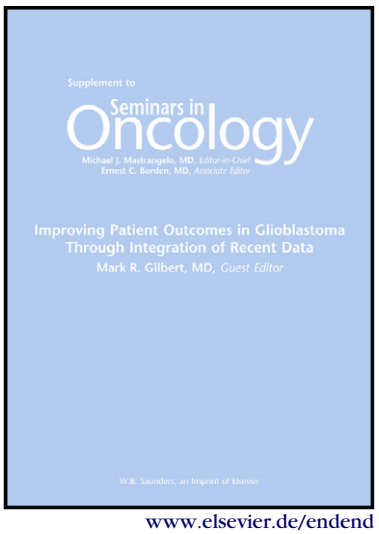

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Multimodal MRI Evaluation of Primary Brain Tumors

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Introduction

Gliomas comprise 80% of primary brain neoplasms, with glioblastoma multiforme being the most commonly diagnosed glioma.[1] The annual incidence is 5.26 per 100,000, or 17,000 newly diagnosed cases per year in the United States.[2] The incidence increases with age, peaking between the 6th and 8th decades.[2] Gliomas are more common among Caucasians and occur more commonly in men.[3] They can be associated with certain rare hereditary syndromes including Cowden, Turcot, Li-Fraumeni, neurofibromatosis type 1 and type 2, tuberous sclerosis, and familial schwannomatosis.[4, 5] Known risk factors include a history of ionizing radiation, family history of glioma, and certain genetic susceptibility variants that are weakly associated with glioma.[6, 7] Preventative measures have not been shown to decrease the risk of later development.[3] In addition, screening tests are unwarranted since early diagnosis and treatment have not been shown to improve outcome.[3]

The malignant phenotype of GBM that lends to poor prognostic outcomes is due to its invasive and infiltrative abilities, which have been correlated with the degree of