Author’s response to reviews

Title: The added value of musculoskeletal ultrasound to clinical evaluation in the treatment decision of rheumatoid arthritis outpatients: Physician experience matters

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James Mockridge:

BioMed Central Editor

Dear Dr. Mockridge:

Please find enclosed the manuscript entitled “The added value of musculoskeletal ultrasound to clinical evaluation in the treatment decision of rheumatoid arthritis outpatients: Physician experience matters” (BMSD-D-17-00613) version 2, to be considered for publication in BMC Musculoskeletal Disorders as an original article. The manuscript has been updated according to reviewer and editor’s requests and a point-by-point detailed response letter is provided.

The updated version of the manuscript is not being considered for publication in another Journal nor has it been published elsewhere. Authors agree with the updated version of the manuscript, and they have no conflicts of interest to declare. We hope the new version will satisfy the editor.
ANSWER TO REVIEWERS AND EDITOR

Editor Comments:

As the two reviewers suggest, this is an interesting view on the use of ultrasound in affecting treatment decisions in RA – and differentially in trainees versus seasoned rheumatologists. (I disagree with reviewer #1 – as it’s fine for the TR and SR to learn from a 12 hour course to understand the US data…. But the expert scanner is far more trained)

While it is safe to assume the ultrasound readings/scoring by the expert are accurate and consistent, how are we to believe that the altered treatment decisions (in a stark minority of cases, nonetheless) are in fact the best decisions for the patients? Were the TR (trainees) swayed unnecessarily and incorrectly? Other more recent literature is suggesting that ultrasound findings might not be as helpful as previously thought.

Answer: We agree with the reviewer. We have been very careful all along the text to highlight that we are just addressing the impact of GUS7 findings on the treatment indicated by the rheumatologist in RA outpatients; the present study do not examine the impact of GUS7 on outcomes. We have limited expressions as “ultrasound usefulness” along the text. In fact, we are currently performing a study that addresses the editor query “Ultrasound Impact in Rheumatoid Arthritis Patient Reported Outcomes (ULTRAPRO), (ClinicalTrials.gov Identifier: NCT03228342).

We proposed the following paragraph to be included at the end of the limitations, page 19 “Finally, our study does not assess the adequacy of the final treatment in the ultimate terms of better disease and patient-reported outcomes. We are currently performing a study aimed to address the topic (“Ultrasound impact in Rheumatoid Arthritis patient-reported outcomes [ULTRAPRO], ClinicalTrials.gov Identifier: NCT03228342).
Do these changes make their decisions more concordant with those of the SR (senior clinicians)? Authors need to make it clearer about how this improved (or didn’t improve) concordance between TRs and SRs.

Answer: No they did not. We have added the following paragraph, page 13: “There was a good correlation between the SR and the TR in the treatment indicated (kappa=0.645, p≤0.0001) and the incorporation of GUS-7 findings did not improve it (kappa=0.474, p≤0.0001)”.

The authors need to tone down their conclusions about the applicability of the study.

Answer: We propose the following paragraph, page 14-15.

“The study was performed in a real clinical setting of an ongoing cohort of early (at cohort inclusion) RA patients who had been treated since the beginning of their enrollment according to a T2T strategy with traditional DMARDs (with/without corticosteroids) following current recommendations (27); in addition, up to 49% of the patients had comorbidities. The simultaneous presence of multiple pathological conditions is more a rule than an exception in RA patients and has important academic issues and implications in daily practice (13). We consider our results contribute to define the impact of ultrasound in RA patients’ clinical care. Additional strengths of the study were the blinding for ultrasound evaluations and for clinical assessments (between the TR and the SR).”

They should provide more detail (or make it clearer) which subsets of patients in terms of severity/etc had diagnoses changed by US.

Answer: We have added the following paragraph to the result section (page 13), “Finally, we compared demographic characteristics (gender, age, education), disease characteristics (rheumatoid factor, antibodies to cyclic citrullinated proteins, disease duration, DAS28, ESR, CRP, disease activity status), comorbidities and treatment (corticosteroids use and DMARDs/patient) between patients in whom the GUS-7 findings modified the treatment and their counterpart; no differences were found in the variables examined (data not shown).

