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# SERIAL GADOLINIUM ENHANCED MAGNETIC RESONANCE IMAGING IN MULTIPLE SCLEROSIS

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## Abstract

Serial gadolinium-DTPA (Gd-DTPA) enhanced magnetic resonance imaging (MRI) was performed in 9 patients with multiple sclerosis (MS). On the first scan enhancing lesions were seen in 7 patients, all of whom were in acute

relapse. Most enhancing lesions were asymptomatic. On the second scan (3 to 5 weeks later), persisting enhancement was seen in only 12/54 lesions which enhanced on the first scan. No lesion showed persisting enhancement on the third scan (after 6 months).

Enhancement occurred in all 12 new lesion areas seen on the unenhanced second scan and in 8 of 15 new lesions seen on the third scan. Enhancement was also seen in 4 older lesions which had been nonenhancing on earlier scans. Relaxation time measurements demonstrated a high water content in some nonenhancing lesions, which could be due to a subtle blood-brain barrier disturbance not detected with Gd-DTPA.

The results show that blood-brain barrier impairment is a consistent finding in new MS lesions detected with MRI. Gd-DTPA is a useful marker of new and biologically active lesions and should prove of value in monitoring therapeutic trials in MS.

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