date: 13 October 2023
Accepted Date: 13 October 2023

Please cite this article as: Schumer EM, Tibayan F, Pawale A, Discussion to: Surgically implanted endovascular, micro axial left ventricular assist device: A single institution study, JTCVS Techniques (2023), doi: https://doi.org/10.1016/j.xjtc.2023.10.014.

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Disclosures: None

Dr. Frederick Tibayan (Portland, OR):

Congratulations to Dr. Schumer and her colleagues on an excellent study. And thank you to the association for the opportunity to discuss it. As the usage of the Impella 5.5 steadily increases, I think these data are going to be very important to help us know what to expect in terms of results for our patients who present with cardiogenic shock or undergo high-risk cardiac surgery. I have two questions. First, outcomes are always heavily influenced by patient selection. Your patients that went under transplant were clearly very carefully selected. Do you think you'll be able to identify any human dynamic echo or other parameters to help us predict which of our patients with Impella 5.5s are going to well with either transplant durable LVAD or a bridge to recovery?

Dr. Erin Schumer (St. Louis, MO):
Thank you for looking at our paper and giving us these questions. I think there’s several things to look at. Our patients for transplant were carefully selected, but three of these patients did require— they were on ECMO prior to Impella 5.5, so they’re sick patients as well. I think obviously a univentricular failure is going to do better with a durable LVAD because use was high, and those patients were pretty much our only deaths recently. So, I think looking at bi versus univentricular dysfunction is going to be the most crucial thing. But again, these patients are all on different modes of support and they’re all really sick, so it just makes it a really difficult decision.

Dr. Tibayan:

Agreed. Second, this is obviously a very challenging patient population. And a lot of patients who present with cardiogenic shock are just not going to do well or be salvageable. Still, the results for 90-day survival are sobering. So, my question is, what can we do or what are you doing at your program to help improve outcomes in these patients?

Dr. Schumer:

I think that we tend to offer these devices pretty liberally even if the situation is pretty grim because we just don’t know the answer to this yet. And so, I think going forward, getting this granular data is going to be really crucial. But currently, we’re pretty liberal with our use of the Impella.

Dr. Tibayan:

Congratulations on an excellent presentation. And I think it’s to your credit that you recognized your entire team.

Dr. Schumer:

Thank you.

Dr. Craig Selzman (Salt Lake City, UT):

Craig Selzman, Utah. Just to follow up on that a little bit, because you lumped the recovery—in the cardiogenic shock, you lumped recovery and palliation together and that's a big lump. It's—

Dr. Schumer:
Dr. Selzman:

And so, can you tease that out for us a little bit more? With 50% not around it just seems like we need to understand that group a little bit more. So, I know you couldn't probably put it all on a table, but is there a reason why you lumped that, and can you give us any more clarity about that patient group?

Dr. Schumer:

The reason we lumped it together-- so these are the patients that were not going to be candidates for further therapy. So, I think we felt it was unfair to separate those who died and those who recovered because that—

Dr. Selzman:

The patient's mind.

Dr. Schumer:

Yeah.

Dr. Selzman:

Yeah. [laughter] Yeah.

Dr. Schumer:

But they weren't going to be offered a VAD or a transplant. So, for our study, I think that looking at them as the group that was not offered advanced therapy is a reasonable thing to do, but if you separated them out, our outcomes would look much better. So, I think that's why we chose to proceed that way.

Dr. Selzman:

Yeah, thanks.
Just really quickly, as he's walking up. So many programs, though, you have to have an exit strategy before you implant it. Because when you say in that group, they weren't going to be candidates for VAD or transplant. And there's Dr. Selzman and his group at Utah, there's pretty clear guidelines for who might recover. So, the idea is, they're not a VAD candidate, they're not a transplant candidate, and they're most likely not going to recover, but you put a device in them for wishful thinking?

Dr. Schumer:

Well, I think the option is sometimes-- it's death or give them a shot. And so, it's hard when somebody has multi-organ failure from an acute MI, for instance. It's difficult to just say, "No. We're done," because a lot of times, these patients are salvageable. So, it's a difficult issue to separate these patients out, but I think it's a good idea we can look at them separately. But again, we're very liberal with our use of Impella 5.5 when our patients are sick, and I think it's better to offer them the chance with support rather than just say no.

Unidentified Speaker 1:

But I would suggest, though, that that group you need to look at, because if they're still not going to go on to a VAD or a transplant, and quote-unquote, "Then the issue is it's unlikely they survive the hospitalization," they're not going to survive long-term, most likely, still.

Dr. Schumer:

Yeah. I think that's a fair point.

Unidentified Speaker 2:

Thank you. Very nice presentation. I am quite surprised by the LVAD implantation rate in your LVAD population. Doing that ECMO operation when they get durable VAD, that's in our group, they will get maybe 40% or 50% LVAD. But these are totally different patients doing that Impella patient. They're also part of another multicenter study looking at the Impella bridge to durable VADs. And in our multicenter study, which we just submitted, we have like 10% LVAD implantation because the Impella patients are preselected. It doesn't make a lot of sense to me if you have a patient on Impella, which is living with Impella, having organ function, and goes to OR, come out of the OR with a BiVAD. Do you have an explanation for that?

Dr. Schumer:
Yeah. That's a great question, and I think a criticism of our paper, for sure. So, a lot of these patients-- these aren't preselected LVADs. A lot of these patients are coming in shock, we're meeting them for the first time. And I don't remember the number, but a lot of these had RVAD prior to the LVAD. So, it would be a biventricular support situation, not at the time of the durable LVAD. And additionally, when we first started using the Impella 5.5, I think there's some learning curve into seeing who the right patient is. And so, our RVAD use has decreased significantly over time. This is a descriptive study, so we didn't do any comparative statistics, but for example, over the last year, we've only had three patients that have required RVAD who were on Impella prior. These RVADs were placed prior to the durable LVAD, so our rate is much lower.

Unidentified Speaker 1:

Thank you very much.

[applause]