Reviewer’s report

Title: In vitro antibacterial activity of Bioactive Glass S53P4 on multiresistant pathogens causing osteomyelitis and prosthetic joint infection

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Reviewer: Tristan Ferry

Reviewer’s report:

This article is interesting, as local bone cements or bone substitutes with antimicrobial activity is an emerging option in orthopedic septic surgery. Authors studied the antibacterial activity of a bioactive glass and antibiotic-loaded PMMA. They concluded that the bioactive glass presented similar antibacterial properties as antibiotic-loaded PMMA. The experiments seem to be well conducted. However, some clarifications are needed. Indeed authors used reference strains and clinical methicillin-resistant staphylococci and Gram-Negative bacilli, including carbapenemase enterobacteria and P. aeruginosa. I suppose that the reference strains are susceptible to gentamicin, but not clinical isolates. Is it right? It may considerably influence the results. What was the gentamicin MIC of clinical isolates? It is of importance, as high local gentamicin concentration can also have an antibacterial activity even in gentamicin-resistant strains. Finally no differences in the bactericidal activity on enterobactria and P. Aeruginosa (the latter is usually less susceptible to gentamicin)? Please clarify these points.

Minor comments:
- Methicillin-resistant instead of oxacillin-resistant (so MRSA and not ORSA, etc.)
- Gentamicin is sometimes wrote with a i and sometimes with a y (please always use a i)

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes
Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

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Speaker for HERAEUS (a bone cement manufacturer)

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