

The Impact of COVID-19 on Cardiac Catheterization in NL

Objective

To determine the extent of reduction of cardiac catheterizations (CC) during COVID-19 by indication and whether the percent diagnosed with critical coronary artery disease (CAD) improved.

Practice Points

1. During COVID-19, restrictions on use of hospital services were imposed, including admissions to hospital, visits to doctors, blood tests and imaging of various kinds.
2. CC for ST elevation myocardial infarction (STEMI) should be performed within 24 hours of symptoms, and also undertaken in specific patients with Acute Coronary Syndrome (ACS).
3. Patients with stable angina are not urgent but prior to COVID-19 there was a big wait list with many patients already waiting longer than the recommended time.

Methods

1. All patients who had CC for Coronary Heart Disease from 1 Jan 2020 – 15 Mar 2020 were compared to those from 16 Mar 2020 – 31 May 2020: 75 days pre-COVID-19 and 76 days during COVID-19. Data in the APPROACH database was analyzed. Critical CAD is defined as $\geq 70\%$ stenosis or $\geq 50\%$ stenosis of left main coronary artery.

Results

Table 1. Number of CCs and Number Diagnosed With Critical CAD Pre and During COVID-19 by Indication

Indication	Pre-COVID-19		During COVID-19	
	N CC	N Critical CAD	N CC	N Critical CAD
Stable Angina	157	89	75	46
STEMI	79	64	58	49
NSTEMI	235	169	180	118
Unstable Angina	76	48	66	32
Total	547	370	379	245

- The actual number of patients who had CC for STEMI diagnosed with critical CAD was 15 less during COVID-19 compared to pre-COVID-19, and for ACS it was 95.

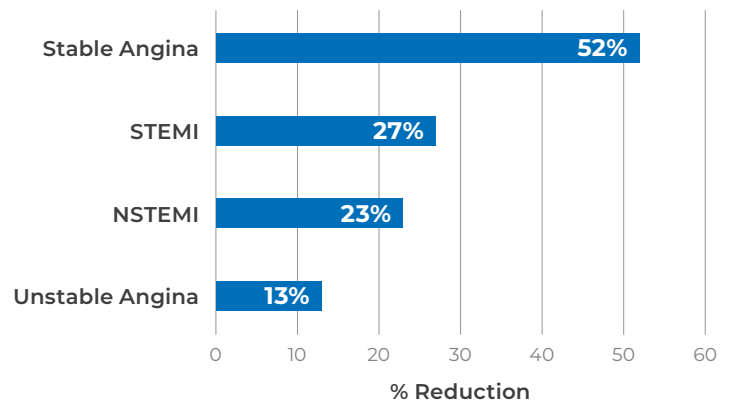


Figure 1. Percent Reduction in Number of CCs Performed During COVID-19 by Indication

- The biggest reduction in CCs during COVID-19 was for stable angina.
- The percent reduction for STEMI was 27%.
- The smallest reduction was for unstable angina, 13%.

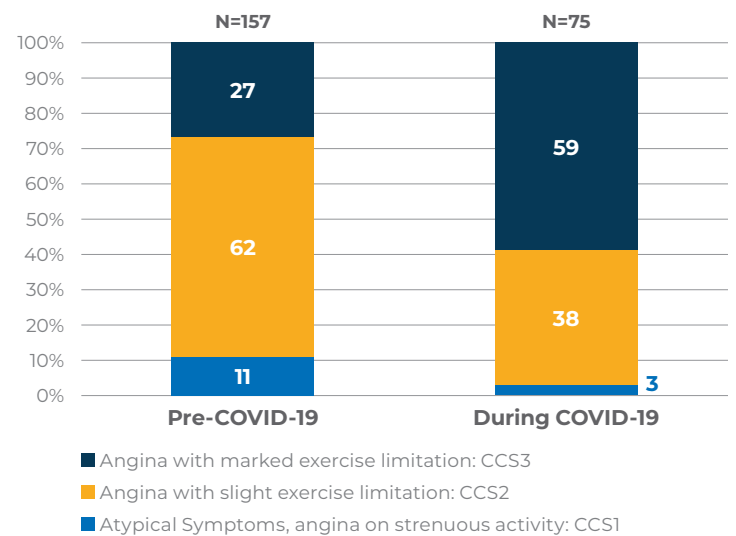


Figure 2. The Percent Who had CC for Stable Angina by CCS Score Pre and During COVID-19

- During COVID-19, the proportion selected for CC from the wait list with high CCS angina score increased from 27% to 59%.

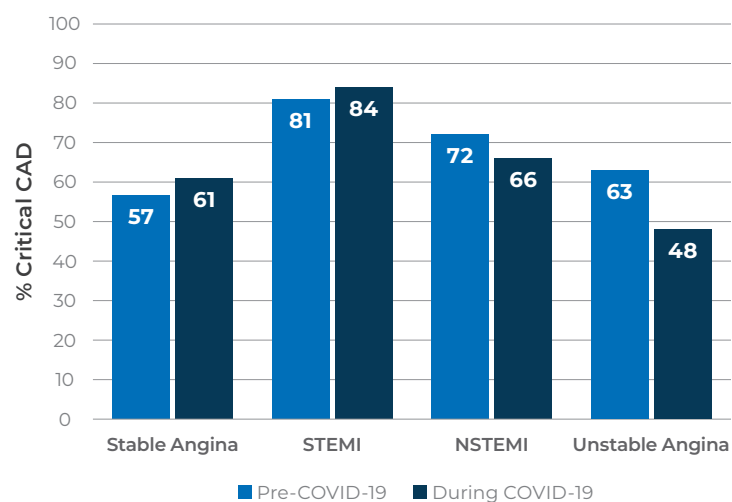


Figure 3. Percent of CCs Diagnosed With Critical CAD Pre and During COVID-19 by Indication

- Selection of patients for CC with ACS did not improve during COVID-19 as the percent diagnosed with critical CAD was lower compared to pre-COVID-19 (66% in those with NSTEMI and 48% with unstable angina).

Conclusions

1. In patients who required CC, there was a 26% reduction in procedures for STEMI and a 21% reduction for ACS.
2. The actual difference in numbers of patients who had critical CAD diagnosed in pre-COVID-19 group compared to during COVID-19 for STEMI and ACS was 110 over 11 weeks. The benefit of reductions in CC to prevent transmission of COVID-19 should be balanced against the harms of restrictions on CC in patients who need the procedure.
3. Failure to improve rate of diagnosis of critical CAD in patients with ACS at a time of rationing of CC caused by COVID-19 implies there is a need for an education program on workup and selection of ACS patients for CC.