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Current approaches in glioblastoma multiforme immunotherapy

Marjan Aghajani ¹, Nazila Jalilzadeh ¹, Ali Aghebati-Maleki ², Amirhossein Yari ^{1 3}, Peyman Tabnak ^{1 4}, Amirhossein Mardi ^{1 4 5}, Hossein Saeedi ¹, Leili Aghebati-Maleki ^{6 7}, Behzad Baradaran ^{8 9}

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Abstract

Glioblastoma multiform (GBM) is the most prevalent CNS (central nervous system) tumor in adults, with an average survival length shorter than 2 years and rare metastasis to organs other than CNS. Despite extensive attempts at surgical resecting, the inherently permeable nature of this disease has rendered relapse nearly unavoidable. Thus, immunotherapy is a feasible alternative, as stimulated immune cells can enter into the remote and inaccessible tumor cells. Immunotherapy has revolutionized patient upshots in various malignancies and might introduce different effective ways for GBM patients. Currently, researchers are exploring various immunotherapeutic strategies in patients with GBM to target both the innate and acquired immune responses. These approaches include reprogrammed tumor-associated macrophages, the use of specific antibodies to inhibit tumor progression and metastasis, modifying tumor-associated macrophages with antibodies, vaccines that utilize tumor-specific dendritic cells to activate anti-tumor T cells, immune checkpoint inhibitors, and enhanced T cells that function against tumor cells. Despite these findings, there is still room for improving the response faults of the many currently tested immunotherapies. This study aims to review the currently used immunotherapy approaches with their molecular mechanisms and clinical application in GBM.

Keywords: Glioblastoma multiforme; Immune checkpoint inhibitor; Immunotherapy.

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