

19. Chouairi F, Milner A, Sen S, Guha A, Stewart J, Jastreboff AM, et al. Impact of obesity on heart transplantation outcomes. *J Am Heart Assoc*. 2021;10:e021346. <https://doi.org/10.1161/JAHA.121.021346>
20. Blackstone EH, Rajeswaran J, Cruz VB, Hsieh EM, Koprivanac M, Smedira NG, et al. Continuously updated estimation of heart transplant waitlist mortality. *J Am Coll Cardiol*. 2018;72:650-9. <https://doi.org/10.1016/J.JACC.2018.05.045>

Key Words: heart transplantation, allocation system, prolonged waitlisting

Discussion

Presenter: Dr Masashi Kawabori



Dr Leora Yarboro (*Charlottesville, Va*). Thank you very much and congratulations. That was an excellent presentation. I have received honoraria from Abbot and Medtronic, neither of which is related to my discussion today. The heart transplant allocation change in 2018 has dramatically affected how

we care for patients awaiting heart transplant. There's been a dramatic shift toward the increased use of temporary circulatory supports such as ECMO in these populations. In your talk today, you demonstrate a decrease in postlisting survival among those patients who were supported for eight days or longer with a high percentage of those patients not progressing to transplant. In this, I have 3 questions for you. The first is, in these data, you showed that a third of the transplant patients—a third of the patients fall into the high-risk category of having to wait more than 8 days from transplant. Do you foresee that this time will get longer as more patients are supported on ECMO pretransplant? And if so, what strategies do you think we can use to mitigate these complications?



Dr Masashi Kawabori (*Boston, Mass*). Thank you for comments, Dr Yarboro. To answer this question, I think, as shown in the slide, I think there's improvement room for these issues because, number 1, there's more than one-third of patients, a lot of patients, are in the high-risk group. And

we know what the issue is, prolonged waitlisting. And now, we know that if we could transplant the patient within 7 days or if we could use balloon pump, which is a protective factor, which will help transplant these patients earlier.

Dr Yarboro. Thank you. The second question is, your finding of increased wait time for those patients with the blood group O is consistent with our previous work showing the same thing, in the durable LVAD population. Given that these patients are less likely to progress to transplant, do

you think there needs to be a further change in how we allocate organs, or should we be managing these patients who are at disadvantaged from their blood group differently?

Dr Kawabori. Absolutely. In my research group, we do run multiple UNOS analyses. And then, one of the topics—one of the other topics we have is blood type O transplantation under the new allocation system, which our surgical fellow, Dr Eapen, will present today at rapid-fire oral today. I don't want to steal her thunder. However, long story short, there is—so blood type O recipient could only receive type O donors. However, only 75% of donor O heart are allocated to O recipients. So, there's 25% of patient donor O hearts, which is leaking out to type A, 15%, and type B, 10%. So, if we could potentially make some allocation algorithm changes, that might help save some of the blood type O recipients.

Dr Yarboro. Thank you. And finally, we have found deconditioning to be a significant problem for our patients who are awaiting transplant with mechanical support. And were you able to identify any data that were related to cannulation strategy and success in terms of transitioning them to transplant?

Dr Kawabori. That is one of the limitations of our study, the UNOS database data of granularity. So UNOS data do not have the cannulation strategy. So, I think the ELSO database, those have the cannulation site. So, I think studies using the ELSO database will help understand those clinical questions.

Dr Yarboro. Thank you.

Dr Kawabori. Thank you.

Dr Yarboro. And the follow-up to that is, what is your center-specific approach to cannulation for patients who might be blood type O? Is it used any differently, or do you have any thoughts to that?

Dr Kawabori. In our centers, we basically do femoral cannulations. And if the patient does not look optimized enough for transplant, then either we use [inaudible] 55 or bridge with surgical bypass.

Dr Yarboro. Thank you.

Dr Kawabori. Thank you.

Dr Yarboro. Congratulations.

Dr Kawabori. Thank you.

Dr Scott Silvestry (*Orlando, Fla*). No disclosures for this. So, the question is—2 questions, short questions. First is, you need to look at whether this is acute ECMO or chronic ECMO. These patients who decompensate and then get transplanted or are these patients who are chronic, who slide into ECMO and ECMO is used, and you can get that by looking at the time from listing to actual ECMO. And the date is in the SRTR, so that you can tell patients who were listed who get ECMO as opposed to patients who were listed with ECMO, which is a very important difference. My question to you is we have these data—and then I'll ask the question. So what? What do you do

differently? What is the actionable item? Is it the patients—the sick patients who don't get transplanted because they're not really ready for transplant or is it the doctors? They're picking and choosing the hearts that they want. They're not willing to take a 50-year-old heart for a 30-year-old who's receiving ECMO. What is the factor? And the reality is, it's probably variable in different places, but we wanted on the committee ECMO 7 days only. And we didn't want to renew because at some point, as Donna Mancini said,

“ECMO becomes a chronic choice because there's a game advantage of transplants.”

Dr Kawabori. I think that's a very good point. In the UNOS database it doesn't have data on how many days were there on ECMO prior to this date. So, there is acute and also chronic ECMO patients, which cannot be captured from these data. And I understand that the ECMO duration is 1 of the factors, so I totally agree with you that ECMO >7 days might be overused.