Discussion to: Non-elective Coronary Artery Bypass Graft Outcomes are Adversely Impacted by COVID-19 Infection, but not Altered Processes of Care: An N3C and NSQIP Analysis

Emily Grimsley, MD, Dr., Rakesh Arora, MD, PhD, FRCSC, Dr., Michael Rogers, MD, MS, Dr.

PII: S2666-2736(23)00319-4
DOI: https://doi.org/10.1016/j.xjon.2023.10.007
Reference: XJON 919

To appear in: JTCVS Open

Received Date: 6 October 2023
Accepted Date: 6 October 2023

Please cite this article as: Grimsley E, Arora R, Rogers M, Discussion to: Non-elective Coronary Artery Bypass Graft Outcomes are Adversely Impacted by COVID-19 Infection, but not Altered Processes of Care: An N3C and NSQIP Analysis, JTCVS Open (2023), doi: https://doi.org/10.1016/j.xjon.2023.10.007.

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Discussion to: Non-elective Coronary Artery Bypass Graft Outcomes are Adversely Impacted by COVID-19 Infection, but not Altered Processes of Care: An N3C and NSQIP Analysis

Presenter: Dr. Emily Grimsley, MD
Invited Discussant: Dr. Rakesh Arora, MD, PhD, FRCSC
Corresponding Author: Dr. Michael Rogers, MD, MS

Affiliations:
1Department of Surgery, University of South Florida Morsani College of Medicine, Tampa, FL
2University Hospitals, Cleveland Medical Center, Cleveland, OH

Correspondence:
Michael P. Rogers, MD, MS
Department of Surgery
University of South Florida Morsani College of Medicine
Tampa, FL
mrogers6@usf.edu

Disclosures: None

Dr. Rakesh Arora (Cleveland, OH):

Thank you very to the association for the opportunity to discuss this important paper, and to the authors for providing their well-crafted manuscript well in advance of the meeting to review. Recommendations in the perioperative community is suggested for patients with pause of SARS-CoV tests should be led to procure for deferral for a period of time for clinical observation for symptom evolution, treatment, and recovery of the acute viral illness. For an elective cardiac surgery procedure, data would suggest the deferral for 8 weeks or more, depending on the severity of symptoms, is reasonable and probably outweigh the risks of operating on patients earlier for the risks of post-operative pulmonary complications. For the non-elective or emergent patient where deferral may not be possible, data pertaining to these outcomes in these patients are sparse. To address this gap in knowledge, Grimsley and colleagues, I want to take an analysis of patients undergoing nonelective CABG procedures who have had a positive test at time for their procedure. Using this database of over 17,000 patients, they have identified 127 patients defined as COVID-positive at the time of their procedure. For those who had COVID infection, had higher rates of mortality. And those recovered were not free of risk, either, as you've indicated with higher rates of renal and infectious complications.
While is the important signal for us to consider, there's several elements to discuss with this analysis, and I'll limit it to just 3 questions to start. You've already mentioned that you did not have symptoms. And there's COVID-positive, and COVID-positive with symptoms, which are likely different. Outside of that, you've looked at the STS PROM complications, and then excluded mechanical ventilation greater than 24 hours, as well as other complications such intubation rates, reintubation rates, tracheostomy, etc. Can the authors explain or provide additional rationale for the decision of not including these important pulmonary complications as their analysis? Secondly, with regards information pertaining to pneumonia, patients categorized as COVID-positive, can the authors confirm whether they did or did not have pulmonary involvement prior to their surgery? And similarly, post-op related to the postoperative COVID patients have higher rates of not having pneumonia versus pneumonia. Lastly, if you look at the rates of outcomes before and after the availability of vaccination, on outcomes of people with postoperative with COVID going into surgery. Thanks very much.

