

Responses to the Editor:

Thank you very much for your helpful comments and suggestions. Here we respond to your comments point by point.

Editorial comments:

1. A short running title of less than 6 words should be provided.

Response: Thank you for your reasonable advises. We've added running title as 'Fielder XT Guidewire for CTO-PCI' in page 1 and indicated by red fonts.

2. The approved grant application form(s) will be released online together with the manuscript in order for readers to obtain more information about the study and to increase the likelihood of subsequent citation. Our purpose of publishing the approved grant application form(s) is to promote efficient academic communication, accelerate scientific progress in the related field, and improve productive sharing of research ideas. In addition, a copy of the full approved grant application form(s), consisting of the information section and body section, should be provided to the BPG in PDF format.

Response: Thank you. We have uploaded a copy of the approved grant application form in a PDF file named Approved Grant Application Form(s) or Funding Agency Copy of any Approval Document(s)

3. Only one email needed, please delete one.

Response: Thank you. We have deleted the second email in page 2 and indicated by red fonts.

4. Please offer the audio core tip, the requirement are as follows:

In order to attract readers to read your full-text article, we request that the first author make an audio file describing your final core tip. This audio file will be published online, along with your article. Please submit audio files according to the following specifications:

Acceptable file formats: .mp3, .wav, or .aiff

Maximum file size: 10 MB

To achieve the best quality, when saving audio files as an mp3, use a setting of 256 kbps or higher for stereo or 128 kbps or higher for mono. Sampling rate should be either 44.1 kHz or 48 kHz. Bit rate should be either 16 or 24 bit. To avoid audible clipping noise, please make sure that audio levels do not exceed 0 dBFS.

Response: Thank you. We have uploaded a mp3 file as required in Audio Core Tip.

5. Please provide the total title (Figure 2).

Response: Thank you. We have added a figure title as 'Fielder XT guidewires enter the CTO lesions along the microchannels with different anatomical features' in page 32 and indicated by red fonts.

6. Please provide the original and separated figures (Figure 2).

Response: Thank you. We have uploaded the original and separated figures in image file.

Responses to the Reviewers:

Reviewers' comments:

Reviewer #2: An interesting study although frequently studied but sample size is adequate and convenient for this important studied issue, some points are needed to be clarified: 1. Proper and more narrow inclusion criteria for whom suitable for Fielder XT Guidewire are lacking in this study 2. statistical analysis needs more appropriate naming of test for example T test is used to compare quantitative normally distributed data and not qualitative data as you mentioned 3. manuscript is full of spelling and grammar mistakes please correct

Response: Thank you for your comments and suggestions. Here we respond to your comments point by point.

1. Proper and more narrow inclusion criteria for whom suitable for Fielder XT Guidewire are lacking in this study

Response: Thank you very much for your helpful comments and suggestions. This is a retrospective study which was conducted on 1230 consecutive patients with CTO who received PCI via the anterograde approach between January 2013 and December 2015. Operators chose different guidewires according to their clinical experience, as well as the features of the CTO lesions during the operation process. We will make more proper and narrow inclusion criteria for whom suitable for Fielder XT guidewire if we design study of CTO-PCI in the future.

2. Statistical analysis needs more appropriate naming of test for example T test is used to compare quantitative normally distributed data and not qualitative data as you mentioned

Response: We have modified the statistical analysis of the manuscript; the changes are indicated by red fonts. In statistical analysis section, p8, we modified:

Continuous variables are presented as the mean \pm SD, and categorical data are presented as numbers (proportions). The data were statistically analyzed using Pearson's χ^2 test for categorical variables, and Students't test was used to compare

the ~~qualitative~~ quantitative data. Significant independent factors and risk ratio with 95% confidence interval (CI) were assessed by multivariate logistic regression analysis. Analyses were performed using SPSS software (version 21.0; SPSS Inc., Chicago, Illinois), and $p < 0.05$ (2-sided) was considered statistically significant.

3. Manuscript is full of spelling and grammar mistakes please correct

Response: Thank you for your suggestion. We have carefully revised the manuscript and corrected spelling and grammar mistakes as best as we can and our manuscript have proofread by a professional editing company. The changes are indicated by red fonts in the revised manuscript.

We have responded all the concerns point by point proposed by the Reviewer #2. Therefore, related figures and text have been adjusted correspondingly and the changed parts in the text are indicated by red fonts. We hope that our manuscript has greatly improved and will satisfy you. Thank you again for your thorough review and precious comments

