The Evolving Pandemic of COVID-19 and Interventional Cardiology

March 16, 2020

SCAI Members,

This past week has been among the most tumultuous in modern American and world history. The spread of COVID-19 has developed into a worldwide pandemic, and our way of life has been dramatically altered. This national emergency has shuttered schools and restaurants, sports games and music festivals. Here in California, an eerie quiet has taken over the streets, punctuated only by the rare child riding a bike or a couple walking their dog.
This has been extraordinarily stressful for us as physicians, our families and the patients that we have taken an oath to take care of and treat. There are many unknowns, but the universal learning based on the Chinese, Italian and now European experience is: personal hygiene, social distancing, appropriate protection (https://www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-risk-assesment-hcp.html) and isolating the highest risk group (age >60, immunocompromised and/or those with medical co-morbidities) have the greatest potential to mitigate the risk of COVID-19 spread and the associated morbidity/mortality.

At times like this, we are forced to ask larger questions than those that pertain to just ourselves and determine the best way to move forward. There is a paucity of adequate data to guide our next steps, especially as they relate to the care of cardiovascular patients and those who require management in the catheterization laboratory (Cath Lab). We can leverage the lessons from China and determine how we might want to apply them to our healthcare systems.

The decision-making process is multifactorial for the treatment of COVID-19 patients, possible COVID-19 patients, and all other patients presently undergoing procedures in the Cath Lab. A proportion of patients with COVID-19 develop sequelae of cardiovascular disease including acute coronary syndromes and myocarditis. Optimal treatment options depend on local prevalence of the disease, and the resources and expertise available. Currently, the following approach seems prudent:

- ***Confirmed COVID-19 patients.*** Although there are suggestions of a thrombolysis first approach for STEMI patients from the Chinese experience (Zeng et al. Intensive Care Medicine 2020; March 11), I don't think that it is appropriate with the current COVID-19 disease burden in the United States. In the presence of a STEMI or NSTEMI with ongoing ischemic symptoms/hemodynamic compromise, patients should be taken to the Cath Lab for

angiography/primary PCI with appropriate infectious disease protection for the entire Cath Lab team. Post-transfer patients who have received fibrinolysis should still be taken for rescue PCI if clinically appropriate. For NSTEMI patients who are otherwise stable, to minimize the risk of staff exposure, medical management with coronary angiography for recalcitrant symptoms only may be the most logical approach. Elective coronary angiography can then be pursued at a future time when the patient is less infectious.

- ***Possible COVID-19 patients.*** When these patients present with a STEMI, they should be treated with primary PCI and appropriate infectious disease protection as presently, there is no widely available rapid test to exclude the diagnosis of COVID-19. When presenting with an NSTEMI, these patients should await coronary angiography until a negative COVID-19 test has been obtained.

- ***Elective Cath Lab patients.*** This group of patients requires an approach that is evolving. In California, the governor has just announced self isolation for the elderly (age >65). As most patients undergoing elective structural heart disease, stable coronary artery disease, and peripheral vascular disease treatment are in this age group, these patients should probably not undergo elective procedures until we have better assessment of the situation over the next few weeks. If social distancing and isolation of the high-risk cohort is to be effective, delaying these elective procedures seems the most prudent approach. The only patients who should be treated are those with accelerating symptoms or those felt to be too unstable for deferral.

  The Society for Cardiovascular Angiography and Interventions and the American College of Cardiology Interventional Scientific Council are issuing a joint statement to be published in the Journal of the American College of Cardiology today regarding the management of COVID-19 patients who need Cath Lab services. Additionally, the SCAI Early Leader Mentorship members have been working tirelessly to review the relevant data and provide an updated approach for managing these patients. This document will be on the SCAI website shortly.

  Although I didn't have a national prescription to follow, I took the steps below last week at UC San Diego and will be modifying the strategy for the division of cardiovascular medicine as new information becomes available:

  1. The cardiology clinic patient visits deemed to be nonessential (routine follow-up, medication refill), or patients with any upper respiratory infection symptoms in the previous 14 days have been rescheduled. A format for virtual online visits has been developed and is being implemented. New consults or urgent clinical issues are still being seen in the clinic after screening for COVID-19 symptoms.
  2. The majority of elective Cath Lab and EP procedures have been rescheduled.
  3. All faculty are onsite with the exception of those in the high-risk cohort for COVID-19.
  4. Nonclinical staff in the division work by telecommuting.
  5. Divisional conferences (educational and administrative) are canceled and an alternative strategy for providing education and information utilizing an online platform has been developed.

I am providing the above anecdotal example based on the decisions that I made due to seven COVID-19 patients being admitted to UC San Diego over the past 72 hours, and newly issued state mandates. There were many reasons to reschedule elective procedures in the Cath and EP labs, but the primary driving force was the number of COVID-19 patients in the hospital and the concern regarding possible quarantine for exposed staff. A diminished staff would, in turn, limit our ability to provide urgent/emergent cardiac services for other ill patients. This is an approach that will be modified daily depending on the overall critical care and inpatient service burden especially as we continue to follow the growth trajectory of COVID-19 infections. You will have to work with your local institutions and administration to determine the best way to approach these decisions in concert with CDC guidelines, and both infectious disease experts and critical care intensivists.

This is an unprecedented medical challenge for all of us, and there are many questions for which we don't have immediate answers but have the tools and reach within SCAI to find them. Additionally, we can't be effective physicians and interventionalists unless we take care of ourselves, our families, children, and senior colleagues. Collectively, we are all facing the anxiety of the unknown and will best be able to address it by remaining calm, organized and systematic in our approaches. We have to work together as an interventional cardiology community by supporting each other, remaining adaptable, and providing the best possible care for our patients.

Sincerely,
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