Glioblastoma multiforme  A eficácia da combinação Ruta graveolens e fosfato de cálcio em ultra-diluição homeopática

**Ruta 6 selectively induces cell death in brain cancer cells but proliferation in normal peripheral blood lymphocytes: A novel treatment for human brain cancer.**

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**Abstract**

Although conventional chemotherapies are used to treat patients with malignancies, damage to normal cells is problematic. Blood-forming bone marrow cells are the most adversely affected. It is therefore necessary to find alternative agents that can kill cancer cells but have minimal effects on normal cells. We investigated the brain cancer cell-killing activity of a homeopathic medicine, Ruta, isolated from a plant, Ruta graveolens. We treated human brain cancer and HL-60 leukemia cells, normal B-lymphoid cells, and murine melanoma cells in vitro with different concentrations of Ruta in combination with Ca₃(PO₄)₂. Fifteen patients diagnosed with intracranial tumors were treated with Ruta 6 and Ca₃(PO₄)₂. Of these 15 patients, 6 of the 7 glioma patients showed complete regression of tumors. Normal human blood lymphocytes, B-lymphoid cells, and brain cancer cells treated with Ruta in vitro were examined for telomere dynamics, mitotic catastrophe, and apoptosis to understand the possible mechanism of cell-killing, using conventional and molecular cytogenetic techniques. Both in vivo and in vitro results showed induction of survival-signaling pathways in normal lymphocytes and induction of death-signaling pathways in brain cancer cells. Cancer cell death was initiated by telomere erosion and completed through mitotic catastrophe events. We propose that Ruta in combination with Ca₃(PO₄)₂ could be used for effective treatment of brain cancers, particularly glioma.

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