Reviewer's report

Title: Association of iron overload based quantitative T2* MRI technique and carotid intima-media thickness in patients with beta-thalassemia: A cross-sectional study

Version: 1 Date: 12 October 2010

Reviewer: Anna Södergren

Reviewer's report:

This is an interesting and really straight-forward study by Akhlaghpoor and colleges.

First some Discretionary Revisions:
The statistics and correlation in the study are very basic, I would prefer some more advanced statistics where the authors adjust the correlations for duration of deferoxamine treatment, transfusion volume and months of transfusion without deferoxamine treatment. If these results were present one could speculate in whether chelating therapy possible could lower the iron load and thereby the atherosclerosis. Thereby the clinical value of this study can be improved.

Patients with hyperlipidemia are excluded from this study, however the authors mention LDL as an important mediator in the development of atherosclerosis in these individuals. Therefore I think that data about lipids, including LDL, should be given for example in Table 1. In Table 1 also data about blood pressure, previous cardiovascular event, other co-morbidities and other medications should be given. Thereby the reader are given a better description about the patients in this study and thereby a better chance to interpret the results correctly. Best of all would be if the authors also adjusted the results for these factors.

Minor Essential Revisions:
On page 9 line 5, I think there is a mistake: please correct “last 2 cm” to a more correct description

On page 10, line 7 and 13-14 the p-values are duplicated from the Tables. Data in tables should not be duplicated in the text.

In Table 1: please give the body mass index instead of weight and height.

In Table 2: does the correlation with age include all patients, and is the age used as a continuous variable, or are the patients analysed as groups as in Table 3?

Figure 1 is not mentioned in the text, please correct this.

Major Compulsory Revisions:
The patients in this study are referred from the haematology clinic for assessing the iron load. Please discuss whether this gives a selection bias towards a more...
severe disease or if this still could be regarded as representative selection of patients with beta-thalassemia.

The exclusion criterions included all traditional cardiovascular risk factors, however there are no information about previous cardiovascular event among the patients. What will happen with the results if all patients with a previous CV event are excluded? A previous CV event is the strongest predictor for atherosclerosis and therefore a factor you must adjust for in a study like this.

The authors have used parametric statistics like Pearson’s correlation. However there are small groups and it is hard to believe that all data are normally distributed. Therefore also results from non-parametric test should be given, or at least this fact would be discussed and the choose of statistic testing motivated.

The discussion is in most part a duplication of the introduction. Please discuss more about the potential mechanisms and maybe a speculation in how to prevent the accelerated development of atherosclerosis in the individuals with highest iron load.

In the conclusion the authors state that the results are in line with previous studies. Can you please argue about what this study adds to the current knowledge.

**Level of interest:** An article of limited interest

**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