

Antitumoral Effect Of Doxazosin In Human Neuroblastoma Cell Line SH-SY5Y

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INTRODUCTION: Neuroblastoma is the most common childhood solid tumor, accounting for 7% of all childhood malignancies and 10% of childhood cancer mortality. Neuroblastoma presents a highly variable clinical behavior, showing the importance of researching novel anticancer drugs and new molecular targets for treatment. Doxazosin is presently used in clinic for treatment of benign prostatic hyperplasia, leading to regression of the prostatic stroma via apoptosis without significant negative effects on prostatic epithelial cells. However, the antitumor action mechanisms of doxazosin are not well understood and the drug has not been yet tested against neuroblastoma cells. **OBJECTIVE:** Evaluate the potential anti-tumor effects of doxazosin in the human neuroblastoma cell line SH-SY5Y. **MATERIAL AND METHODS:** After 24h in culture, cells (5×10^4 per well) were treated with doxazosin at concentrations from 15 μ M to 150 μ M. Confluence percentage readings (n=3) were taken before treatment, at 24h, 48h and 72h to observe the effect of different concentrations of doxazosin and treatment time in cells. Cell cycle progression (propidium iodide staining) and the type of cell death (propidium iodide and Annexin-V-FITC staining) were also analyzed. Data were analyzed by two-way ANOVA for paired samples followed by Bonferroni test. Differences were considered significant at $p < 0.05$. **DISCUSSION AND RESULTS:** For 75 μ M of doxazosin the increase in confluence was slower than in control after 48h and 72h, demonstrating that doxazosin inhibited cell growth. Decreased confluence was observed at 100 μ M (from 48h) and 150 μ M (from 24h). Doxazosin induced cell cycle arrest in G0/G1 at 100 μ M and 150 μ M after 72h of treatment. Death by necrosis at 100 μ M of doxazosin and initial apoptosis at 75 μ M were observed after 72h of treatment. **CONCLUSION:** Doxazosin had cytostatic effect at 75 μ M (48h and 72h) and cytotoxic effect at 100 μ M (from 48h) and 150 μ M (from 24h).

Palavra chave: neuroblastoma, doxazosin, SH-SY5Y
Patrocínio: CAPES