

Application of Transfer Insensitive Labeling Technique (TILT) in Ischemic Cerebrovascular Diseases

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목적 : To assess the clinical usefulness of Transfer Insensitive Labeling Technique (TILT) in the evaluation of ischemic cerebrovascular disease.

대상 및 방법 : Arterial spin labeling (ASL) is a method of perfusion weighted imaging using endogenous water as a tracer. To avoid MT-related artifacts, which is common in usual ASL technique, a transfer insensitive labeling technique (TILT) was used, which globally manipulates macromolecular spins in the same way by both labeling and reference preparation while free water is labeled in one case and left unchanged in the other. Philips Intera 1.5 T system was used. 40cm FOV and 32 repeated measurements were done because of the weak perfusion signal. 5 slices of supratentorial brain were obtained in 5 patients (MCA infarct (n=3), moyamoya disease (n=2)). We simultaneously obtained contrast enhanced T2*-weighted perfusion MRI and correlate to TILT images.

결과 : In MCA infarct, decreased perfusion was demonstrated as same as contrast enhanced perfusion MRI. In a patient of unilateral moyamoya disease, asymmetric perfusion was well depicted on TILT images. Relatively low SNR and artifacts were seen, which need further pulse sequence optimization.

결론 : TILT can provide cerebral hemodynamic status without need of contrast agent. It provides same information in patients of hemispheric infarct as CE PWI, but has poor ability to detect focal abnormality in ischemic cerebrovascular diseases and needs more investigation.