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Dear editor and reviewers,

On behalf of my co-authors, I would like to thank you for the constructive comments to improve our manuscript. We have tried our utmost to encompass the valuable suggestions of the reviewers in a point-by-point response (in italics) to the comments of each reviewer in the revised manuscript.

Reviewer 1

Systematic review on thromboembolic events and its prophylaxis after ACL reconstruction. This is a very interesting topic since there is no consensus regarding DVT prophylaxis following ACL reconstruction.

Comments: too many abbreviations in the abstract session. Abstract should ideally contain no abbreviations at all. I would exclude them all, or maybe just leave the very commonly used and very often repeated in text, such as ACL and DVT.

We have removed all abbreviations except the commonly used ACL and DVT from the abstract on page 2-3 as suggested by the reviewer.

in Core tip: Vascular complications Introduction is objective, states the relevance of the subject, the gap in the literature and highlights the importance of the current analysis. Methods were conducted according to the PRISMA statement. The discussion section could be shortened and still made its point, specially regarding the use of tourniquet. I congratulate the authors for the very well written article.

We thank the reviewer for the compliments and the suggestion to possibly shorten the discussion on tourniquet use. Tourniquet use is a controversial topic in thromboembolic events and as such, we feel that the discussion needs to state the details as presented for a good overview of this topic to the reader.

Reviewer 2

Excellent work.

Reviewer 3

Introduction The incidence of arterial complications is rather small and this is probably the reason of not typically reported. Are the authors aware of any case reported in the literature of pulmonary hypertension as a result of ACL reconstruction? Please add with corresponding reference.

Pulmonary hypertension is a potential (late) complication after venous thromboembolic event (VTE), which in turn is a possible complication after ACL reconstruction. We are not aware of a case report that links ACL reconstruction directly to pulmonary hypertension. A possible explanation for the lack of a direct correlation between these two events might be the long time lapse between the surgery and pulmonary hypertension, both treated by different medical specialties that may not have recognized this correlation to date.

Methods The authors need to be congratulated on this attempt. However, with the presented search strategy (screening of the abstract and title) there is a risk of excluding some studies with relevant. For example, potentially some studies report vascular complications in the full text, while those were not described in the abstract. The authors should highlight more that their search strategy focused on the studies where vascular complications were the main outcomes measured.

The consequences of the search strategy (screening of title and abstract) are that only those studies will be eligible for inclusion if arterial complications, venous thromboembolism or DVT prophylaxis after ACL reconstruction are reported in the abstracts. Studies that did not report these findings in their abstract were consequently not included in the current review. This text has now been added to the method section "Study selection" on page 5.

The authors should clarify the 9th inclusion criterion. What do they mean by availability of the abstract and text? (Theoretically all are availability with journal transcription)

The 9th inclusion criterion "Abstract and full text available" is meant to include only those studies of which full text have been published, excluding the studies with only abstracts of reports of conferences. The term "abstract" is confusing and has been deleted from Table 1 on page 31.

The authors should provide more supporting information in the introduction about the importance of conducting this review. What the information that this review will provide will benefit the audience.

The importance of conducting this review has been added to the introduction on page 4: "The review will highlight the incidence, types and risk factors of arterial complications and VTE after ACL reconstruction as well as the current recommendations for DVT prophylaxis."

The presence of the same author in both teams of abstract reviewing is problematic.

According to PRISMA criteria, this does not ensure independence in search. The authors should include this in the limitations of this work.

We agree with the reviewer that the independent analysis is not adequately described in the methods section. One author (first author) screened all abstracts and 2 co-authors scored both half of the abstracts independently of the first author. Consequently, 3 authors independently of each other screened all abstracts. We have added the following sentence to better explain the methods of study selection on page 5: "One author (RJ) screened all abstracts and 2 co-authors (DJ, MR) scored both half of the abstracts independently of the first author."

The description of the synthesis of the results could be improved so as the exact process to be more clear. In table 3 the description of study design should be included in the table legend (were they all case reports?)

We have changed the title of Table 3 to better explain that these are all case reports on page 33: "Table 3 Results arterial injuries (case reports)."

