EFFECT OF HYDROXYCHLOROQUINE AS AN ADJUVANT THERAPY TO TEMOZOLOMIDE IN HUMAN T98G CELLS

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The glioblastoma multiforme is the most aggressive tumor of the central nervous system (CNS) and according to the National Institute of Cancer (INCA) is estimated 9090 new cases for 2015. In the United States, glioblastomas account for 17\% of primary CNS tumors and 54\% of all gliomas. The treatment is based on the surgical removal, whenever possible, chemotherapy and radiotherapy. However, these treatments are ineffective in most patients, requiring the search for new chemotherapeutic drugs that can help in therapy. A number of studies have suggested that the autophagic process constitutes a potential target for cancer therapy and its inhibition can increase chemotherapeutic agent-induced cell death. In this way, the purpose of this study is to evaluate the efficacy of combining Temozolomide (TMZ), current first-line treatment used for patients with glioblastoma, with Hydroxychloroquine (HCQ), which are known to be involved in the inhibition of autophagy. Some studies have already shown that the concomitant use of TMZ and HCQ enhances tumor cell cytotoxicity. Here, we evaluated the effects of combined therapy of Temozolomide plus Hydroxychloroquine in a human glioblastoma model. The cell viability was measured by MTT assays. The T98G cells were treated with 50\textmu M TMZ and 10\textmu M HCQ for 72 hours. Our results showed a significant decrease in the number of viable cells of 38.5\% after single-agent TMZ, 38.7\% after single-agent HCQ and 49.1\% of viability reduction after combined therapy of Temozolomide plus Hydroxychloroquine. This pattern of viability reduction was also observed using Crystal Violet method staining. Our data support the beneficial effect of combination therapy with TMZ and HCQ in a human T98G glioblastoma cells.