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Reply to Letter to the Editor: "Comment on: Robotic-Assisted Coronary Artery Bypass Grafting vs. Percutaneous Coronary Intervention Strategies for Ostial Left Anterior Descending Lesions"

LETTER TO THE EDITOR
REPLY

To the Editor,

We have recently read with great interest the article by the authors, entitled "Comment on: Robotic-Assisted Coronary Artery Bypass Grafting vs. Percutaneous Coronary Intervention Strategies for Ostial Left Anterior Descending Lesions," which was published in the last issue of the *Anatolian Journal of Cardiology*.[1] We would like to appreciate the authors for their interest and valuable comments on our article titled "Robotic Assisted Coronary Artery Bypass Grafting and Percutaneous Coronary Intervention Strategies," published in the June issue of the *Anatolian Cardiology Journal*.[2] In our investigation, we aimed to provide valuable clinical insights to the literature regarding this complex patient population with a comprehensive analysis of revascularization strategies for the ostial left anterior descending artery (LAD) disease, which is challenging to manage and treat.

First of all, we strongly agree with the authors, and the best way to compare the cardiovascular outcomes of 3 revascularization strategies is through a randomized controlled trial (RCT). However, no randomized data are yet available in this field. Hence, the findings of this retrospective observational study may provide new insights into this uncertainty.[2] Additionally, in non-randomized and observational studies, highly unbalanced sample sizes between treatment arms are often unavoidable. Many investigators aim to adjust for confounding factors with multivariate Cox regression analysis, given the retrospective, non-randomized design; however, this is often inadequate. Nevertheless, a recent alternative is inverse probability of treatment weighting (IPTW) analysis, which would help reduce selection bias and better simulate a random comparison. More specifically, IPTW analysis can be used to adjust for confounding factors in retrospective or prospective observational studies. Inverse probability of treatment weighting applies the propensity score to balance baseline patient characteristics across exposed and unexposed treatment arms, weighting each individual in the analysis according to the inverse of the probability of receiving the actual exposure. Hence, in our investigation, we performed the IPTW method to reduce treatment selection bias. In our present study,[2] the decision to perform percutaneous coronary intervention (PCI) or robotic-assisted coronary artery bypass grafting (RA-CABG) was based on several criteria: (1) characteristics and anatomic features of the LAD lesion (e.g., long lesion, severe calcification), patient age, and severe comorbidity (e.g., severe pulmonary disease); (2) hemodynamic instability; (3) quality of arterial or venous conduits; and (4) patient or referring physician preferences. Percutaneous coronary intervention was also performed in patients who were recommended for RA-CABG but declined.

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Second, intravascular imaging is an integral part of the complex PCI procedure.[3] The low intravascular ultrasound (IVUS) utilization for bifurcation PCI is a significant limitation in the current complex bifurcation climate. The use of IVUS in our study was relatively low, and the majority of the utilization of IVUS occurred after 2019. It is closely related to health policy, health insurance, and reimbursement in our country. Likewise, in several large-scale multicenter studies, such as the DELTA 2 registry, the utilization rate of IVUS was found to be relatively low (approximately one-third).[4]

Third, we totally disagree with the authors' statement, "Although the authors recommend crossover stenting (COS) as a viable alternative in patients with SYNTAX scores <33, this statement, in our opinion, lacks strong evidential support given the observational nature of the data." Our study is the first paper to investigate mid-term outcomes of 3 revascularization strategies [RA-CABG, COS, and accurate ostial stenting (AOS)] for ostial LAD disease. Therefore, we believe that our study findings may provide a novel perspective for clinicians by reflecting real-world data. Since no RCTs are yet available on this complex issue, the European Bifurcation Club does not consider one PCI strategy (COS) to be superior to the other (AOS) with strong evidence. Besides, it should be recognized that not all recommendations by guidelines are based on RCTs.

Fourth, in the current literature, there are several observational studies and meta-analyses on this subject; however, only one study, which has a limited number of patients, reported better long-term outcomes with AOS. Our previous study[5] and the preliminary analysis of our recent study, which is a large-scale (n=1167), multicenter (n=12) observational study we are currently conducting, demonstrate that the AOS group has a significantly higher incidence of ischemia-driven combined outcomes compared to the COS group under the mid-term follow-up.

In summary, current evidence suggests that COS may be a beneficial revascularization strategy in patients with ostial LAD disease. Nevertheless, a large-scale, multicenter RCT is needed to confirm which treatment strategy has the better cardiovascular outcomes.

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