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Editorial Note on: Diagnostic value of diffusion-weighted MR imaging for acute stage of spine cord injury

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This paper is about the application of conventional magnetic resonance imaging (MRI) and diffusion-weighted imaging (DWI) on traumatic spinal cord injury (tSCI) within 24 h. It is really a challenge to perform DWI in the spinal cord. Therefore, only a few papers reported DWI in the early stage of tSCI. With the limited samples, this study claimed that 'T2-weighted and DW imaging have comparable detection rates for spinal cord damage'.

DWI offers a promising approach to detect axon integrity in spinal cord based on the water mobility along the waterproof myelin structure, mainly beneficial for the evaluation of white matter integrity. It might not be appropriate to apply DWI to detect the changes in gray matter. It could be one of the possible reasons why DWI did not show difference in the present article, as the hematoma in gray matter is a major feature within the first 24 h.

However, several previous studies proved that DWI is indeed a powerful tool with high sensitivity than conventional MRI. Diffusion MRI should provide higher sensitivity and diagnostic

value in the early stage of tSCI. The present study excluded a paper (reference 18) that is about the application of DWI on tSCI within 48 h. It is important to note that DWI can detect the abnormality in the spinal cord much earlier than conventional MRI. It is worth applying DWI to accurately predict the initial damage of the spinal cord.

Apart from the known technical challenges, including the susceptibility to motion artifacts and small size of spinal cord, the varied protocols for DWI adopted in different studies makes it difficult to conclude a consistent result. With the technical development, the diffusion tensor imaging has gained great merits in both research and clinical field with widespread availability. Therefore, as the authors cited in the limitation, the use of advanced acquisition techniques is highly appreciated in the future study.

CONFLICT OF INTEREST

The author declares no conflict of interest.

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