Peer Review File

Article Information: http://dx.doi.org/10.21037/cdt-20-521

Comment 1:
Line 4: PCI - Mention unabbreviated form

Reply 1:
Thank you for the comment. Line 4 refers to the *Running Title*, where the abbreviations "PCI" and "COVID-19" are used. The first time they appear in the text, both abbreviations are presented in text together with their respective unabbreviated forms (line 55 for "COVID-19"; line 60 for "PCI" of the revised manuscript)

Comment 2:
Line 20/35: Why did you add another time "keywords"? Why did you remove robotic?

Reply 2:
Both "keywords" lines were provisory when the manuscript was being elaborated. But, eventually, were wrongly inserted in the submitted version.

As per the journal's "Guideline for Authors", 3-5 keywords must be inserted after the abstract (and not in the Title page as in the original version). The revised version corrects the mistakes. We thank the reviewer for pointing this out.

Changes in the text:
- Deleted (line 20 of the original version): "Keywords: COVID-19; Acute Myocardial Infarction; Robotic"
- Deleted (lines 35-6 of the original version): "Keywords: Percutaneous coronary intervention; atherosclerosis; cardiovascular disease; myocardial revascularization; stents; case report"
- Inserted (lines 46-47 of the revised version): "Keywords: COVID-19; Acute myocardial infarction; Robotic; Percutaneous coronary intervention; Case report"

Comment 3:
Line 41: put the article

Reply 3:
We were not completely sure to what the reviewer is referring to in this comment.

Comment 4:

Line 41-46: simplify the grammar period and the parenthesis

Reply 4:
The sentence was rephrased.

Changes in the text:
- Deleted (lines 41-6 of the original version): “Robotic-assisted intervention combined with active visual reminders (delineating the potential zone of respiratory particle spread) ensured that all members of the team minimized time spent within this zone. For each individual team member, the proposed strategy was effective in ensuring that they stayed outside of the 4-meter area for the majority of their work time, ranging from 96.9% to 59.7% of their respective participation.”
- Inserted (lines 37-40 of the revised version): “Robotic-assisted intervention ensured minimization of proximity between the patient and the team. All members stayed outside of the area of respiratory particle spread during most of the procedure (for each team member, the time spent outside the proximity zone ranged from 59.7% to 96.9%).”

Comment 5:
Line 46-50: too long period, try to remove something (maybe the incidental between commas?!)

Reply 5:
The sentence was rephrased.

Changes in the text:
- Deleted (lines 46-50 of the original version): “This report demonstrates that robotic-assisted percutaneous coronary intervention, coupled with a thoughtful strategy to reduce proximity, can be used to provide successful invasive treatment while ensuring that the team and the patient remain physically distant from each other for the vast majority of the procedure.”
- Inserted (lines 41-43 of the revised version): “This case report illustrates the potential of robotic-assisted percutaneous coronary intervention in reducing physical proximity between the team and the patient during the procedure.”

Comment 6:
Line 59: it’s better to change the period with “medical…as the disease…”

Reply 6:

We thank the reviewer for this comment. The sentence was changed accordingly.

Changes in the text:

- Deleted (lines 59-63 of the original version): “As the disease wave spreads across the countries, medical and scientific knowledge about the virus and the disease rapidly expands, result of a never-seen-before planetary task force battle aiming at quickly developing preventive measures to reduce the rate of infected persons as well as effective therapeutic strategies”
- Inserted (lines 51-54 of the revised version): “As the disease wave spreads across the countries, medical and scientific knowledge expand rapidly, results of a never-seen-before planetary task force aiming at developing preventive measures to reduce the rate of infected persons as well as validating effective therapeutic strategies”

Comment 7:

Line 65: reference?!

Reply 7:

Two references were added.

Changes in the text:

The following articles were added to “References”:

- Alkhouli M, Alqahtani F, Kalra A et al. Trends in Characteristics and Outcomes of Patients Undergoing Coronary Revascularization in the United States, 2003-2016. JAMA Netw Open 2020;3:e1921326.
- Kataruka A, Maynard CC, Kearney KE et al. Temporal Trends in Percutaneous Coronary Intervention and Coronary Artery Bypass Grafting: Insights From the Washington Cardiac Care Outcomes Assessment Program. J Am Heart Assoc 2020;9:e015317.

Comment 8:

Line 109: still figure 1? You have to specific also the panel for all the figures you mentioned

Reply 8:

We indeed thank the reviewer for this comment. The figure numbering was wrong in the original version. We apologize for the mistake.

