Reviewer's report

Title: Which is the best method of sterilization for recycled bone autograft in limb salvage surgery: A radiological, biomechanical and histopathological study in rabbit.

Version: 3  Date: 16 October 2014

Reviewer: Lisa Ercolano

Reviewer's report:

Overall, this is a soundly designed and completed study that is certainly of interest to and useful for the field of orthopaedic oncology. The introduction is helpful in framing the need for and background of the study. The following are points to be addressed:

Major Compulsory Revisions

1. Potential limitation of the study not addressed: there were 2 animals sacrificed at the successive time points- and therefore a potential confound is being unable to follow them all out to potential union. Individual responses might vary and this may have been shielded with the especially low numbers at the final 2 week time point.

2. I am unable to find the "Takahashi score" in the citation "[15]" provided.

3. How do you describe the variation in findings- It seems difficult to interpret which means of sterilization is superior when the performance of all in the different testing modalities (macro/micro histology vs. radiographically vs. biomechanically) varied so greatly. To that end, why does the autoclaving group score best on the biomechanical studies, even higher as compared the controls at week 6? How do we define true union- you use the term "incorporation" from the radiographic study but is the micro analysis a better means of determining union? The irradiated group did best radiographically (though not significantly at 12 weeks!), but the pasteurization group did best microscopically.

Minor Essential Revisions

1. There are some minor grammer mistakes throughout the manuscript that undoubtedly can be edited.

2. Line 66: "higher score" in the abstract is unclear as to whether this implies tested as superior or inferior.

3. Line 115: perhaps some more literature citations to address the "controversial" use of recycled bone autograft. What are the cases that have been made for either side?


5. Lines 183-187: How did you determine the temperature and time to sterilize
each group?
6. Did sections A and C definitely contain the proximal and distal osteosynthesis sites, respectively?
7. The biomechanical testing site (section B) does not contain an osteosynthesis site which would have also been interesting to see how a union at those sites behaves under biomechanical testing.

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I declare that I have no competing interests.