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**Abstract.** *Glioblastoma Multiforme (GBM)* is an aggressive primary brain tumor characterized by a heterogeneous cell population that is genetically unstable and resistant to chemotherapy. Indeed, despite advances in medicine, patients diagnosed with *GBM* have a median survival of just one year. *Magnetic Resonance Imaging (MRI)* is the most widely used imaging technique for determining the location and size of brain tumors. Indisputably, this technique plays a major role in the diagnosis, treatment planning, and prognosis of *GBM*. Therefore, this study proposes a new *Case Based Reasoning* approach to problem solving that attempts to predict a patient's *GBM* volume after five months of treatment based on features extracted from MR images and patient attributes such as age, gender, and type of treatment.

**Keywords:** Artificial Intelligence · Glioblastoma Multiforme  
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Case Based Reasoning