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Commentary: Model prediction versus real-world outcomes of transcatheter aortic valve replacement during the coronavirus disease 2019 (COVID-19) pandemic

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The coronavirus disease 2019 (COVID-19) global pandemic has negatively impacted on most aspects of human life. As of 2020, the world experienced severe negative effects of the pandemic on the economy, human relations, and health services, to mention a few. Hospitals across the globe have had to adapt to this reality. The development of severe respiratory infection in patients affected by the virus and superimposed infection increased demands for resources in critical care areas. As result, elective surgeries had to be either postponed or cancelled. Patients waiting for heart surgery were put at risk and in danger of developing complications or even death. This was particularly so in symptomatic patients with structural heart diseases. With widespread community transmission of COVID-19 throughout the United States, attention was directed at minimizing the risk of exposure to COVID-19 and preservation of limited human and equipment resources (ventilators, intensive care unit beds, and personal protective equipment). By early March 2020, in New York, all elective procedures and surgeries were cancelled, and outpatient visits

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CENTRAL MESSAGE

A model is presented to predict outcomes of TAVR for low and intermediate risk for symptomatic patients with aortic stenosis during the COVID-19 pandemic.

were discouraged. This heavy burden of the pandemic expanded to other areas of medicine, preventing treatment of certain medical conditions. The management of patients with structural heart diseases had to be reassessed from the medical, intervention, and surgical points of view.¹

Freno and colleagues² tested a theoretical model aimed at guiding the decision-making process as to whether symptomatic patients with aortic stenosis, with low and intermediate risk during the active phase of the pandemic, would benefit from transcatheter aortic valve replacement (TAVR) immediately or by delaying it until the pandemic subsided. The authors demonstrated the negative impact on 2-year survival of these patients as result of delaying TAVR. Furthermore, they stated that the only reason to justify delaying TAVR would be due to insufficient resources to care for these patients in the perioperative period.²

This is an interesting observation, but this model may soon become of historical value, as the pandemic is controlled and normality returns. As such, it is difficult to know how results obtained using this model translate into outcomes into the real world of cardiac surgery during and postpandemic. Perhaps this model can be extended into a prospective randomized trial, which may include other debilitating heart diseases. Furthermore, it may be extended to include conventional surgical aortic valve replacement,^{1,2} which is the preferred treatment for symptomatic patients with low and intermediate risk.

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References

1. Chung CJ, Nazif TM, Wolbinski M, Hakemi E, Lebehn M, Brandwein R, et al. Restructuring structural heart disease practice during the Covid-19 pandemic. *J Am Coll Cardiol*. 2020;75:2974-83.
2. Freno DR, Shipe ME, Levack MM, Shah AS, Deppen SA, O'Leary JM, et al. Modeling the impact of delaying transcatheter aortic valve replacement for the treatment of aortic stenosis in the era of COVID-19. *J Thorac Cardiovasc Surg Open*. 2021;7:63-71.