Reviewer #3: Dear Editor, thank you for inviting me to review this article "Optimal Use of Fielder XT Guidewire Enhances the Success Rate of Chronic Total Occlusion Percutaneous Coronary Intervention" dealing with one of the most important cardiac interventional topic. In fact, increased failure rates, technical complexity, cost (of equipment, manpower) and procedure length have historically discouraged percutaneous revascularization attempts. Compared with non-CTO PCI, the success rate of CTO PCI has been quoted as low as 50% versus 97% and failure of CTO-percutaneous coronary intervention (CTO-PCI) is reported to be associated with higher subsequent mortality. In this retrospective study the Authors aimed to investigate the use of Fielder XT guidewire in Chronic Total Occlusion Percutaneous Coronary Intervention (CTO-PCI) via the antegrade approach. The Authors reported two main results: 1) the use of Fielder XT guidewire contributes to increase the success rate of CTO-PCI via the antegrade approach and 2) the use of Fielder XT guidewire is associated with reduced rates of in-hospital complications and stent implantations. Furthermore, the use of Fielder XT guidewire was associated with a relatively shorter procedural time and lower contrast amount, as Fielder XT guidewire could cross CTO lesions into the distal true lumen by microchannels probably decreasing the risk of contrast media related acute kidneys injury. Although the study has some limitations by its retrospective nature, is numerically relevant, is well written and very well organized and documented.

Response: Thank you for your encouraging comments and suggestions. Here we respond to your questions point by point.

1. An illustrative non-commercial image of the XT wire can be desirable.

Response: Thank you for your helpful suggestion. We have added the image of the Fielder XT wire as Figure 1 in figure legend segment, p31 of the revised manuscript.

2. What about arterial access?

Response: Thank you for your helpful question. In our study, the selection of arterial access depends on the characteristics of the target lesions. Generally, one of the right radial arteries or right femoral arteries puncture was performed. If necessary, two arteries among right radial artery, left radial artery, right femoral artery and left femoral artery puncture were performed.

In CTO-PCI procedure of the materials and methods section, p7, we have added: All interventional procedures were performed using standard techniques. *The*

selection of arterial access depends on the characteristics of the target lesions. Generally, one of the right radial arteries or right femoral arteries puncture was performed. If necessary, two arteries among right radial artery, left radial artery, right femoral artery and left femoral artery puncture were performed.

3. Can the AA report the radial access percentage?

Response: *In our study, right radial arterial access percentage is 38.4%(472/1230); right femoral arterial access percentage is 6.3%(77/1230); right and left radials arterial accesses percentage are 33.1%(407/1230); right radial arterial and right femoral arterial accesses percentage are 17.1%(210/1230); right and left femoral arterial accesses percentage are 5.2%(64/1230).*

In results section, p9, we have added:

Arterial access

Right radial arterial access percentage is 38.4%(472/1230); right femoral arterial access percentage is 6.3%(77/1230); right and left radials arterial accesses percentage are 33.1%(407/1230); right radial arterial and right femoral arterial accesses percentage are 17.1%(210/1230); right and left femoral arterial accesses percentage are 5.2%(64/1230).

4. What about the choice of the guiding catheter? One performed better than other in the model?

Response: *Thank you. We preferred the Amplatz Left guiding catheter when performing CTO-PCI of right coronary artery, and we preferred the EBU or the Extra Backup guiding catheter when performing CTO-PCI of left anterior descending and left circumflex artery.*

In CTO-PCI procedure of the materials and methods section, p7, we have added: We preferred the Amplatz Left guiding catheter when performing CTO-PCI of right coronary artery, and we preferred the EBU or the Extra Backup guiding catheter when performing CTO-PCI of left anterior descending and left circumflex artery. The anterograde wire escalation (AWE) strategy was employed for anterograde crossing of the CTO.

5. Are there other wires technically similar to Fielder XT on the market?

Response: *Thank you very much. There are Fielder XT-R and Fielder XT-A wires technically similar to Fielder XT on the market.*

In Research perspectives section, p17, we modified: Larger multicenter studies are required to better understand the relationship between the use of Fielder XT series (such as Fielder XT, Fielder XT-R and Fielder XT-A) guidewires and the procedural success of CTO-PCI via antegrade, retrograde, or hybrid approaches.

6. Chronic total occlusions (CTOs) are defined by some AA as coronary lesions with thrombolysis in myocardial infarction (TIMI) grade flow of 0 (true CTO) or TIMI grade flow 1 (functional CTO).

***Response:** Thank you for your helpful suggestion. Chronic total occlusions (CTOs) are defined by some AA as coronary lesions with thrombolysis in myocardial infarction (TIMI) grade flow of 0 or TIMI grade flow 1 (doi: 10.1016/j.jcin.2014.12.238) as you mentioned. It was also defined by some AA as a lesion with total occlusion exhibiting thrombolysis in myocardial infarction (TIMI) grade 0 flow in a native vessel for more than 3 months (doi: 10.1161/JAHA.117.006357, doi: 10.3949/ccjm.84.s3.03, doi: 10.7759/cureus.3647, doi: 10.1002/ccd.28087, doi: 10.1016/j.jacc.2011.12.007, doi: 10.1002/ccd.25264).*

We have responded all the concerns point by point proposed by the Reviewer #3. Therefore, related figures and text have been adjusted correspondingly and the changed parts in the text are indicated by red fonts. We hope that our manuscript has greatly improved and will satisfy you. Thank you again for your thorough review and precious comments