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Concerns about anti-angiogenic treatment in patients with glioblastoma multiforme.

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ABSTRACT: **BACKGROUND:** The relevance of angiogenesis inhibition in the treatment of glioblastoma multiforme (GBM) should be considered in the unique context of malignant brain tumours. Although patients benefit greatly from reduced cerebral oedema and intracranial pressure, this important clinical improvement on its own may not be considered as an anti-tumour effect. **DISCUSSION:** GBM can be roughly separated into an angiogenic component, and an invasive or migratory component. Although this latter component seems inert to anti-angiogenic therapy, it is of major importance for disease progression and survival. We reviewed all relevant literature. Published data support that clinical symptoms are tempered by anti-angiogenic treatment, but that tumour invasion continues. Unfortunately, current imaging modalities are affected by anti-angiogenic treatment too, making it even harder to define tumour margins. To illustrate this we present MRI, biopsy and autopsy specimens from bevacizumab-treated patients. Moreover, while treatment of other tumour types may be improved by combining chemotherapy with anti-angiogenic drugs, inhibiting angiogenesis in GBM may antagonise the efficacy of chemotherapeutic drugs by normalising the blood-brain barrier function. **SUMMARY:** Although angiogenesis inhibition is of considerable value for symptom reduction in GBM patients, lack of proof of a true anti-tumour effect raises concerns about the place of this type of therapy in the treatment of GBM.

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