Reviewer’s report

Title: Epidemiology of psoriasis in hard-to-treat body locations: data from the Danish Skin Cohort

Version: 2 Date: 22 Jan 2020

Reviewer: Ailish Hannigan

Reviewer's report:

There were two main statistical issues raised in previous versions of this manuscript (which I did not review).

One related to the choice of variables in the multivariable model. There is no general agreement on the best way to select a multivariable model but subject matter knowledge (ideally a conceptual mode) should guide model building. In the absence of an agreed conceptual model in the literature, the authors’ clarification that variables were selected a priori based on clinical relevance seems reasonable. It would be helpful, however, if the authors provided some measure of goodness of fit for their models.

The second issue related to the volume of hypothesis tests carried out and the need to adjust for multiple testing. Again, there is no general agreement on whether this should be carried out or which method is the 'best' method.


What is important is that it is clear to the reader how many tests were carried out and whether any adjustment was made or not. The authors have carried out adjustment now, with little impact on the results, and are clear on their approach so again this seems reasonable.

There is however an over emphasis in the text of the paper on the significance (statistical significance) without consideration of the magnitude of the differences between the groups and the clinical or patient relevance of the size of this difference. This is particularly important in a study such as this with a large cohort where small differences can be statistically significant. The detail is in the (dense) tables and supplementary tables but it would be useful to quantify at least some of the statements made in the text. Some examples are given below:

'Patients with psoriasis in hard-to-treat locations were significantly younger' (important to clarify the comparison group - patients without psoriasis in hard to reach locations) - this is in fact a difference of less than 5 years (57.8 vs 62.4 years).

'The most noticeable difference was in the level of pain and discomfort, which was strikingly higher among patients with psoriasis in hard-to-treat areas' - is this skin pain (2.5 vs 1.2 on a scale of 0 to 10)?
Both seem low on a scale of 0 to 10 - is that an important difference?

There are minimum clinically important differences available for some of these scales in related populations which could be referenced by the authors and in this way, the importance of the differences between the two main groups (those with and without psoriasis in hard to reach locations) would be clearer to the reader. This approach would help the authors to highlight key findings (which are getting a bit lost in the volume of results and statistical tests presented) - this is also important for the abstract.

This is an important study and further minor improvement is needed to maximise its impact.

Other minor comments:

'Of these, 2,602 patients currently had psoriasis in at least one hard-to-treat location, whereas 1,414 patients did not.' Add percentages.

A dotted line might work better for those without psoriasis in hard to reach areas in Figure 2.

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

Yes

**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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