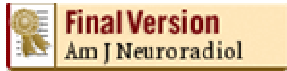




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1: [AJNR Am J Neuroradiol.](#) 2009 Feb;30(2):389-95.



The blood oxygen level-dependent functional MR imaging signal can be used to identify brain tumors and distinguish them from normal tissue.

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BACKGROUND AND PURPOSE: In neuro-oncology, a major problem is clear identification of tumor from the surrounding normal tissue. We hypothesized that we could use the blood oxygen level-dependent functional MR imaging (BOLD fMRI) signals from tumors and normal brain to identify the tumors and distinguish them from the surrounding brain.

MATERIALS AND METHODS: Fourteen patients with meningiomas, gliomas, and metastatic tumors were scanned before surgery. All subjects performed a motor task; 2 subjects were also scanned while in a resting state. The BOLD signals were taken from selected points within the tumor and from the surrounding normal brain and were analyzed by using correlation analysis to determine how closely they were related. **RESULTS:** The BOLD signals from all of the tumors were significantly different from those in the surrounding normal tissue. In meningiomas and gliomas, selection of a voxel in the tumor for signal-intensity analysis highlighted the entire tumor mass while excluding the normal tissue. The BOLD signal intensity was the same whether the subjects were motionless or finger tapping. **CONCLUSIONS:** Analysis of the BOLD signal intensity provides a relatively simple and straightforward method for identifying brain tumors and distinguishing them from normal tissue. This approach may be of use in neurosurgery.

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