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PEER-REVIEW REPORT

Name of journal: World Journal of Radiology

Manuscript NO: 48673

Title: Comparison of free breathing and respiratory triggered diffusion-weighted imaging sequences for liver imaging

Reviewer's code: 02577402
Position: Editorial Board
Academic degree: MD,PhD
Professional title: Professor
Reviewer's country: China
Author's country: United States
Reviewer chosen by: Li-Jun Cui (Quit in 2019)
Reviewer accepted review: 2019-06-29 02:50
Reviewer performed review: 2019-06-29 11:37
Review time: 8 Hours

SCIENTIFIC QUALITY	LANGUAGE QUALITY	CONCLUSION	PEER-REVIEWER STATEMENTS
[ ] Grade A: Excellent	[ ] Grade A: Priority publishing	[ ] Accept (High priority)	Peer-Review:
[ ] Grade B: Very good	[Y] Grade B: Minor language polishing	[ ] Accept (General priority)	[Y] Anonymous
[Y] Grade C: Good	[ ] Grade C: A great deal of language polishing	[ ] Minor revision	[ ] Onymous
[ ] Grade D: Fair	[ ] Grade D: Rejection	[Y] Major revision	Peer-reviewer's expertise on the topic of the manuscript:
[ ] Grade E: Do not publish		[ ] Rejection	[ ] Advanced
			[Y] General
			[ ] No expertise
			Conflicts-of-Interest:
			[ ] Yes
			[Y] No

SPECIFIC COMMENTS TO AUTHORS

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In this MS, the authors compared various DWI sequences for liver imaging. Although it is well written, some problems exist. 1. Title: "Comparison of three different DWI sequences for liver imaging quality" seems better than the original one. 2. Abstract: Aim: "To qualitative and quantitatively compare " should be " To qualitatively and------". Methods: Here, the authors used a lot of abbreviations without giving the full phrase like FB-DWI, SMS-DWI and PACE-DWI. When using an abbreviation, the full phrase should be given at the first time of use. Later, you can always use the abbreviation without mentioning the full phrase. This is the rule. Please check the whole article and give the full phrase of abbreviations at the first time of use. Results: "The mean qualitative image quality score of PACE-DWI (4.48)" should be "The mean qualitative image quality score of PACE-DWI was 4.48." 3. Core tip: here, "we compared three diffusion weighted for liver imaging" should be "we compared three diffusion weighted sequences for liver imaging". 4. Introduction:Here, the authors mentioned "Respiratory-triggered acquisition---". Does Respiratory-triggered acquisition need breath-hold technique? The authors mentioned free breathing but without mentioning breath-holding technique. Do the three sequences the authors used for comparison here integrate breath-hold technique? What is the difference between the three comparisons and the breath-holding technique? Please specify this and also discuss it in the discussion section. 5. Qualitative analysis: In this section, there is a grammar mistake in the sentence: " Two readers, independently, qualitatively compared the ADC histograms from all 3 DWI sequences side-by-side on the basis of the ADC histogram distribution reflected the tumor heterogeneity ". Here, reflected should be reflecting. 6. DISCUSSION: Here, you mentioned breath-hold DWI, and you should compare this with the three DWI investigated in your article. 7. In Table 2, please add a row with the name of total and add all the number in this row. 8. Table 4: What do you mean by "Sequence A" and "Sequence B"? Are they related to the MRI scanning technique? This

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table seems useless and belongs only to the statistical presentation, which does not show many useful information. If possible, just describe the outcomes in the text.

