Reviewer's report

Title: Effects of prostaglandin E1 on bone callus formation after the fracture in rabbits

Version: 2
Date: 24 April 2015

Reviewer: Leila Harhaus

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Effects of prostaglandin E1 on bone callus formation after the fracture in rabbits

BMC Musculoskeletal Disorders

The authors present a pilot study to examine for the first time the effect of systemic PGE1 supplementation on bone healing. Therefore they use a diaphyseal fracture model of rabbit tibia. In my opinion it is an interesting idea and worth to be further evaluated. I have some major and minor comments:

1. Title: The title is not “well-written”. I would suggest to use: Effects of prostaglandin E1 on callus formation in rabbit.

2. During the whole texts, there are several misspellings, please check again carefully.

3. Study design: animal model: the majority of studies dealing with the examination of bone and fracture healing are performed on rat models. It is a well established technique to perform a diaphyseal or even metaphyseal fracture of the tibia. A higher number of animals could be used and you statistical evaluations would be more valid. For the text studies I would suggest to use rat-models.

4. You have to explain, why you evaluated a time period of 30 days. I assume, that for now, only callus formation was in your focus. After 35 days, a remodeling would start.

5. In a next study, a long term analysis would be interesting to see what happens during the whole fracture healing process.

6. Background: The cited references are all very “old”. You cite papers 20-30 years old. Please find more actual ones.

7. Background: Questions to be answered:
the first question (to create an adequate model…) is redundant, since the fracture model is established for a long time. Please remove.

Miner Res 2:595–610), how to measure and describe bony structures.

8. You need to use the nomenclature of Parfitt et al. for evaluation of your samples.

9. Methods: please move the statement regarding the ethical committee to the beginning of this section, state the number and only state it once. (see last paragraph methods section).

10. Please state in detail, why you administered the PGE1 over 10 days. What is your hypothesis?

11. Results: How did you assess the weight bearing and ROM? You should perform a gait analysis.

12. What happened to the fibulae? On the figures, they are broken.

13. It is critical, that you had so many problems in your control group (infections, non-unions). One must consider, that already during the surgery there may have occurred some mistakes? Usually, the healthy bone and its fracture healing serves as “positive-control”, since there the healing is optimal. Please consider.

14. A major revision is the lack of biomechanical testing. Since you performed a first pilot study, it might be acceptable to only perform morphologic evaluation, but the quality of bone healing can only be seen in biomechanical testing.

15. Please translate the Russian references.

Level of interest: An article of importance in its field

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

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests