Immunological Aspects of Malignant Gliomas.

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Abstract

Glioblastoma Multiforme (GBM) is the most common malignant primary brain neoplasm having a mean survival time of <24 months. This figure remains constant, despite significant progress in medical research and treatment. The lack of an efficient anti-tumor immune response and the micro-invasive nature of the glioma malignant cells have been explained by a multitude of immune-suppressive mechanisms, proven in different models. These immune-resistant capabilities of the tumor result in a complex interplay this tumor shares with the immune system. We present a short review on the immunology of GBM, discussing the different unique pathological and molecular features of GBM, current treatment modalities, the principles of cancer immunotherapy and the link between GBM and melanoma. Current knowledge on immunological features of GBM, as well as immunotherapy past and current clinical trials, is discussed in an attempt to broadly present the complex and formidable challenges posed by GBM.

KEYWORDS: Anergy; Astrocytomas; Checkpoint inhibitors; Cytokine Modulation; Dendritic-Cell vaccination; Glioblastoma-Multiforma; Glioma; Immuno-Resistance; Immunotherapy; Neuro-oncology – Surgical; Neuroimmunology

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