

**MR Imaging and Spectroscopic Findings at Different Stages of Sporadic
Creutzfeldt-Jakob Disease**

이종세¹⁾, 김성현¹⁾, 김상윤²⁾, 김재형¹⁾

분당서울대학교병원 진단방사선과¹⁾, 신경과²⁾

목적 : Sporadic Creutzfeldt-Jakob Disease (sCJD) is a rapidly progressive dementing illness, usually leading to death within one year. A definite diagnosis is based on the demonstration of the pathologic triad of spongiosis, neuronal loss, and gliosis. Spongiosis is thought to restrict water diffusion resulting in the high signal of the lesion on diffusion-weighted MRI (DWI). Gliosis contributes to the high T2 signal of the lesion. MR spectroscopy provides the information about brain metabolites and therefore it may reflect the status of neuronal loss of sCJD. However, studies on serial change of MR imaging findings of sCJD are rare. Moreover, correlative studies with MR spectroscopic findings are much rare. The purpose of this study was to investigate the time-course change of abnormal MR imaging findings of sCJD, and to correlate those findings with MR spectroscopic findings.

대상 및 방법 : A total of 7 patients with sCJD (2 definite and 5 probable, aged 45-72 years) were included. All patient underwent initial MR imaging within 2 months after the onset of symptoms. Abnormal signals and atrophic change of the brain were visually analyzed on diffusion-weighted, T2-weighted and FLAIR images. Five patients underwent at least two MR examinations (interval between the initial and last examinations: 9 days to 26 months). Single-voxel MR spectroscopy (PRESS technique, TE 288ms) was performed at the medial parietal region in 5 patients at different stages of the disease.

결과 : At the early stage of sCJD, DWI revealed high signal lesions in the cortices and basal ganglia in all patients. The lesion conspicuity was highest on DWI, and then FLAIR and T2-weighted images in descending order, and spectroscopy showed almost normal or slightly decreased NAA. Then at the progression stage, high signal lesions on DWI and FLAIR image continued to increase in extent and signal intensity over time until showing the bilateral symmetrical distribution of the lesions, accompanied by slowly progressive brain atrophy. Finally at the terminal stage, DWI high signals in the cortices and basal ganglia disappeared gradually with continuing brain atrophy. T2 signal intensity of the white matter increased progressively, eventually resulting in reversed T2 signal intensity between the cortex and the white matter. Spectroscopy showed remarkably decreased NAA and small amount of lactate, reflecting terminal brain destruction.

결론 : Awareness of the serial change of MR imaging findings is important in diagnosing sCJD. MR spectroscopic findings at different stages of sCJD perhaps will be utilized as a useful information in understanding this unknown disease.