April 30, 2014

Dear Editor,

Title: *Application of MR Imaging in Cervical Spondylotic Myelopathy*

Author: Zhang C, Das SK, Yang DJ, Yang HF

Name of Journal: *World Journal of* radiology

ESPS Manuscript NO: 9628

The manuscript has been improved according to the suggestions of reviewers:

1 Format has been updated：

I have modify the format of author name as **Zhang C, Das SK, Yang DJ, Yang HF,** and add the RUNNING TITLE: ***MRI to the management of CSM***, *and add the Fixed telephone:* **+86-0817-2262089** *And i also add* the COR TIP as the following: *This article attempts to investigate the application of MR technology to the management of CSM patients, and involve the discussion of recent and future advances in both conventional and novel MR techniques. The novel MR techniques including DTI, MRS, fMRI etc, all of these MR techniques have played an absolutely necessary role in the management of patients with CSM. All of the contents have been* highlighted in the updated vision(ESPS Manuscript 9628-Review).

2 Revision has been made according to the suggestions of the reviewer

(1)*Abstract, CSM has been spelled out as Cervical Spondylotic Myelopathy*

(2)"provide a non-invasive tool"has been deleted, "DTI and MRS show altered microstructure and biochemistry that reflect patient-specific pathogenesis, and provided a non-invasive tool that can be used to potentially predict neurological outcome and response to intervention"has been modified as "DTI and MRS show altered microstructure and biochemistry that reflect patient-specific pathogenesis, and can be used to potentially predict neurological outcome and response to intervention".

(3) "these novel techniques provide increased sensitivity to the spinal cord injury"has been cited reference as following Literature:

4 Smith SA, Pekar JJ, van Zijl PC. Advanced MRI strategies for assessing spinal cord injury. Handb Clin Neurol. 2012; 109: 85-101 [PMID: 23098708 DOI: 10.1016/B978-0-444-52137-8. 00006-1]

5 Demir A, Ries M, Moonen CT, Vital JM, Dehais J, Arne P, Caillé JM, Dousset V. Diffusion-weighted MR imaging with apparent diffusion coefficient and apparent diffusion tensor maps in cervical spondylotic myelopathy. Radiology 2003; 229: 37–43 [PMID: 14519868]

(4) In the "DTI, the significance of MD", I have stress the imaging parameter as following:

①The first literature (Diffusion-weighted MR imaging with apparent diffusion coefficient and apparent diffusion tensor maps in cervical spondylotic myelopathy) parameter:TE: 80 ms; image matrix of 256× 195 pixels, nominal voxel size of 0.9×1.17mm, three sections 5 mm thick, and gap of 1 mm.

②The second literature (Assessment of Cervical Spondylotic Myelopathy Using Diffusion Tensor Magnetic Resonance Imaging Parameter at 3.0 Tesla) parameter:TE/TR, 80/6000 ms; number of excitations, 1; field of view, 240mm2 ; matrix size, 160; voxel size, 1.5×1.5mm2 in-plane; slice thickness, 3 mm; gradient directions, 15; and b values, 0 and 1000 s/mm2.

(5) In the "Future directions", i have add three new literature about the DKI and new contents as the following: In addition, a recently introduced extension of the DTI technique called diffusional kurtosis imaging (DKI) has shown greater promise than DTI in evaluating the microstructure and pathologic condition of neuronal tissue, especially gray matter [44,45] . A study by Hori et al, they studied 13 consecutive patients with cervical myelopathy and concluded that the mean diffusional kurtosis (MK) in the spinal cord may reflect microstructural changes and damage of the spinal cord gray matter. Although further studies of the imaging–pathology relationship are needed, MK has the potential to provide new information beyond that provided by conventional diffusion metrics such as ADC and FA, which are based on the mono-exponential model [46] .

44 Kamagata K, Tomiyama H, Motoi Y, Kano M, Abe O, Ito K, Shimoji K, Suzuki M, Hori M, Nakanishi A, Kuwatsuru R, Sasai K, Aoki S, Hattori N. Diffusional kurtosis imaging of cingulate fibers in Parkinson disease: comparison with conventional diffusion tensor imaging. Magn Reson Imaging 2013; 31:1501-6 [PMID: 23895870 DOI: 10.1016/j.mri.2013.06.009]

45 Raz E, Bester M, Sigmund EE, Tabesh A, Babb JS, Jaggi H, Helpern J, Mitnick RJ,IngleseM.A better characterization of spinal cord damage in multiple sclerosis:a diffusional kurtosis i maging study. AJNR Am J Neuroradiol 2013; 34: 1846-52 [PMID:23578677 DOI:10.3174/ajnr.A3512]

46 Hori M, Tsutsumi S, Yasumoto Y, Ito M, Suzuki M, Tanaka FS, Kyogoku S, Nakamura M, Tabuchi T, Fukunaga I, Suzuki Y, Kamagata K, Masutani Y, Aoki S. Cervical spondylosis: Evaluation of microstructural changes in spinal cord white matter and gray matter by diffusional kurtosis imaging. Magn Reson Imaging 2014; 31: S0730-725X(14)00022-8 [PMID:24602824 DOI: 10.1016/j.mri.2014.01.018]

(6) I have unify the format of authors'name of references. For example, "Takehiro Uda et al" , "Ogawa S " and "Samantha Tam" have been modified as "Uda et al" , "Ogawa et al" , "Samantha et al".

(7) I have further improve the language proficiency of the article by repeatedly reading and scrutiny. I have modify all of the spoken English as "so" and "but".

(8) I have add another 12 publications for the topics of this manuscript. Some of the literature is published nearly two years, such as:

11 Benzel EC, Ghogawala Z. Introduction: Cervical spondylotic myelopathy. Neurosurg Focus

2013; 35: Introduction. [PMID: 23815255 DOI: 10.3171/2013.5.FOCUS13211]

44 Kamagata K, Tomiyama H, Motoi Y, Kano M, Abe O, Ito K, Shimoji K, Suzuki M, Hori M, Nakanishi A, Kuwatsuru R, Sasai K, Aoki S, Hattori N. Diffusional kurtosis imaging of cingulate fibers in Parkinson disease: comparison with conventional diffusion tensor imaging. Magn Reson Imaging 2013; 31:1501-6 [PMID: 23895870]

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(9) I agree with the reviewer's recommendation on the article figure, but i am very sorry about this. Although I found a lot of good figures, but due to authors and publishers copyright issues, I did not use these figures. If you give me a opportunity to publish my article, I will greatly appreciate and try my best to make it become better.

3 References and typesetting were corrected

Thank you again for publishing our manuscript in the *World Journal of Radiology*.

Sincerely yours,

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