Reviewer's report

Title: Extracorporeal shock wave therapy in the treatment of bone marrow edema syndrome of the knee: a pilot study

Version: 3  Date: 5 May 2015

Reviewer: Thomas Tischer

Reviewer's report:

Dear authors,

this is an very interesting study concerning a new indication for extracorporeal shock wave application. however, there are some points, that could be improved and increase the value of the manuscript even further.

Major Compulsory Revisions:

1. In the introduction, it is stated that the effects of shock waves on bone is not well investigated. however, there are some basic science studies, that could be described, since this is important for understanding this technique. Please delete some references that are not concerning extracorporeal shock wave therapy instead. e.g. Hofmann et al. or Meizer et al., ... about half the listed publications are concerning bone marrow syndrome without shock waves. this publication is about shock wave treatment...

Optimal intensity shock wave promotes the adhesion and migration of rat osteoblasts via integrin #1-mediated expression of phosphorylated focal adhesion kinase.
Xu JK, Chen HJ, Li XD, Huang ZL, Xu H, Yang HL, Hu J.

Dose-dependent new bone formation by extracorporeal shock wave application on the intact femur of rabbits.
Tischer T, Milz S, Weiler C, Pautke C, Hausdorf J, Schmitz C, Maier M.

2. Please be more specific in the materials and methods section:
How long were the patients mobilized with weight-bearing aids? were they partial weight bearing or full weight bearing? where there differences between the groups?

How was the area of edema in the MRI calculated. On one slide or 3D? where all the MRI with the same fluid sensitive sequence?

Shock waves were applied in 2 series of 3 treatments? how is this meant? were
there 6 sessions? or 2?

Energy flux density was greater than 0.5mJ/mm². How much was it? it makes a great difference between 0.5 or 1.0 for example...

3. Results

Where are the quantitative data of the MRI investigations? At least semiquantitative data reporting with more than two groups would be recommended to better see the differences between the groups.

4. Discussion: please add a discussion of initiation treatment of BMSK after just two weeks? why not start conservative therapy with partial weight bearing? how many patients do well with this conservative therapy?

L235: there can also be side effects of shock wave application.

L238: Please be more specific about the effects and mechanisms of shock wave therapy on bone tissue.

Minor Essential Revisions

References: please think about removing unnecessary references like Ahlbäck, / Bellamy, / McHorney, ...

Discretionary Revisions

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**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