Reviewer’s report

Title: Predictors of health care drop-out in an inception cohort of patients with early onset rheumatoid arthritis.

Version: 1 Date: 26 May 2017

Reviewer: Rebecca Whittle

Reviewer’s report:

1. Please be consistent with the number of decimal places reported throughout the text and tables

2. Was there any missing data? How has this been handled?

3. More information in the methods section on each of the considered predictors (particularly DAS28) would be helpful, e.g. how they are measured, if they continuous or categorical, what scale they are measured on, what the range is etc.

4. Page 6, line 21 - this would read better to say, "At follow up evaluations, the Disease Activity Score in 28 joints was evaluated using ESR (DAS28-ESR)." Then use the abbreviation DAS28-ESR consistently throughout the manuscript.

5. On page 9, line 47, it says that the range of follow up is 43.2 to 123 months, but then the median dropout time is 41.1 months, which is lower than the lower bound of the follow up range. Please clarify, is the length of follow up reported only for those who didn't drop out, or is this actually the inter-quartile range, not the range?

6. Table 2 and 3, are the DAS28 and SF36 scores described actually cumulative scores or are they the patients score at a given point in follow-up?

7. Please clarify why the 3 different models have been fitted, which appear to only include one different variable each (disease flares, remission, DAS28)? The methods state that variables were chosen based on significance in univariable analysis, but no results for univariable analyses are given. Please present the estimates for all variables included in the models (it is not clear if those in the tables are the only variables in the model or if those stated under the table are also included) and present results for unadjusted analysis. I think it would be more informative to present the effect size estimates for each of the predictors of interest (unadjusted and adjusted for previously identified and clinically important variables) and then present the results for each of the predictors simultaneously adjusted for all of the other predictors and the adjustment factors see the added value of these predictors over and above the other predictors and adjustment factors.

8. The methods state that significant variables were isolated using stepwise selection, but it is not clear at what stage stepwise selection was used. Are those variables listed for each model
under Table 4 the variables that each model started with, before stepwise selection? Please clearly outline the modelling process. The term 'included' or 'selected' would be a better term to use than 'isolated'.

9. The statistical analysis section states that Cox regression has been used for objective 3. In table 4 odds ratios, not hazard ratios, are given. If Cox regression models have been fitted then the effect sizes estimated will be hazard ratios not odds ratios. Should these be presented as hazard ratio, or has logistic regression been used?

10. If Cox regression has been used, was the proportional hazards assumption met?

11. Please state the number of patients included in each of the models in Table 4.

12. Throughout the text (particularly page 11), please include 95% confidence intervals when reporting odds ratios (or hazard ratios).

13. For objective 4, patients that dropped out and then returned will no doubt be different to those that didn't return at all, so this is not representative of patients who drop out of health care. There is also only 5 patients with HDO included in this analysis, which does not provide a large enough sample to give informative or reliable results, particularly when comparing percentages.

14. In the tables sometimes N₀ is used and sometimes just N - be consistent.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

No

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Yes

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

No

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

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