

**Postcontrast T1-weighted Brain MR Imaging in Children: Comparison of Fat-suppressed Imaging with Conventional or Magnetization Transfer Imaging**

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**목적 :** To assess the merits and demerits of postcontrast fat-suppressed (FS) brain MR imaging in children in the evaluation of various enhancing lesions, compared with postcontrast conventional or Magnetization Transfer (MT) imaging.

**대상 및 방법 :** We reviewed patients with enhancing lesion on brain MR imaging who underwent both FS imaging and one of conventional or MT imaging as a postcontrast T1-weighted brain MR imaging. Inclusion criteria of our study were as follows: MR studies should be performed within one-year interval and showed no significant interval change of imaging findings. Thirty-four patients (21 male, 13 female; mean age, 8 years) with 43 enhancing lesions (19 intra-axial, 19 extra-axial, and 5 orbital location) were included in this study. Twenty-one pairs of FS and conventional imaging, and 15 pairs of FS and MT imaging were available. Two radiologists visually assessed the lesion conspicuity and the presence of flow or susceptibility artifacts in a total of 36 pairs of MR imaging by consensus. For 21 measurable lesions (19 pairs of FS and conventional imaging, 5 pairs of FS and MR imaging), contrast ratio between the lesion and the normal brain ( $\frac{SI_{\text{lesion}} - SI_{\text{water}}}{SI_{\text{normal brain}} - SI_{\text{water}}}$ ) were calculated and compared.

**결과 :** Compared with conventional imaging, lesion conspicuity on FS imaging were better in 8 cases (6 extra-axial lesions, one orbital lesion, and one fat-containing intra-axial lesion), equal in 12, and worse in one. Compared with MT imaging, the lesion conspicuity on FS imaging were better in 4 cases (2 extra-axial and 2 orbital lesions), equal in 8, and worse in 3. Image quality of FS imaging was compromised by flow or susceptibility artifacts in 5 patients. Contrast ratios on FS imaging (2.20.7) were not significantly different from those on conventional imaging (2.20.6,  $p=0.914$ ) and they (2.40.8) were significantly lower than those on MT imaging (4.51.5,  $p=0.018$ ).

**결론 :** Postcontrast FS brain MR imaging appears to be better than conventional imaging and comparable to MT imaging in the visual assessment of enhancing lesion, and MT imaging is the best method to obtain high contrast of enhancing lesion. Especially, FS imaging has the merit to delineate orbital and extra-axial enhancing lesions or fat-containing lesion, but it has the demerit when extensive flow or susceptibility artifacts are expected.