

ABSTRACT

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Recent Advances in the Therapeutic Strategies of Glioblastoma Multiforme.

Aldoghachi AF(1), Aldoghachi AF(2), Breyne K(3), Ling KH(4), Cheah PS(5).

Author information:

(1)Department of Biomedical Sciences, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, Serdang, Selangor 43400, Malaysia; Department of Biological Sciences, School of Medical and Life Sciences, Sunway University, Petaling Jaya 47500, Malaysia. Electronic address: Asraa.faris7@gmail.com.

(2)Faculty of Medicine and Health Sciences, Universiti Tunku Abdul Rahman, Cheras 433000, Malaysia. Electronic address: ahmed.aldoghachi@gmail.com.

(3)Molecular Neurogenetics Unit, Department of Neurology and Center for Molecular Imaging Research, Department of Radiology, Massachusetts General Hospital and Harvard Medical School, Boston, MA, USA. Electronic address: KBREYNE@mgh.harvard.edu.

(4)Department of Biomedical Sciences, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, Serdang, Selangor 43400, Malaysia. Electronic address: lkh@upm.edu.my.

(5)Department of Human Anatomy, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, Serdang, Selangor 43400, Malaysia. Electronic address: cheahpikese@upm.edu.my.

Glioblastoma multiforme (GBM) is one of the most common, most formidable, and deadliest malignant types of primary astrocytoma with a poor prognosis. At present, the standard of care includes surgical tumor resection, followed by radiation therapy concomitant with chemotherapy and temozolomide. New developments and significant advances in the treatment of GBM have been achieved in recent decades. However, despite the advances, recurrence is often inevitable, and the survival of patients remains low. Various factors contribute to the difficulty in identifying an effective therapeutic option, among which are tumor complexity, the presence of the blood-brain barrier (BBB), and the presence of GBM cancer stem cells, prompting the need for improving existing treatment approaches and investigating new treatment alternatives for ameliorating the treatment strategies of GBM. In this review, we outline some of the most recent literature on the various available treatment options such as surgery, radiotherapy, cytotoxic chemotherapy, gene therapy, immunotherapy, phototherapy, nanotherapy, and tumor treating fields in the treatment of GBM, and we list some of the potential future directions of GBM. The reviewed studies confirm that GBM is a sophisticated disease with several challenges for scientists to address. Hence, more studies and a multimodal therapeutic approach are crucial to yield an effective cure and prolong the survival of GBM patients.

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