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# Shifting Paradigms in Cardiovascular Therapeutic Strategies During the COVID-19 Era



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The coronavirus disease-19 (COVID-19) period have dictated a different approach to cardiac interventions at our medical institution. We prioritize emergent care geared toward lesser invasive approaches while minimizing hospitalization duration. This reflects upon coronary and structural/valvular cases altogether. Despite potential criticism of this approach, we believe it is the most appropriate therapeutic strategy for this unique period. Further investigation is needed to examine the external validity of our approach in other medical centers worldwide.

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Last week, I treated a patient who was admitted to our cardiology department with unstable angina. He was an active 65-year-old man with diabetes mellitus, obesity, hypertension, and dyslipidemia, and his coronary angiogram showed triple-vessel coronary artery disease with tight lesions in the left anterior descending, left circumflex, and right coronary arteries. The culprit lesion was in the left anterior descending artery and his SYNTAX score (signifying the overall coronary measure of severity and complexity) was 22. According to the contemporary revascularization guidelines adopted in most countries (1,2), I should have stopped the procedure, discussed it with our cardiac surgical colleagues, and potentially offered the patient coronary bypass surgery as the default revascularization strategy. This recommendation is based on several studies indicating a prognostic cardiovascular benefit over time for coronary artery bypass grafting (CABG) versus catheter-based revascularization in diabetic patients with multivessel disease (3). The “heart team” paradigm has been promoted over the last decade, despite no study being able to show its inevitability (4), but the concept has gained popularity in multiple centers across the globe based on strong advocacy in the European Society of Cardiology/American College of Cardiology/American Heart Association guidelines (1,2,5,6).

Confronted with my patient’s status amid coronavirus disease-2019 (COVID-19), I thought to myself that the pre-COVID-19 paradigm concerning revascularization strategies is no longer valid, at least

during the “stormy” present. Therefore, I performed a multivessel percutaneous coronary intervention (PCI) using the radial approach and, after 40 min, the patient’s 3 vessels were opened effectively using 4 thin-strut drug-eluting stents without any complications. The patient did well and was discharged early the next morning with recommendations for changing his lifestyle and using evidence-based medications to prevent repeat cardiovascular events, adjusted for his diabetic status. In this case, no heart team was involved in pursuing the percutaneous approach, which is remarkable due to the impact of the COVID-19 outbreak on our medical center. This is a period that has dictated multiple rapid changes in our medical practices. For cardiovascular interventions, we adopted a policy of swift and highly focused work-up and therapeutic strategies, which also means a dramatic change in the way that we treat our cardiac patients, preferring catheter-based interventions instead of open-heart surgical procedures, even within the scope of “classic” surgical indications. This strategic policy encompasses both coronary and structural interventions, favoring PCI over CABG, transcatheter aortic valve replacement (AVR) over surgical AVR, and more selectively, transcatheter mitral valve repair over surgical mitral valve repair. The rationale for using this approach is based on minimizing the length of hospitalization, exposure to the potentially contagious hospital environment,

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## ABBREVIATIONS AND ACRONYMS

**AVR** = aortic valve  
replacement

**CABG** = coronary artery bypass  
grafting

**PCI** = percutaneous coronary  
intervention

and the need for ventilators and sedative pharmacotherapy utilization, reducing the need for non-COVID-19 health care resources at large, and adjusting priorities toward improving short-term outcomes and accommodating the unique health care scenario created during the COVID-19 era. My decision was also supported by the diminished avail-

ability of operating room time for cardiac surgeries at our hospital owing to COVID-19 alert, and the fact that patients have an excessive wait in the hospital for operations.

According to this approach, over the last 2 months, we have maximized our PCI practice of complex coronary interventions, including unprotected left main and multivessel revascularizations, resulting in a 67% decrease in CABG referrals despite only a 16% decrease in our PCI volume. We also increased our transcatheter AVR volume to encompass low- and certainly intermediate- or high-risk patients, with 22 cases during March 2020 compared with our usual monthly volume of approximately 16 procedures (37.5% increase). We also performed 4 MitraClip (Abbott Vascular, Santa Clara, California) procedures, whereas our average volume is 2 per month. We felt that our patients received the appropriate and necessary treatment, though adjusted for this particular time. Nevertheless, the patients were "part of the equation," and we were transparent by telling them that, under regular circumstances, we may have offered a different treatment. All of the patients, without exception, were delighted with our approach and approved our strategy. "Just do what you need to do" and "get me out of the hospital as fast as you can" were the most common messages from our patients.

One may criticize our adaptive approach. I would presume that cardiac surgeons, or even some cardiologists, may refute our strategy, and I fully respect their view. The counterarguments are based on the need to optimize cardiovascular care under any circumstances while taking into account the long-term prognosis rather than having short-term solutions that may

jeopardize the patient's health and well-being in the long run. In addition, the concept of the heart team forum was meant to optimize cardiac care at large; thus, "excluding" the surgeons from the decision-making process in many circumstances may be perceived as misconduct, which certainly does not align with the recommended cardiology practice guidelines; therefore, this path should not be pursued.

I fully respect those who may criticize what we do, but I think that, during this particularly challenging period, I can stand behind our therapeutic decisions. I believe it is crucial to provide ad hoc and high-quality treatments for our cardiac patients while setting medical priorities that meet the patients' expectations. In the COVID-19 era, patients want high-quality, expedited treatment while minimizing their stay in the hospital. It is already difficult to convince patients to be admitted, and we have seen multiple life-threatening delays in cardiac presentations or interventions, including among patients with acute myocardial infarction.

In summary, the COVID-19 period dictates a different approach to cardiac interventions at our medical institution. We prioritize emergent care geared toward lesser invasive approaches while minimizing hospitalization. Despite potential criticism of this approach, we believe that it is the most appropriate therapeutic strategy in our hospital environment. As we continue to monitor all of our patients at outpatient clinics or via telemedicine and conduct a comprehensive detailed follow-up of our cardiac interventions, we intend to validate this strategy in order to ensure that it is indeed appropriate and safe. Further research is needed to examine the external validity of our approach in other medical centers and medical institutions worldwide.

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