

## PEER-REVIEW REPORT

**Name of journal:** World Journal of Orthopedics

**Manuscript NO:** 61761

**Title:** Dual antibiotic loaded bone cement in patients at high infection risks in arthroplasty: Rationale of use for prophylaxis and scientific evidence

**Reviewer's code:** 05208471

**Position:** Peer Reviewer

**Academic degree:** MD

**Professional title:** Doctor

**Reviewer's Country/Territory:** Netherlands

**Author's Country/Territory:** Germany

**Manuscript submission date:** 2020-12-18

**Reviewer chosen by:** Li Ma

**Reviewer accepted review:** 2020-12-18 19:30

**Reviewer performed review:** 2020-12-22 20:22

**Review time:** 4 Days

<b>Scientific quality</b>	<input type="checkbox"/> Grade A: Excellent <input type="checkbox"/> Grade B: Very good <input type="checkbox"/> Grade C: Good <input checked="" type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish
<b>Language quality</b>	<input type="checkbox"/> Grade A: Priority publishing <input checked="" type="checkbox"/> Grade B: Minor language polishing <input type="checkbox"/> Grade C: A great deal of language polishing <input type="checkbox"/> Grade D: Rejection
<b>Conclusion</b>	<input type="checkbox"/> Accept (High priority) <input type="checkbox"/> Accept (General priority) <input type="checkbox"/> Minor revision <input checked="" type="checkbox"/> Major revision <input type="checkbox"/> Rejection
<b>Re-review</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>Peer-reviewer statements</b>	Peer-Review: <input checked="" type="checkbox"/> Anonymous <input type="checkbox"/> Onymous Conflicts-of-Interest: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No



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#### **SPECIFIC COMMENTS TO AUTHORS**

Dear authors, first, I wish to compliment you on the effort of writing a manuscript to elucidate the role of dual ALBC in the limitation of PJI. I agree this is an interesting subject and support your major conclusion: more studies are to be performed, especially to supposed high-risk patients. However, your study lacks several parts to ensure it provides a reproducible overview of the literature. - The format of WJO (in the abstract as well as the manuscript) is not followed. - A guideline for reviews (in this case PRISMA) is not followed and described. - A methods section is entirely absent (including search terms, in- and exclusion criteria), which makes it impossible to reproduce. - The results section is not mentioned as such, but several interesting studies are discussed. - The discussion is very short, it lacks a limitations section and any future perspectives. Best regards.

## PEER-REVIEW REPORT

**Name of journal:** World Journal of Orthopedics

**Manuscript NO:** 61761

**Title:** Dual antibiotic loaded bone cement in patients at high infection risks in arthroplasty: Rationale of use for prophylaxis and scientific evidence

**Reviewer's code:** 02841616

**Position:** Peer Reviewer

**Academic degree:** MD

**Professional title:** Doctor

**Reviewer's Country/Territory:** China

**Author's Country/Territory:** Germany

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<b>Scientific quality</b>	<input type="checkbox"/> Grade A: Excellent <input type="checkbox"/> Grade B: Very good <input checked="" type="checkbox"/> Grade C: Good <input type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish
<b>Language quality</b>	<input type="checkbox"/> Grade A: Priority publishing <input checked="" type="checkbox"/> Grade B: Minor language polishing <input type="checkbox"/> Grade C: A great deal of language polishing <input type="checkbox"/> Grade D: Rejection
<b>Conclusion</b>	<input type="checkbox"/> Accept (High priority) <input type="checkbox"/> Accept (General priority) <input type="checkbox"/> Minor revision <input checked="" type="checkbox"/> Major revision <input type="checkbox"/> Rejection
<b>Re-review</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>Peer-reviewer statements</b>	Peer-Review: <input checked="" type="checkbox"/> Anonymous <input type="checkbox"/> Onymous Conflicts-of-Interest: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

## **SPECIFIC COMMENTS TO AUTHORS**

Thanks for your submission. With the increase of multi-resist pathogens and revision cases, PJI is becoming a major challenge for modern joint arthroplasty. In vitro test and clinical practices have proved the effectiveness of ALBC in PJI prevention and treatment. A better performance could be predicted with two or more kinds of antibiotic added. This manuscript introduced the rationale of applying second antibiotic in bone cement, summarized the research results for dual ALBC in in vitro test and hemiarthroplasty, revision or infection patients. We thought this review could be helpful for orthopedic surgeons, especially for selecting commercial ready-to-use ALBCs. However, there were still some aspects needed further revision: (1) From the title we knew this manuscript talked about “rationale of use” and “scientific evidence” of dual-antibiotic ALBC. Unfortunately, the major part of manuscript discussed clinical effect of ready-to-use ALBC in clinical cohorts. We advise that neither title nor text should be revised to make them matched. (2) There are two kinds of ALBC, commercial ready-to-use products and hand-made ALBC, a mixture of antibiotic and plain cement by surgeons in the theatre. Because of personal preference or economic reasons, hand-made ALBC is still popular worldwide, especially in developing countries. There are many interesting questions remaining unsolved in hand-made ALBC, such as the selection of drug, best drug ratio, method of mix and difference in antibiotic effect compared with commercial products, which are needed to be discussed in the manuscript. (3) Most of antibiotics have no chemical reaction with bone cement, so the introduction of drug could influence microstructure of cement layer, changing its mechanical properties, a potential risk factor for aseptic loosening. Previous studies have made detailed measurements for this change, which was not seen in the manuscript. (4) This manuscript supported application of dual ALBC in high infection risk patients, but



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the principles of optimizing these patients (like risk algorithm, evaluation chart, etc.) was absent. (5) Many antibiotics were metabolized via liver or kidney, so overuse of antibiotics might cause hepatic or renal damage, dual ALBC might worsen this side effect, especially in elder patients with internal diseases. The improvement of antibiotic effect and affect of body should be discussed simultaneously. (6) We advise the author to illustrate their searching strategies of literatures so others could made improvement in this topic easily. (7) Some grammar questions could be carefully discussed. For instance, “neck-of-femur” could be revised as “femoral neck” and “orthopaedically relevant pathogens” could be revised as “pathogens related to orthopedic infections”. We encourage authors to make further revision of this manuscript and waiting for the revised edition.