Reviewer's report

Title: Vitamin D levels appear to be normal in Danish patients attending secondary care for low back pain and elevated in patients with Modic changes: A cross-sectional cohort study of consecutive patients with non-specific low back pain

Version: 1 Date: 30 December 2012

Reviewer: Henning Glerup

Reviewer's report:

The study is well designed. The first objective is to describe vitamin D level in Danish LBP patients. This objective is fulfilled by the study. Second objective is to investigate how the vitamin D levels are related to a number of parameters. And third to examine the associations between vitamin D deficiency and Modic changes, muscle weakness, paresthesia and widespread pain. There is a number of limitations in these two latter objectives: First of all only 11% (n=17) had moderate/severe vitamin D deficiency and only one patient had in fact severe deficiency. It is likely that the weak representation of vitamin D deficiency in the study group will hamper any signal on vitamin D deficiency related muscle pain or weakness in the larger study group. In my experience vitamin D deficiency related myopathy is primarily seen in vitamin D levels below 25 nmol/l. The strength of the study could possibly have been increased if the authors had included measurements of PTH, as secondary hyperparathyroidism indicate more severe vitamin D deficiency. The authors are, however, aware of this limitation in the study as indicated on page 12.

The title of the paper are: “Vitamin D levels appear to be normal in Danish patients attending secondary care for LBP and elevated in patients with Modic changes: …..”

The first part of the title is in agreement with the study results. Vitamin D deficiency seems not to be an important part of the explanation of LBP in the Danish study group. However, the study cannot rule out the importance of vitamin D deficiency in LBP in other study groups with a higher frequency of severe vitamin D deficiency. This could be a likely explanation for the conflicting results when comparing to other studies.

The second part of the title is, however, not correct. The authors demonstrate a weak correlation between vitamin D levels and Modic changes, but none of the vitamin D levels has been found increased above normal levels.

Major compulsory revisions:

The title should be changed. A suggestion could be: “Vitamin D levels appear to be normal in Danish patients attending secondary care for LBP. A weak positive correlation between serum levels of vitamin D and Modic changes was
demonstrated. ……”

p. 13, second paragraph: “It is possible……. in inflammation. ” This paragraph is rather speculative, and should not be part of this paper. I do not know any data that could support the suggestion, that even high normal levels of 25-OH-vitamin D could result in a decreased ability to reduce inflammation”.

I suggest that the paragraph is simply deleted from the paper.

Minor essential revisions:

p. 4, second paragraph, second line: “There is evidence…..” I suggest: “Previous studies suggest that Vitamin D may……”

Minor comment:

Table 1. Weakness in legs. According to the table this parameter in measured by self-reporting from the patient. Using this method the vitamin D deficiency related muscle weakness will be underestimated, as patients more often will report general fatigue rather than muscle weakness. Ideally the muscle strength should have been measured by an objective method. However, in this setting I do not thing the method used will change the conclusions of the study.

Level of interest: An article of limited interest

Quality of written English: Acceptable

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