

عنوان مقاله:

The Role of Micro RNAs in Regulating PI3K/AKT Signaling Pathways in Glioblastoma

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خلاصه مقاله:

Glioblastoma is a type of brain cancer with aggressive and invasive nature. Such features result from increased proliferation and migration and also poor apoptosis of glioma cells leading to resistance to current treatments such as chemotherapy and radiotherapy. In recent studies, micro RNAs have been introduced as a novel target for treating glioblastoma via regulation of apoptotic signaling pathway, remarkably PI3K/AKT, which affect cellular functions and blockage or progression of the tumor. In this review, we focus on PI3K/AKT signaling pathway and other related apoptotic processes contributing to glioblastoma and investigate the role of micro RNAs interfering in apoptosis, invasion and proliferation of glioma through such apoptotic processes pathways. Databases NCBI, PubMed, and Web of Science were searched for published English articles using keywords such as 'miRNA OR microRNA', 'Glioblastoma', 'apoptotic pathways', 'PI3K and AKT', 'Caspase signaling Pathway' and 'Notch pathway'. Most articles were published from 7 May 2015 to 16 June 2020. This study focused on PI3K/AKT signaling pathway affecting glioma cells in separated subparts. Also, other related apoptotic pathways as the Caspase cycle and Notch have been also investigated. Nearly 40 miRNAs were found as tumor suppressors or onco-miRNA, and their targets, which regulated subcomponents participating in proliferation, invasion, and apoptosis of the tumoral cells. Our review reveals that miRNAs affect key molecules in signaling apoptotic pathways, partly PI3K/AKT, making them potential therapeutic targets to overcome the tumor. However, their utility as a novel treatment for glioblastoma requires further examination and investigation.

کلمات کلیدی:

Glioblastoma, Micro RNA, PI3K/AKT pathway

