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Evaluation of the CSI Resolution using Cone-Type Phantom

Dong-Cheol Woo[1] Bo-Young Choe[1], Hyang-Suk Lim[2], Hyo-Jin Park[2], So-Lyung Jung[3], Bum-Soo Kim[3], and Hee-Keun Ji[3]

[1] Department of Biomedical Engineering, The Catholic University of Korea, [2] Department of Molacular Biology, The Catholic University of Korea, [3] Kangnam St. Mary's Hospital

dcwoo@catholic.ac.kr

Purpose : The purpose of this study is to evaluate the obtained CSI spectra and to compare among the different MR systems using the 8*8 cone-type phantom. Materials and Methods : Using the cone-type phantom, a multi-voxel CSI (8*8) images are obtained in a slice position. According to vary the circle size of cone image, CSI spectra of each MRS system (GE, Siemens, Philips, etc.) can be evaluated and their multi-voxel CSI resolutions and the shimming qualities can be compared investigating the spectrum images of the same slice. The cone-type CSI phantom is made of acryl and P.E. and various metabolite materials (NAA, Cr, Cho, Lac, GABA, Glx, Magnevist, etc.) for the CSI spectrum are filled in the cones of the phantom. Results : The images and spectra of the 8*8 cone type phantom can be obtained in each slice using the 1.5T GE system. In order to evaluate CSI spectra, data analysis was conducted by SAGE. Discussions : Although the T1-weight images are very clear, the CSI spectra are poor. The CSI spectra could not be obtained using the auto-shimming control. But using the manual-shimming, it is possible for us to obtain the CSI spectra. Thus, we expect that the cone-type CSI phantom can conduct the evaluation of MR system shimming and MRS (multi-voxel spectroscopy). Acknowledgment : This study was supported by a grant of the Seoul R&BD Program, the Korea Health 21 R&D Project, Ministry of Health & Welfare, Republic of Korea. (02-PJ3-PG6-EV07-0002) and a grant of the 2005 Nuclear R&D Plan Program, Ministry of Science & Technology, Korea.

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