Results. The answer in this research question is problematic since it is based only on the report of a retrospective study. Based on the number of ACL reconstructions performed each year and the small number of arterial complications found in this systematic search (23 cases) it appears that the reported incidence of 0.3% could be considered as high. Therefore, I would suggest that the conclusion of this section would be modified so as to reflect the lack of knowledge and the need of additional long-term studies to study incidence

We agree with the reviewer that this conclusion is merely based on the only published retrospective series. The conclusion of this section on page 8 has been modified to better reflect the quality of analysis to: "The incidence of arterial complications after ACL reconstruction is very low. The incidence of 0.3% presented in a retrospective series may be overestimated considering the fact that only case reports have been published in the literature. Long-term studies are necessary for analysis of the incidence of arterial complications after ACL reconstruction."

In the second question regarding the types of arterial complications the description could be majorly benefit from inclusion of more specific information. For example, how often was the most commonly complication seen(i.e. pseudo aneurysm)?

This is indeed a good addition to the manuscript. We have added the following sentence to the conclusion of this question on page 8: "Pseudoaneurysm is the most common arterial complication (13/23 cases)."

The authors should be more specific on the correlation under question and provide the presence (or absence) of a correlation early in this paragraph. The remaining description for the 18 studies between the arterial complications and acl surgical complications and the 4 studies to other conditions is unclear and needs to be re-organized. This conclusion may be true, but it does not represent the finding of this report. It should read something like " no correlation was found between..." This may sound similar but it is different to the statement that these complications can occur with any(this suggests that all these complications occurred with all of the above conditions in combination, which cannot be true due to the small number of reported cases.

This section has been rewritten based on the reviewer's advice to better relate the findings with the question and conclusion on pages 8-9. It now reads as follows:

"Twenty-three case reports on arterial complications have been published using various techniques of ACL reconstruction, detailed in Table 3. There was no correlation between arterial complications and ACL reconstruction technique, methods of graft fixation or graft type. Eighteen studies reported that the vascular injury was caused by instruments during the ACL reconstruction (shaver, a drill bit for graft fixation, portal incision, previous catheterization and graft harvest). Pseudoaneurysm was the most frequently reported arterial complication after ACL reconstruction, irrespective of graft type or method of graft fixation. Four studies related their vascular complications to concurrent lateral meniscectomy, PCL reconstruction and preexistent intimal popliteal artery injury due to a previous knee

dislocation.

No correlation was found between arterial complications and ACL reconstruction technique, methods of graft fixation or graft type."

5. The authors should add the references that produce this range.

The references that produce this range have been added to the text on page 10.

Was any evidence that thrombophlebitis prevented the occurrence of DVT?

We did not find any evidence that thrombophlebitis prevented the occurrence of DVT.

The authors should provide more details for the deep venous thrombosis being more frequent with tourniquet time > 2 hours. Add details of the studies, how much did the risk increase, etc

We have added further details and reference as suggested by the reviewer in this section on page 10: "The incidence of DVT among patients with tourniquet lasting > 2 hours increased from 12.1 to 17.4%^[8].

Discussion In the first paragraph of the discussion, the authors should focus in data that are coming from synthesis of the existing work. Therefore the prevalence of arterial complication that is based on a sole previously published report could be mentioned as a secondary finding. In contrast, the incidence of a symptomatic DVT reaching almost 10% is rather important. As mentioned before, the authors should add more quantitative data and specifics on the results.

We have rewritten the first paragraph of the discussion to better describe the limited value of the 0.3% incidence of arterial complications but highlight the pooled 9.7% incidence of DVT after ACL reconstruction. It now reads: " The most important finding of the present study is that after ACL reconstruction, the incidence of arterial complications, symptomatic DVT and PE was 0.3%, 2.1% and 0.1% respectively. The incidence of 0.3% of arterial complications may be overestimated considering the fact that only case reports have been published in the literature. However, the pooled incidence of DVT after ACL reconstruction without thromboprophylaxis was 9.7%, of which 2.1% of patients was symptomatic."