for a more aggressive approach to optimizing the aortic valve. We look forward to additional studies regarding the impact of more subtle valvular lesions in this growing patient cohort.

References

1. Yoshida S, Toda K, Miyagawa S, Yoshikawa Y, Hata H, Yoshioka D, et al. Impact of turbulent blood flow in the aortic root on de novo aortic insufficiency during continuous-flow left ventricular assist device support. *Artif Organs*. February 21, 2020 [Epub ahead of print].
2. Noly PE, Pagani F, Noiseux N, Stulak JM, Khalpey Z, Carrier M, et al. Continuous-flow left ventricular assist devices and valvular heart disease: a comprehensive review. *Can J Cardiol*. 2020;36:244-60.
3. Truby LK, Garan AR, Givens RC, Wayda B, Takeda K, Yuzefpolskaya M, et al. Aortic insufficiency during contemporary left ventricular assist device support: analysis of the INTERMACS registry. *JACC Heart Fail*. 2018;6:951-60.
4. Robertson JO, Naftel DC, Myers SL, Prasad S, Mertz GD, Itoh A, et al. Concomitant aortic valve procedures in patients undergoing implantation of continuous-flow LVADs: an INTERMACS database analysis. *J Heart Lung Transplant*. 2015;34:797-805.
5. Feldman D, Pamboukian SV, Teuteberg JJ, Birks E, Lietz K, Moore SA, et al. The 2013 International Society for Heart and Lung Transplantation Guidelines for mechanical circulatory support: executive summary. *J Heart Lung Transplant*. 2013;32:157-87.
6. Tanaka Y, Nakajima T, Fischer I, Kotkar K, Moon MR, Damiano RJ Jr, et al. The impact of uncorrected mild aortic insufficiency at the time of left ventricular assist device implantation. *J Thorac Cardiovasc Surg*. 2020;160:1490-500.e3.

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Commentary: Stop the leak before it floods

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As our collective experience in the management of continuous flow left ventricular assist devices (CF-LVADs) matures, we are identifying that clinical entities that were previously believed to be unimportant are indeed very important. Perhaps not at the immediate time of surgical invention, although over time. This is a benefit that we have as surgeon-scientists and clinical investigators in following our patients longitudinally to track their long-term outcomes and improve the quality of our care.

Tanaka and colleagues¹ provide their longitudinal experience of following LVAD patients for more than a dozen years to provide insights into the influence of uncorrected mild aortic insufficiency (AI) and the progression of heart failure. What we have known for a while is that moderate

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CENTRAL MESSAGE

Tracking the influence of seemingly minor items and continuously re-assessing our surgical approaches, mantras, and outcomes are what enable us to evolve our techniques and improve outcomes for our patients.

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to severe AI in CF-LVADs portends a worse clinical outcome in terms of heart failure admissions and overall survival.² The progression of the AI with the CF-LVAD has been hypothesized to be related to turbulent blood flow in the root,³ potentially associated with outflow graft location and angle of anastomosis. Recognizing the importance of the influence of moderate to severe AI on CF-LVAD outcomes has led to most addressing the AI by repairing the aortic valve with a central coaptation stitch (ie, Park's stitch) or aortic valve replacement with reasonably equivalent results.⁴ Due to concerns related to

risk of oversewing the aortic valve with pump stoppage or thrombosis, that practice has generally been abandoned.

In the current study from Tanaka and colleagues,¹ we see the effects of even mild AI on long-term outcomes. The article is well written and incorporates propensity matching strategies to work toward a true evaluation of the influence of AI. What we see is that the AI can progress and has a significant influence on heart failure readmissions and functional status. Although there was no significant change in overall survival, the readmissions and heart failure management needs represent an effect on patients and the overall health system. This important observation emphasizes that seemingly minor details or changes can compound over time. Tracking the influence of the minor items and continuously reassessing our surgical approaches, mantras, and outcomes are what enable us to evolve our processes and improve outcomes for patients. Nevertheless, the best

approach to manage mild AI, how to balance risks of additional bypass time and cardiac arrest on surgical outcomes, and the role (if any) of transcatheter aortic valve replacement will likely be debated for years to come.

References

1. Tanaka Y, Nakajima T, Fischer I, Wan F, Kotkar K, Moon MR, et al. The impact of uncorrected mild aortic insufficiency at the time of left ventricular assist device implantation. *J Thorac Cardiovasc Surg.* 2020;160:1490-500.e3.
2. Truby LK, Garan AR, Givens RC, Wayda B, Takeda K, Yuzefpolskaya M, et al. Aortic insufficiency during contemporary left ventricular assist device support: analysis of the INTERMACS registry. *JACC Heart Fail.* 2018;6:951-60.
3. Yoshida S, Toda K, Miyagawa S, Yoshikawa Y, Hata H, Yoshioka D, et al. Impact of turbulent blood flow in the aortic root on de novo aortic insufficiency during continuous-flow left ventricular-assist device support. *Artif Organs.* February 21, 2020 [Epub ahead of print].
4. Tang PC, Sarsour N, Haft JW, Romano MA, Konerman M, Colvin M, et al. Aortic valve repair versus replacement associated with durable left ventricular assist devices. *Ann Thorac Surg.* February 24, 2020 [Epub ahead of print].

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Commentary: Two roads diverged in a yellow wood...

Asvin M. Ganapathi, MD, and
Nahush A. Mokadam, MD

As winter fades away and spring begins, we look forward to fresh flowers, time outdoors, and the time-honored tradition of high school yearbooks. Coupled with awkward photos of high schoolers, playful, serious, and with deliberate body language, are the immortal senior quotes. For some it was a witty quip, and for others just a joke, but for many it was an attempt to be serious and show one's pensive side.

Asvin M. Ganapathi, MD (left), and Nahush A. Mokadam, MD, (right)

CENTRAL MESSAGE

The management of mild aortic insufficiency at the time of LVAD implantation remains controversial. A randomized trial will be required to determine the best treatment strategy.

Among the common thoughtful quotes is from Robert Frost's "The Road Not Taken": "Two roads diverged in a wood, and I—I took the one less traveled by, And that has made all the difference."¹ Frost notably also describes how both paths appear similar and laments that in choosing one, he will likely not travel the other.

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