Reviewer's report

Title: Vitamin D and disease activity in Moroccan children with juvenile idiopathic arthritis

Version: 1 Date: 4 November 2013

Reviewer: Christina Pelajo

Reviewer's report:

The association between 25OHD levels and disease activity in rheumatologic disorders is an interesting topic that needs to be further studied. In pediatric rheumatology, little is known about this association, although several studies have evaluated it in adults with rheumatologic disorders.

This manuscript needs some revision, but I would encourage its publication after that.

Major Compulsory Revisions:

1) On page 5, line 1, authors state that 21 patients were considered to have an active disease and 48% a high disease activity. How was this determined? Did you use the cutoff values of DAS 28 that are used for RA? This was not stated in the methods section.

2) In the results section it is mentioned that 75% of the patients had hypovitaminosis D, however in the discussion (page 6), authors say that 75% of patients had vitamin D deficiency. The authors defined vitamin D deficiency as levels <20ng/ml and hypovitaminosis D as levels <30ng/ml in the methods section, so these are different things. Terms should be consistent.

3) On page 5, authors also mention there was a significant association in the univariate analysis between tender joints and 25OHD, as well as between patient global health and 25OHD, however, it was not mentioned in the methods that these variables would be included in the univariate analysis. In the methods section, authors stated that the variables to be included would be: duration of JIA, JIA subtype, DAS28, ESR, BASDAI, and medications used.

4) There is a need for a modification of the conclusion, since the association between DAS28 and 25OHD levels was only significant in the univariate analysis, and lost once the multivariate analysis adjusted for confounders. Hence, authors cannot conclude there was an association between disease activity and 25OHD levels. You can explain in your discussion the reasons why the association may not have been found (as you did), but the final conclusion should be that there was no association.

5) Table 3 was not mentioned in the text.

6) Table 3 – the term “patient global assessment” is used instead of “patient global health”. Terms need to be consistent. On table 3 several variables (sex, age, BMI, CHAQ, patient global assessment, tender joints, and swollen joints)
were included in the univariate analysis, although they were never mentioned in the methods section. In the methods section, authors stated that the variables to be included in the univariate linear regression would be: duration of JIA, JIA subtype, DAS28, ESR, BASDAI, and medications used. Besides, sex does not have any association with 25OHD levels in literature, so it should not be included in the univariate analysis.

7) The abstract needs to be revised accordingly. The results section mentions that VD insufficiency was observed in 75%, however figure 1 shows that VD insufficiency was found in 30%. In the results authors say that "25OHD levels were associated with DAS28". The direction should be clarified (negatively associated), and also that this was only significant in the univariate analysis. The conclusion also needs to be modified, as pointed out above.

Minor Essential Revisions:

8) The sentence on lines 31-33 of page 5 needs to be revised, as it makes no sense.

9) On page 6, lines 19-21 there is a sentence to explain the recruitment bias, however it needs to be rewritten.

10) On the same page, line 21, substitute "absence of case-control" by absence of controls.

Discretionary Revisions:

11) DAS28 is not validated for children, so you need to justify why this score was used, instead of others that have been validated for JIA, such as JADAS.

12) Why all DAS 28 components were used in the multivariate analysis, except number of swollen joints? Please make it clear in the text.

13) Why was the patient's assessment of pain collected, if this was not mentioned anywhere in the paper?

**Level of interest:** An article whose findings are important to those with closely related research interests

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

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests