Reviewer’s report

Title: Use of antidepressants and benzodiazepine-related hypnotics before and after initiation of TNF-α inhibitors or non-biological systemic treatment in patients with rheumatoid arthritis, psoriatic arthritis or ankylosing spondylitis

Version: 0 Date: 11 Jul 2019

Reviewer: Diederik de Cock

Reviewer's report:

Dear authors,

I have to congratulate you with this very nice paper about the use of antidepressants in patients with arthritis. In general, I think this is a good valid study with a strong methodology, but not really exciting results. I agree with the authors that a decrease in antidepressants can be expected in patients starting anti rheumatic treatment, for multiple reasons as they have implied themselves. Herein lies the biggest issue of the study.

The data can only indicate a trend, not an underlying causal pathway as clinical and comorbidity data is unavailable.

I have also small comments:

- medication use seems to be tailored to RA. It would be great to have in the additional table per disease an overview of medication use (which TNFi and csDMARD). This would help profiling the patients we are seeing here.

- Could there be overlap of a patient first taking csDMARD and then TNFi? Normally patients first start csDMARDs and then TNFi’s. Another study could look at the effect of failing csDMARD therapy and the use of antidepressants. Perhaps rates go up, which could support the theory that the use of antidepressant (and thus potentially depression, anxiety etc) is correlated with clinical disease activity.

- Is there info on disease duration? It would have been great to find support for a psychosocial window of opportunity where a speedy response also has a bigger effect on antidepressant use.

- There is a high use of antidepressant in general, both in controls and reuma population. I would have expected however the use of medication in the PSA higher (doubled or even trippled to controls and other diseases). This was not the case. Would this be because of the background high use or another reason? Perhaps merits a little point of attention in discussion.

- For the figures, when i first looked at them, i was seeing a decrease in use of antidepressant by the way the y-axis was ordered. It is perhaps just my mind, but i would reverse the order of time on the y-axis.

Good luck!

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

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