Reviewer’s report

Title: Time Course of 1,25-(OH)2D (Vitamin D) as well as PTH (Parathyroid Hormone) during Fracture Healing of Healthy and Osteoporotic metaphyseal human Bone

Version: 1 Date: 26 July 2012

Reviewer: Britt Wildemann

Reviewer’s report:

Aim of the present study was the investigation of possible changes in systemic PTH and Vitamin D in healthy or osteoporotic patients with metaphyseal fracture. A matched pair analysis of 15 patients per group was done and PTH and VitD quantified in the serum at day 0, after 1, 4, and 8 weeks after fracture. The found values were for both factors in the range already reported in the literature. No changes over the healing phase and between the groups were observed.

This study is in line with previous work of the group investigating factors that are differentially regulated due to fracture or the formation of a non-union. This is the first report focusing also on osteoporotic patients. The work is very relevant for the detection of factors that are misregulated in patients with healing impairment. The results can in the future be used for the development of new therapies or as prognostic factors to identify patients with a risk to develop healing complications.

The present study, however, has several limitations:

Major and minor compulsory revisions

1. The main limitation is the “misinterpretation” of the data. There is no change in PTH or VitD over the healing period or between the patients groups. The authors, however, mention an increase in PTH values from day 0 to week 1. This is not supported by the data. Results that show no difference are still results and they should be reported as they are.

2. Abstract: “Development of bone turn over markers (BTM)… Which markers are meant? Neither PTH nor VitD is a turnover marker. And development seems to be an incorrect word.

3. Background, 1. sentence: BMD is not the abbreviation for bone morphogenetic protein, but for bone mineral density. Please correct this.

4. Background: a more detailed description of the anabolic effect of PTH will be helpful.

5. Material & Methods: It is not mentioned if the diseased patients received an osteoporosis medication.

6. M&M: Information regarding the used detection methods for PTH and VitD are missing. The kits are not given, only the general methods.

7. Results: Fig. 2 and 3 are mentioned but Fig. 1 and 2 are meant.
8. Table 1: The BMD values should be given for all patients.
9. The osteoporotic patient No. 15 is missing in table 1
10. Fig. 1: the unit for the VitD concentration is missing
11. Figure. 2: please correct “kontr” to “contr” in the figure legend.
12. Both figures/tables: Decimal values should be separated by a point and not comma. Why were only 11 osteoporotic patients included? In the figures (*=significance) is written. Should be deleted
13. Discussion: the authors should discuss difficulties with human serum analysis and the possible effect of fracture localization, fixation etc. on the measurement.

**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