They also need to provide more convincing evidence and explanations why the added US data improved – and not just changed – treatment decisions.

Answer: As mentioned above we propose to add a paragraph at the end of the limitation’s section.
“Finally, our study does not assess the adequacy of the final treatment in the ultimate terms of better disease and patient-reported outcomes. We are currently performing a study aimed to address the topic (“Ultrasound impact in Rheumatoid Arthritis patient-reported outcomes [ULTRAPRO], ClinicalTrials.gov Identifier: NCT03228342).

Reviewer reports:

Aaron Garza (Reviewer 1): The authors of this manuscript assessed the added value of musculoskeletal ultrasound to the clinical evaluation in the treatment decision of RA patients and they reported that MSK US added to standard rheumatic assessment impacted the treatment proposal in a limited number of patients and the impact was greater in a the less-experienced rheumatologist. The subject area is of interest and the manuscript in general is well written but I do have a few comments

It is well known that MSK US is operator dependent, the only experience that we know about the rheumatologist performing the studies is that “they completed a 12 hour course in MSK US in rheumatic disease”, at the same time, the MSK US findings (synovitis, erosions, etc) that were reported in this study were comparable to other RA studies suggesting knowledge/expertise in the area from the operators.

Answer: In order to avoid confusion we propose the following paragraphs.

Page 8: “Ultrasounds were performed by a senior rheumatologist experienced in musculoskeletal ultrasound (at least 10 years of experience) who was blinded to the clinical evaluations performed by the SR and the TR,…”

Page 16: “It should be emphasized that both clinicians (the TR and the SR) completed a 12-hour course of musculoskeletal ultrasound in…”

Regarding the conclusion, I would consider modifying to a more specific RA population as the majority of the RA patients did not have a moderate or high disease activity level

Answer: We have modified conclusions as suggested, page 19.
…“Musculoskeletal ultrasound added to “traditional rheumatic assessments” impacted the treatment proposal in a limited number of RA outpatients, most of them were classified with remission and low disease activity”…

Adey Berhanu (Reviewer 2)

Comments:

1. Overall, a well conducted novel study that contributes valuable insight to an area that has not yet been investigated and adds useful information for the role of musculoskeletal ultrasound in clinical decision making in RA patients.

2. The strengths of this study include blinding of TR and SR and assessment of ultrasound usefulness from the perspective of both the clinician (TR and SR) as well as the patients

3. The manuscript reports that in 20% of clinical scenarios the ultrasound findings modified the final treatment proposal, however, the characteristics of those patients was not provided. This would be pertinent information to identify patients in which ultrasound would be beneficial in clinical decision making.

Answer: We performed the analysis suggested and have added the following paragraph, page 13.

“Finally, we compared demographic characteristics (gender, age, education), disease characteristics (rheumatoid factor, antibodies to citrullinated proteins, disease duration, DAS28, ESR, CRP, disease activity status), comorbidities and treatment (corticosteroids use and DMARDs/patient) between patients in whom the GUS-7 findings modified the treatment and their counterpart; no differences were found in the variables examined (data not shown).

4. Of the 20% of clinical scenarios in which ultrasound findings modified the final treatment proposal, what was the concurrence or consensus between the TR and SR in these instances?

Answer: We have added the following sentence in page 12, “In 18 clinical scenarios (52.8%) the TR and the SR agree in their decision to modify the treatment after GUS-7”.

Finally, we compared demographic characteristics (gender, age, education), disease characteristics (rheumatoid factor, antibodies to citrullinated proteins, disease duration, DAS28, ESR, CRP, disease activity status), comorbidities and treatment (corticosteroids use and DMARDs/patient) between patients in whom the GUS-7 findings modified the treatment and their counterpart; no differences were found in the variables examined (data not shown).

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