Changes in the text:

We corrected the figure numbering and added the indication of each respective figure panel when cited in the body of the text.

Comment 9:
The stuffs you describe before the procedure description are too long as compared to the new concept of endovascular treatment you want to explain
I think you should describe better the robot for PCI
Critical points of the robotic procedure also have to be mentioned

Reply 9:
We fully agree with the reviewer and thank him/her for this comment.

Changes in the text:
- Deleted (lines 114-117 of the original version): PCI using robotic assistance (CorPath GRX System. Corindus, A Siemens Healthineers Company, Waltham, MA, USA) performed by cardiac interventionalists staying, unscrubbed, in a control cockpit located outside the catheterization suite (Figure 2).

- Inserted (lines 104-114 of the revised version): 1) Percutaneous coronary intervention performed through robotic assistance (CorPath GRX System. Corindus, A Siemens Healthineers Company, Waltham, MA, USA). The robotic platform is specifically developed for cardiovascular intervention and enables the manipulation of guide-catheters, 0.014" guidewires, and rapid-exchange interventional devices through a robotic arm. Robotic assistance provides accurate measurements with millimeter accuracy in the positioning of interventional materials. The system is operated by unscrubbed cardiac interventionalists from a control cockpit located outside the catheterization suite (Figure 3, A). The physician uses joysticks and touchscreens to translate his movements of the devices (Figure 3, B). The system has U.S. Food and Drug Administration approval for remote manipulation of interventional devices during percutaneous coronary and vascular procedures.

The following articles were added to "References":
- Weisz G, Metzger DC, Caputo RP et al. Safety and feasibility of robotic percutaneous coronary intervention: PRECISE (Percutaneous Robotically-Enhanced Coronary Intervention) Study. J Am Coll Cardiol 2013;61:1596-1600.
- Weisz G, Smilowitz NR, Metzger DC et al. The association between experience and proficiency with robotic-enhanced coronary intervention-insights from the PRECISE multi-center study. Acute Card Care 2014;16:37-40.
- Lo N, Gutierrez JA, Swaminathan RV. Robotic-Assisted Percutaneous Coronary Intervention. Curr Treat Options Cardiovasc Med 2018;20:14.
- Mahmud E, Naghi J, Ang L et al. Demonstration of the Safety and Feasibility of Robotically Assisted Percutaneous Coronary Intervention in Complex Coronary Lesions: Results of the CORA-PCI Study (Complex Robotically Assisted Percutaneous Coronary Intervention). JACC Cardiovasc Interv 2017;10:1320-1327.

- Mahmud E, Schmid F, Kalmar P et al. Feasibility and Safety of Robotic Peripheral Vascular Interventions: Results of the RAPID Trial. JACC Cardiovasc Interv 2016;9:2058-2064.
- Mangels DR, Giri J, Hirshfeld J, Wilensky RL. Robotic-assisted percutaneous coronary intervention. Catheter Cardiovasc Interv 2017;90:948-955.
- Smilowitz NR, Moses JW, Sosa FA et al. Robotic-Enhanced PCI Compared to the Traditional Manual Approach. J Invasive Cardiol 2014;26:318-321.
- Smitson CC, Ang L, Pourdjabbar A, Reeves R, Patel M, Mahmud E. Safety and Feasibility of a Novel, Second-Generation Robotic-Assisted System for Percutaneous Coronary Intervention: First-in-Human Report. J Invasive Cardiol 2018;30:152-156.
- Swaminathan RV, Rao SV. Robotic-assisted transradial diagnostic coronary angiography. Catheter Cardiovasc Interv 2018;92:54-57.

Comment 10:
Line 164-165 this is not a study…please cut these two lines

Reply 10:
We agree with the reviewer. The sentence was rephrased.

Changes in the text:
- Deleted (lines 164-165 of the original version): "The strategy presented in our study is in line with that paradigm. Obviously, our present findings must be confirmed by formal clinical trials."
- Inserted (lines 167-169 of the revised version): "The approach utilized in our case is in line with that paradigm. Obviously, to be more generally adopted, such a strategy must be confirmed by formal clinical trials."

Comment 11:
Line 169 "demonstrates" is not correct, only one case report it's not enough as you write before

Reply 11:
We agree with the reviewer. The sentence was rephrased.

Changes in the text:
- Deleted (lines 169-172 of the original version): "This report demonstrates that robotic-assisted PCI, coupled with a thoughtful strategy to reduce proximity, can be used to provide successful invasive treatment while ensuring that the team and the patient remain physically distant from each other for the vast majority of the procedure"
- Inserted (lines 172-175 of the revised version): "This case report illustrates the potential of robotic-assisted percutaneous coronary intervention, coupled with a

thoughtful strategy to reduce proximity, to provide successful invasive treatment while reducing physical proximity between the team and the patient during the procedure”

Comment 12:
Line 173 cut “1.”

