See Article page 2083.

Commentary: Lies, damn lies, and administrative databases

Ashish S. Shah, MD

If the 20th century was about dramatic solutions for failing hearts and solving impossible biologic problems, the 21st century appears to be focused on the even more complex problems of clinical effectiveness and utility. Administrative databases serve hospitals, payers, and governments to examine a variety of phenomenon. They are designed with specific purposes to help make administrative decisions. Can we use such data sets to examine a field in evolution?

The study in this issue of the *Journal* by Sanaiha and colleagues¹ of the group at University of California Los Angeles used the National Inpatient Sample to examine trends in left ventricular assist device (LVAD) utilization, mortality, and resources.¹ The primary conclusion was that during a period from 2008 to 2016, LVAD mortality has gone down and implants in the United States have gone up. Furthermore, there are few differences between and among programs with respect to such outcomes. More than 20,000 patients were studied, and certainly the cost analysis is credible. Sanaiha and colleagues¹ conclude that we should reconsider volume requirements for programs.

Are the improvements in patient outcome all about patient selection and risk? The study of Sanaiha and colleagues¹ used the Elixhauser comorbidity index to compare cohorts across time. This system has never been validated in this population and incorporates some implausible variables, such as malignancy and human immunodeficiency viral status, to determine risk. And all of this is based on diagnostic codes, which are dependent on a nonclinical workforce reviewing charts.

How we apply these databases to answering critical questions remains problematic. Although short-term mortality is

Ashish S. Shah, MD

CENTRAL MESSAGE

Can administrative databases reveal plausible biologic truths?

important, in 2020 we need to know about right ventricular failure, readmission, exercise capacity, and disability. Surely these critical metrics are necessary to judge programs and frankly the effectiveness of this technology.

But has the study of Sanaiha and colleagues¹ credibly argued that things are better in the LVAD world? Most confounding is that a lot happened during this time frame. HeartMate II (Abbott Laboratories, Abbott Park, Ill) and HeartWare (HeartWare International Inc, Framingham, Mass) devices emerged from clinical trials with commercial approval, HeartMate II then appeared to have significant increases in device thrombosis, and then HeartMate 3 arrived, with its lack of device thrombosis. Important clinical trials that compare axial flow devices and optimal medical management as well as the persistent utility and growth of heart transplantation all influence decisions about LVAD implantation. The current study of Sanaiha and colleagues¹ reviews an interesting moment in LVAD development but really is of historical interest.

As we look to the next decade in the mechanical circulatory support journey, let us envision a database that incorporates real-time data entry, demographic granularity, longitudinal outcomes, and actual cost. Machine learning and artificial intelligence will revolutionize how we analyze such large data sets. Imagine a database that receives data directly from the electronic medical record, the LVAD, and a patient-wearable device. Perhaps we can then get closer to the ever-elusive phenomenon loosely known as the truth.

Reference

1. Sanaiha Y, Downey P, Lyons R, Nsair A, Shemin RJ, Benharash P. Trends in utilization, mortality and resource use following implantation of left ventricular assist devices in the United States. *J Thorac Cardiovasc Surg.* 2021;161:2083-91.e4.

From the Department of Cardiac Surgery, Vanderbilt University Medical Center, Nashville, Tenn.

Disclosures: Author has nothing to disclose with regard to commercial support.

Received for publication Jan 7, 2020; accepted for publication Jan 8, 2020; available ahead of print Jan 28, 2020.

Address for reprints: Ashish S. Shah, MD, Department of Cardiac Surgery, Vanderbilt University Medical Center, 1215 21st Ave S, Suite 5025, Nashville, TN 37232 (E-mail: ashish.s.shah@vanderbilt.edu).

J Thorac Cardiovasc Surg 2021;161:2092

0022-5223/\$36.00

Copyright © 2020 by The American Association for Thoracic Surgery

<https://doi.org/10.1016/j.jtcvs.2020.01.015>