Review: Focus on Glioblastoma

Searching for a cure: Gene therapy for glioblastoma

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Glioblastoma multiforme (GBM) is an invariably fatal malignancy. The lethality of GBM has been linked to the highly invasive nature of GBM cells, their escape from immune cell oversight and their high degree of resistance to multiple established therapeutic modalities. The resistance of GBM cells to undergo death processes has, in part, been associated with mutations of specific oncogenes and altered expression of other signaling molecules that lead to reduced capacities to activate multiple apoptosis pathways as well as altered rates of DNA repair and autophagy in response to cytotoxic drugs and cellular stresses. This review will examine how gene therapeutic approaches have been used in the past and are continuing to be used alongside cell signaling modulators and DNA damaging agents as clinical tools to treat GBM. The concerted use of established and novel signal transduction modulatory agents on GBM survival may have potential to lower the apoptotic threshold and facilitate killing in this lethal malignancy.

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