PRINT ISSN : 0040-8891

The Bulletin of Tokyo Dental College
Vol. 47 (2006) , No. 1 :5-12

[PDF (687K)] [References]

Parameters for Diffusion Weighted Magnetic Resonance Imaging for Temporomandibular Joint

Takamichi Otonari[1)], Mamoru Wakoh[1)], Tsukasa Sano[1)], Mika Yamamoto[1)], Mai Ohkubo[1)] and Takuya Harada[1)]

1) Department of Oral and Maxillofacial Radiology, Tokyo Dental College

(Received March 27, 2006)
(Accepted May 2, 2006)

Abstract: The purpose of this study was to determine optimum diffusion parameters for diffusion weighted imaging (DWI) techniques, including echo planer imaging (EPI), single-shot fast spin echo (SSFSE), and steady-state free precession (SSFP) in Magnetic Resonance Imaging (MRI) of the Temporomandibular Joint (TMJ). A polyethylene tube with distilled water was individually positioned at the external acoustic meatus foramen in each of three volunteers with normal healthy TMJs. Images were obtained using three types of DWI at differing diffusion parameters, b-factors, and diffusion moment. Signal intensity and imaging ability for various anatomical structures, including the distilled water, were evaluated from each image. The details of the anatomical structures of the TMJ were unidentifiable in the images produced with EPI and SSFSE, but were identifiable on the SSFP images. A diffusion moment value from 100mT/m*msec to 150mT/m*msec for SSFP, in particular, restrained the signal intensity of the water, thereby protecting the comparably high image quality of the TMJ structure. In conclusion, only SSFP is capable of allowing interpretation of emerging pathologic conditions in the TMJ region, when used with a diffusion moment set at between from approximately 100mT/m*msec to 150mT/m*msec.

Key words: Magnetic resonance imaging (MRI), Diffusion weighted imaging (DWI), Temporomandibular joint (TMJ), b-factor, Diffusion moment

[PDF (687K)] [References]

Download Meta of Article[Help]

To cite this article:

Takamichi Otonari, Mamoru Wakoh, Tsukasa Sano, Mika Yamamoto, Mai Ohkubo and Takuya Harada: “Parameters for Diffusion Weighted Magnetic Resonance Imaging for Temporomandibular Joint”. The Bulletin of Tokyo Dental College, Vol. **47**: 5-12 (2006) .

doi:10.2209/tdcpublication.47.5

JOI JST.JSTAGE/tdcpublication/47.5