

PubMed

Search

Display Settings: Abstract

Magn Reson Imaging. 2011 Oct 6. [Epub ahead of print]

Longitudinal brain imaging of five malignant glioma patients treated with bevacizumab using susceptibility-weighted magnetic resonance imaging at 7 T.

Grabner G, Nöbauer I, Elandt K, Kronnerwetter C, Woehrer A, Marosi C, Prayer D, Trattnig S, Preusser M.

Department of Radiology, Medical University of Vienna, A-1090 Vienna, Austria; MR Centre of Excellence, Medical University of Vienna, A-1090 Vienna, Austria; Comprehensive Cancer Center Central Nervous System Tumors Group (CCC-CNS), Medical University of Vienna, A-1090 Vienna, Austria.

Abstract

Malignant glioma is a rare tumor type characterized by prominent vascular proliferation. Antiangiogenic therapy with the monoclonal antibody bevacizumab is considered as a promising therapeutic strategy, although the effect on tumor vascularization is unclear. High-field susceptibility-weighted imaging (SWI) visualizes the microvasculature and may contribute to the investigation of antiangiogenic therapy responses in gliomas. We prospectively studied five adult malignant glioma patients treated with bevacizumab-containing regimens. In each patient, we performed three 7-T SWI and T1-weighted imaging investigations (baseline and 2 and 4 weeks after the start of bevacizumab treatment). In addition, we imaged a postmortem brain of a patient with glioblastoma using 7-T SWI and performed detailed histopathological analysis. We observed almost total resolution of brain edema in three of five patients after initiation of bevacizumab therapy. In one case with rapid increase of the lesion size despite bevacizumab therapy, SWI showed progressive increase of irregular hypointense structures, most likely corresponding to increasing amounts of pathological microvasculature. In one case with progressive neurological decline, 7-T images showed multiple intratumoral microhemorrhages after the first bevacizumab application. Correlation of postmortem neuroimaging with histopathology confirmed that SWI-positive structures correspond to tumor vasculature. The experience from our case series indicates that longitudinal 7-T SWI seems to be an appropriate method for investigation of changes in brain tumor vascularization over time under antiangiogenic therapy.

Copyright © 2011 Elsevier Inc. All rights reserved.

PMID: 21982163 [PubMed - as supplied by publisher]

[+](#) LinkOut - more resources