Glioblastoma Multiforme: A Review of its Epidemiology and Pathogenesis through Clinical Presentation and Treatment

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Abstract
Glioblastoma multiforme (GBM) is one of the most malignant types of central nervous system tumors. Despite advances in treatment modalities it remains largely incurable. The objective of our review is to provide a holistic picture of GBM epidemiology, etiology, pathogenesis, clinical findings and treatment. A literature search was conducted for GBM at PubMed and Google Scholar, with relevant key words like glioblastoma multiforme, pathogenesis, signs and symptoms, treatment etc., and papers published until 2015 were reviewed. It was found that radiation and certain genetic syndromes are the only risk factors identified to date for GBM. Depending on the tumor site patients may present to the clinic with varying symptoms. To confirm the presence and the extent of tumor, various invasive and non-invasive imaging techniques require employment. The literature survey revealed the pathogenesis to involve aberrations of multiple signaling pathways through multiple genetic mutations and altered gene expression. Although several treatment options are available, including surgery, along with adjuvant chemo- and radio-therapy, the disease has a poor prognosis and patients generally succumb within 14 months of diagnosis.

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KEYWORDS: Glioblastoma multiforme; epidemiology; MRI scan; mutations; temozolomide

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