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EDITORIAL COMMENT

Expert Article Analysis for:
Revascularisation strategies in patients with significant left main coronary disease during the COVID-19 pandemic

Left main coronary revascularization strategies in the COVID-19 era

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Key Points

- In a UK national analysis of a contemporary procedural cohort, the authors demonstrated that left main (LM) revascularization has significantly declined during the initial wave period of COVID-19, with a clear shift towards PCI as the preferred revascularization strategy.
- Adjusted in-hospital and 30-day mortality within each revascularization group was similar in the pre-COVID and COVID periods, reflecting a maintenance in quality of short-term outcomes following LM revascularization.
- More data are required to explain this phenomenon and to explore the long-term outcomes and temporal trands data.

A worldwide reduction in hospital cardiovascular admissions and procedural volumes was observed during the initial outbreak of coronavirus disease 2019 (COVID-19).[1] This also had a profound impact upon the implementation of cardiac procedures including coronary revascularization. Consequently, pre-COVID-19 paradigm concerning revascularization strategies was no longer sustainable, at least transiently, during the initial phase of the pandemic.[2] A shifting paradigm towards lesser invasive coronary procedures with minimized hospitalization course was adopted in multiple medical centers around the world. In addition, many patients were afraid to be admitted to the hospital to undergo elective medical procedures so activity volumes have dramatically declined. Thus, in coronary revascularization, this period (e.g., March to August 2020) caused rapid changes in practice, favoring percutaneous coronary interventions (PCI) over surgical coronary artery bypass grafting (CABG), even within the scope of the classic surgical indications.

Left main coronary artery disease (LMCAD) portends higher prognostic risk as a result of the large myocardial territory at risk.[3] Diagnosis and management of significant LMCAD continues to be a source of clinical debate and uncertainty. LMCAD is not uncommonly found in stable patients undergoing coronary angiography and is often associated with concomitant CAD. Current clinical practice guidelines from both the American College of Cardiology/American Heart Association and the European Society of Cardiology recommend revascularization for all patients with ≥ 50% stenosis of the left main coronary artery, regardless of symptomatic status or associated ischemic burden. The anatomic extent and complexity of CAD are major factors in deciding on the best management approach of LMCAD. For example, isolated LMCAD lesions involving the ostium or shaft do well with either PCI or CABG. However, distal LM bifurcation lesions or those associated with complex multivessel disease may do better with surgical revascularization. Other factors of consideration include surgical operative risk, left ventricular function, acuity of clinical presentation, likelihood of achieving complete revascularization, and patients' informed preference.[3]

In the current study, Mohamed MO et al.[4] investigated the impact of the COVID-19 pandemic on LMCAD procedural activity, choice of revascularization strategy and associated postprocedural mortality for patients with significant LMCAD, in an unselected and contemporary nationwide cohort in England between January 2017 and August 2020. The primary outcomes were (1) the receipt of CABG or PCI for significant LMCAD and (2) in-hospital and 30-day mortality from the date of the procedure. Results indicated that there was a∼49% decline of LMCAD revascularization procedures between the beginning of March to the end of July 2020, compared with previous years' averages (2017–2019). An increased use of PCI over CABG was observed in the COVID period, consistent across all age groups. No difference in adjusted in-hospital or 30-day mortality was observed between pre-COVID and COVID periods for both PCI and CABG groups. It is also interesting that the odds of receipt of CABG (versus PCI) in LMCA was in a constant decline already in the pre-COVID era with more profound decay in the COVID period.

This article provides a new insight into the matter of LMCAD revascularization in the UK during the initial and most dramatic wave of COVID-19 pandemic. The data raises several pivotal questions. First, the root cause of the deficit of more than 1300 LMCAD revascularization procedures (∼49% decline between March and July 2020 compared with previous years' averages) has not been well

documented. One may wonder what happened to those "missing" patients and what has been their cardiovascular outcome? It is likely that during this critical period, many patients avoided their elective hospital admissions. Nevertheless, LMCAD could present with acute coronary syndrome (ACS) and this work does not distinguish between those clinical scenarios (e.g., elective versus ACS patients). Delaying LMCAD revascularization might endanger cardiovascular prognosis but there are no details herein about the outcomes of symptomatic patients with LMCA whose treatment have been postponed. Several reports indicated a transient increase in out of hospital cardiac arrest incidents, coupled with a reduction in survival, during the specified time period of the pandemic when compared with the equivalent time period in previous years.[5] Whether this phenomenon is related in part to the finding of potentially untreated patients with LMCAD during the pandemic period remains to be determined.

Second, the role of the "heart team" during the COVID period was not well defined in this article among the UK cardiology centers. It is unclear whether operators overlooked the heart team's recommendations regarding LMCAD revascularization during this period or whether cardiac operating rooms were actually shut down, which might have caused such overwhelming dominance of PCI over CABG during this period. Third, it would be important to collect the clinical results for LMCAD revascularization procedures over a longer period of time in order to verify the long-term, rather than short term prognosis. Last, it would be interesting to continue the temporal investigation and explore the mode of practice (e.g., LMCAD revascularization volumes and PCI versus CABG partition) after the study period as healthcare systems resumed their elective activities and adopted the "New Normal" mode of healthcare operation in the UK and worldwide.

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