Targeting glioblastoma cancer stem cells: the next great hope?

Khan IS, Ehtesham M.

Abstract
Glioblastoma multiforme (GBM) is the most common primary brain tumor and is notorious for its poor prognosis. The highly invasive nature of GBM and its inherent resistance to therapy lead to very high rates of recurrence. Recently, a small cohort of tumor cells, called cancer stem cells (CSCs), has been recognized as a subset of tumor cells with self-renewal ability and multilineage capacity. These properties, along with the remarkable tumorigenicity of CSCs, are thought to account for the high rates of tumor recurrence after treatment. Recent research has been geared toward understanding the unique biological characteristics of CSCs to enable development of targeted therapy. Strategies include inhibition of CSC-specific pathways and receptors; agents that increase sensitivity of CSCs to chemotherapy and radiotherapy; CSC differentiation agents; and CSC-specific immunotherapy, virotherapy, and gene therapy. These approaches could inform the development of newer therapeutics for GBM.

PMID: 25581936 [PubMed - in process]