Abstract

Quercetin’s Effects on Cell Survival of Resistant GBM Cell Line (T98G) after Repetitive Treatment Combined with Temozolomide †

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Abstract: Glioblastoma multiforme is one of the most common and aggressive brain tumors. It is a mortal and progressive disease despite novel therapies. The mechanism of action of temozolomide (TMZ) is the methylation of DNA guanin at position N7 and O6. This situation triggers apoptosis by interrupting cell cycle on G2-M. O6-methyl-guanin methyl transferase enzyme decrease the anticarcinogenic effects of TMZ by detaching methyl at position O6, thus lead to resistance for cytotoxic effect of TMZ. Quercetin has anti-carcinogenic effect on different pathways. So the aim of this study is to investigate the effects of repetitive treatment of TMZ and/or quercetin on resistant GBM cell line (T98G) for TMZ. T98G cell line treated with 50 µM TMZ and/or quercetin 25 µM every 24 hours during 72 hours. Real time cell analysis (RTCA-xCelligence) has been performed for cell life variation and flow cytometry analysis for early or late apoptosis. Cell survival rate of T98G reduced, early and late apoptosis induced with repetitive TMZ and quercetin treatment. Quercetin and TMZ reduced cell life rate on T98G after repetitive treatment. Early and late apoptosis rate affected as increased with quercetin.

Keywords: temozolomide; drug resistance; glioblastoma; quercetin; cancer

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