Oral MO-4

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ICAM-1-targeted T1 contrast agent visualizes inflammatory tissues

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목적 :

To examine the inflammatory tissue, we designed inflammation-targeted MR contrast agents with bioconjugation of gadolinium diethylenetriaminepentaacetic acid (Gd-DTPA) and anti-intercellular adhesion molecule-1 (ICAM-1) antibody.

대상 및 방법 :

The anti-ICAM-1 antibody was purified from the culture supernatant of rat hybridoma, coupled with DTPA and then conjugated with Gd. The specific binding of Gd-DTPA-anti-ICAM-1 antibody complex to the ICAM-1-expressing cells was examined in the cultured endothelial cells where ICAM-1 expression was stimulated. The inflammation-specific T1 imaging was then assessed in the mouse abscess model. MR imaging was conducted with a 1.5 T module using a 47 mm surface coil. T1-weighted spin echo images (TR/TE=500/15 ms) were acquired. The FOV, the image acquisition matrix and slice thickness were 60 mm, 224 x 224, 1.5 mm, respectively.

결과 :

The Gd-DTPA-anti-ICAM-1 antibody displayed predominant binding to cultured endothelial cells where ICAM-1 expression was stimulated. Moreover, the inflammation-specific T1 enhancement was imaged with the Gd-DTPA-anti-ICAM-1 antibody in the acute inflammation-induced mice. The Gd-DTPA-anti-ICAM-1 antibody significantly increased vascular circulation time which renders a better chance to bind the target cells

결론 :

The Gd-DTPA-anti-ICAM-1 antibody displays targeted MR imaging specific to the inflammatory tissue and the enhanced duration time in the blood stream.