EFFECTS OF HEXAHYDROXYTRIPHENYLENE ON CELL VIABILITY AND REACTIVE OXYGEN SPECIES LEVELS IN GLIOBLASTOMA MULTIFORM CELLS

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Glioblastoma multiform is considered the most aggressive cancer of the central nervous system, with a very high mortality rates. This scenario shows the inefficiency of the current treatment, which is based on the use of temozolomide chemotherapy followed by radiation therapy. Therefore, the aim of this study is to evaluate the effects of hexahydroxytriphenylene (HHTP) on cell viability and intracellular reactive oxygen species (ROS) levels in U87MG cell line. Cell viability was assessed by MTT method, testing different concentrations of HHTP (10, 25 and 50 μM) and drug exposure times (12, 24 and 48 hours). After 12 hours, it was observed that the HHTP treatment did not alter cell viability at all times and concentrations tested. After 24 hours exposure of 25 μM and 50 μM HHTP, the viability of the cells was reduced by 22% and 43% respectively. At the time of 48h the reduction in the viability was 37%, 57% and 63% with 10, 25 and 50 μM HHTP, respectively. In addition, it was also evaluated the levels of ROS by the oxidation of the fluorescent probe 2’, 7’ - diclorodiidrofluorescina (DCFH-DA). Results showed that U87MG cells treated with HHTP at 25 and 50 μM for 12 hours displayed an increase in the ROS levels, by 65% and 71%, respectively. After 24 hours, it was observed a significant increase in ROS levels, especially with 50 μM HHTP (133%). In 48 hours, persistent high ROS levels were observed, reaching 159% at 25 μM HHTP and 293% at 50 μM HHTP. All together, these data suggest that the HHTP-mediated cell death in glioma model is accompanied by a progressive increase in the intracellular levels of ROS.

Keywords: Glioma, HHTP, Reactive oxygen species

Financial Support: CNPq (Conselho Nacional de Desenvolvimento Científico e Tecnológico), INCT-Redoxoma