Reply 12:
The typo was deleted

Comment 13:
Figure 2 panel A is not focused, could you take another frame?

Reply 13:
Unfortunately, the original images were not sharp. Those were the best frames we could get.

Comment 14:
Figure 3 is incomplete you have to adds basal right coronary artery and left descending and at least two projections

Reply 14:
We added the frames accordingly.

Changes in the text:
- Deleted (lines 187-190 [figure legend] of the original version): A, Baseline coronary angiogram showing a culprit sub-occlusive stenosis in the first obtuse marginal branch (white arrow) and a narrowing in the circumflex artery (black arrow). B, Both arteries were treated with succesful stent implantation (white and black arrows, respectively).
- Inserted (lines 263-270 [figure legend] of the revised version): Coronary angiograms showing a totally occluded right coronary artery in its mid portion (A, B), with collateral filling through the left coronary (C, arrowhead). The left anterior descending artery was free of obstructive disease (C). A culprit sub-occlusive stenosis was noted in the first obtuse marginal branch (D and E, white arrows) and a tight narrowing was seen in the proximal left circumflex artery (D and E, black arrows). The obtuse marginal and the left circumflex were successfully treated with robotic-assisted stent implantation (F, white and black arrows, respectively).

Comment 15:

Could you add more references? COVID19 and robotic PCI have to be supported from documentations

Reply 15:
We agree with the reviewer. More references on COVID19 and robotic PCI were added.

Changes in the text
The following articles were added to the reference list:
On COVID-19:

- Zylke JW, Bauchner H. Mortality and Morbidity: The Measure of a Pandemic. JAMA 2020 (doi:10.1001/jama.2020.11761).
- Moradian N, Ochs HD, Sedikies C et al. The urgent need for integrated science to fight COVID-19 pandemic and beyond. J Transl Med 2020;18:205.
- Szerlip M, Anwaruddin S, Aronow HD et al. Considerations for cardiac catheterization laboratory procedures during the COVID-19 pandemic perspectives from the Society for Cardiovascular Angiography and Interventions Emerging Leader Mentorship (SCAI ELM) Members and Graduates. Catheter Cardiovasc Interv 2020 (doi: 10.1002/ccd.28887).

On robotic-assisted PCI:

- Weisz G, Metzger DC, Caputo RP et al. Safety and feasibility of robotic percutaneous coronary intervention: PRECISE (Percutaneous Robotically-Enhanced Coronary Intervention) Study. J Am Coll Cardiol 2013;61:1596-1600.
- Weisz G, Smilowitz NR, Metzger DC et al. The association between experience and proficiency with robotic-enhanced coronary intervention-insights from the PRECISE multi-center study. Acute Card Care 2014;16:37-40.
- Lo N, Gutierrez JA, Swaminathan RV. Robotic-Assisted Percutaneous Coronary Intervention. Curr Treat Options Cardiovasc Med 2018;20:14.
- Mahmud E, Naghi J, Ang L et al. Demonstration of the Safety and Feasibility of Robotically Assisted Percutaneous Coronary Intervention in Complex Coronary Lesions: Results of the CORA-PCI Study (Complex Robotically Assisted Percutaneous Coronary Intervention). JACC Cardiovasc Interv 2017;10:1320-1327.
- Mahmud E, Schmid F, Kalmar P et al. Feasibility and Safety of Robotic Peripheral Vascular Interventions: Results of the RAPID Trial. JACC Cardiovasc Interv 2016;9:2058-2064.
- Mangels DR, Giri J, Hirshfeld J, Wilensky RL. Robotic-assisted percutaneous coronary intervention. Catheter Cardiovasc Interv 2017;90:948-955.
- Smilowitz NR, Moses JW, Sosa FA et al. Robotic-Enhanced PCI Compared to the Traditional Manual Approach. J Invasive Cardiol 2014;26:318-321.
- Smitson CC, Ang L, Pourdjabbar A, Reeves R, Patel M, Mahmud E. Safety and Feasibility of a Novel, Second-Generation Robotic-Assisted System for Percutaneous Coronary Intervention: First-in-Human Report. J Invasive Cardiol 2018;30:152-156.

- Swaminathan RV, Rao SV. Robotic-assisted transradial diagnostic coronary angiography. Catheter Cardiovasc Interv 2018;92:54-57.