Dr. Emily Grimsley (Tampa, FL):

Thank you for your questions. So, your first question was about COVID-positive asymptomatic verse symptomatic patients. Like I had to mention in our limitation section, we weren't able to assess the symptom level of these patients at time of their surgery. That said, our adjusted results were still significant for a higher mortality in our COVID-positive cohort. And no difference in mortalities importantly in the COVID recovered group, which were those that were positive greater than 2 weeks prior to their surgery. To me, this suggests that we should recommend holding off on CABG of an urgent and emergent situation, when possible, for two weeks for those that have COVID, regardless of their symptom status. They clearly still fare worse. I don't know what it's like nationwide, but at our hospital, they've stopped doing pre-op COVID testing on all patients. It's no longer a global policy. If you're symptomatic, of course, you get a test. But in the asymptomatic cohort, they don't. So, I think would be really interesting is actually moving forward in a few years, study this again, and look at the mortality rates for those undergoing CABG. It doesn't matter what the COVID status was. See if the mortality's higher than the pre-COVID timeframe. Because what you might find is that you had asymptomatic patients presumptively. Most people aren't trying to operate on symptomatic patients. But you're going to find that some of those were asymptomatic COVID patients that flew under the radar, weren't detected. And perhaps we might see a higher mortality rate now that COVID is in the world. Your second question was regarding additional complications that we did not report here, such as mechanical ventilation, reintubation. So, we're able to see in the N3C data set the number of patients who undergo mechanical ventilation, which was nearly all of them. However, we're unable to see the amount of time that they remain on the ventilator, which is why we weren't able to report that prolonged mechanical ventilation variable, just a limitation of the database and the data set we had. For other variables, such as reintubation, I did look for that, but I really didn't think that my finding was reliable enough to report and really
make a comment on, hence why I left that out. The same thing for tracheostomy. The numbers were just far lower than one would expect, and so I believe that we’re just significantly under-capturing there, and thus, I thought it’s academically more honest not to report on that finding that might be skewed, biased, or just inaccurate.

And then your last question was regarding vaccination status of the patients. Again, I did query for it, and we did find it, but the numbers were very low, and so I was unable to make any reliable statistical comparisons between vaccinated and unvaccinated patients, especially when you wanted to break it down by COVID status as well. I mean, the numbers were like one patient was vaccinated and COVID-positive. So, unfortunately, I am unable to make any remarks there.

Unidentified Speaker 1:

I would like to ask one quick question.

Dr. Grimsley:

Yes, ma'am.

Unidentified Speaker 1:

Did you find anything for the perioperative course about the abnormal coagulopathy for COVID-active patients?

Dr. Grimsley:

So, within N3C, you can query for some lab values. However, we've found the way that they come through to be unreliable and, at times, nonsensical. So, we've chosen not to look at lab values in patients when we're using the N3C database just to avoid reporting false findings.

Unidentified Speaker 2:

So last question. Obviously, hoping COVID is long behind us but recognizing that there may be future, hopefully not—

Dr. Grimsley:

Yes, sir.
Unidentified Speaker 2:

--any lessons learned from looking at COVID more broadly?

Dr. Grimsley:

So, I've actually done a handful of studies, even outside the world of cardiac surgery, looking at COVID outcomes for patients that undergo any surgery. The main finding in every study I've done - I've done four or five now - COVID-positive patients - and I've defined them all as having COVID within two weeks of their surgery date - they all have higher mortality. Some of them have other significantly increased complications compared to their COVID-negative counterparts. But I think that doing the study, even in its retrospective nature, is worthwhile because we don't know when we should say, "Okay, you can go for surgery. Your risk rates have returned back to baseline or normal." And so, I think for this study, it helps to counsel patients and say, "Hey, you might need an urgent CABG, but maybe we should consider PCI. I think you'd be a candidate for that. Your rate of mortality right now is four times based on the data we have. Obviously, prospective work would be nice, but it's kind of too little too late for that.

Unidentified Speaker 2:

Thank you very much.

Dr. Grimsley:

Thank you so much.