INITIAL REVIEW OF THE MANUSCRIPT

Google Search:

[ ] The same title

[ ] Duplicate publication

[ ] Plagiarism

[Y] No

BPG Search:

[ ] The same title

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[ ] Plagiarism

[Y] No

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PEER-REVIEW REPORT

Name of journal: World Journal of Radiology

Manuscript NO: 48673

Title: Comparison of free breathing and respiratory triggered diffusion-weighted imaging sequences for liver imaging

Reviewer's code: 03366604
Position: Editorial Board
Academic degree: PhD

Professional title: Associate Professor

Reviewer's country: United States

Author's country: United States

Reviewer chosen by: Li-Jun Cui (Quit in 2019)

Reviewer accepted review: 2019-06-29 03:07

Reviewer performed review: 2019-07-05 14:36

Review time: 6 Days and 11 Hours

SCIENTIFIC QUALITY	LANGUAGE QUALITY	CONCLUSION	PEER-REVIEWER STATEMENTS
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[Y] Grade D: Fair	[ ] Grade D: Rejection	[Y] Major revision	Peer-reviewer's expertise on the topic of the manuscript:
[ ] Grade E: Do not publish		[ ] Rejection	[Y] Advanced
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This manuscript describes a study that compared three DWI sequences for liver imaging, which includes free-breathing alone, Simultaneous MultiSlice (SMS) and prospective acquisition correction (PACE). The study was conducted on 20 patients with liver lesions, with qualitative and quantitative analysis of the DWI data. The paper concludes that the DWI with PACE and SMS provide better image quality and less ADC variability of liver lesions than free-breathing alone. While this paper may be interesting to some working in the field, I have concerns about the methodology, the analysis and its overall usefulness. I have the following specific comments: 1) It is not clear what exactly caused the indicated artifact in the FB image in Fig 1a. Were similar artifacts observed in other patients? How frequent did artifacts appear in the FB sequence compared to the other 2 sequences? Did all the sequences use the same readout bandwidth (that is related to magnetic susceptibility artifacts)? 2) In the beginning of the Discussion, the paper attributes the poorer image quality and more artifacts in the FB sequence to longer scan time and lack of respiration triggering. However, other factors might also be at play. For example, the longer TE (67ms) used in the FB sequence than in the SMS and PACE sequences (56ms) would have led to lower signal. The paper does not explain why longer TE was used in the FB sequence. Furthermore, later in the Discussion, it is mentioned that "FB-DWI showed fewer artifacts", which seems to contradict what was said earlier. 3) On page 9, it is stated "The histogram with the most usable pixels was considered the superior one". How was "usable" defined and determined? How were the upper and lower limits of the frequency scale in Fig. 2 determined? 4) Please provide more description for the PACE DWI technique and explain why it did not significantly increase the scan time over the FB DWI sequence (4min 58s vs 4min 44s) in this study. 5) The paper claims that "an advantage of our study is that we were able to compare ADC values and evaluate the precision of the ADC calculations". However, given that "all lesions were detected in

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all sequences" as stated in the Discussion, it is not clear whether there are any significant benefits of the "better image quality and less ADC variability" to the diagnosis of liver lesions. As mentioned in the paper, a limitation of this study may be that most lesions were malignant and therefore the usefulness of ADC values for lesion characterization could not be determined. Furthermore, without a gold standard for comparison, how could one be sure that the larger ADC variation in the FB sequence was entirely due to poorer image quality and not reflecting (at least partially) the real condition of the liver lesions? Minor comments: 1) In the caption of Fig. 2, please change "The bottom image …" to "The diagram on the right …"

INITIAL REVIEW OF THE MANUSCRIPT

Google Search:

[ ] The same title

[ ] Duplicate publication

[ ] Plagiarism

[Y] No

BPG Search:

[ ] The same title

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PEER-REVIEW REPORT

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Manuscript NO: 48673

Title: Comparison of free breathing and respiratory triggered diffusion-weighted imaging sequences for liver imaging

Reviewer's code: 02669684
Position: Editorial Board
Academic degree: MSc,PhD
Professional title: Professor
Reviewer's country: Egypt
Author's country: United States
Reviewer chosen by: Li-Jun Cui (Quit in 2019)
Reviewer accepted review: 2019-06-29 15:40
Reviewer performed review: 2019-07-06 15:44
Review time: 7 Days

SCIENTIFIC QUALITY	LANGUAGE QUALITY	CONCLUSION	PEER-REVIEWER STATEMENTS
[ ] Grade A: Excellent	[ ] Grade A: Priority publishing	[ ] Accept (High priority)	Peer-Review:
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good idea and well done work

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[Y] No