# The MERIT study

Does Higher Gadolinium Concentration Play a Role in the Morphologic Assessment of Brain Tumors? Results of a Multicenter Intraindividual Crossover Comparison of Gadobutrol versus Gadobenate Dimeglumine (the MERIT Study)

## BACKGROUND AND PURPOSE
Gadobenate dimeglumine has proved advantageous compared with other gadolinium-based contrast agents for contrast-enhanced brain MR imaging. Gadobutrol is a more highly concentrated agent (1.0 mol/L). This study intraindividually compared 0.1-mmol/kg doses of these agents for qualitative and quantitative evaluation of brain tumors.

## MATERIALS AND METHODS
Adult patients with suspected or known brain tumors underwent 2 identical MR imaging examinations at 1.5T, 1 with gadobenate dimeglumine and the other with gadobutrol, both at a dose of 0.1-mmol/kg body weight. The agents were injected in randomized order separated by 3–14 days. Imaging sequences and acquisition timing were identical for the 2 examinations. Three blinded readers evaluated images qualitatively for diagnostic information (lesion extent, delineation, morphology, enhancement, global preference) and quantitatively for CNR and LBR.

## RESULTS
One hundred fourteen of 123 enrolled patients successfully underwent both examinations. Final diagnoses were intra-axial tumors, metastases, extra-axial tumors, "other" tumors, and "nontumor" (49, 46, 8, 7, and 4 subjects, respectively). Readers 1, 2, and 3 demonstrated preference for gadobenate dimeglumine in 46 (40.7%), 54 (47.4%), and 49 (43.0%) patients, respectively, compared with 6, 7, and 7 patients for gadobutrol (P

## CONCLUSIONS
Significantly greater morphologic information and lesion enhancement are achieved on brain MR imaging

with 0.1-mmol/kg gadobenate dimeglumine compared with gadobutrol at an equivalent dose.

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