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Crosstalk between Resveratrol, Doxorubicin and Insulin in human breast cancer cell line

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Introduction & Aim: Diabetes may influence the neoplastic processes directly through hyperinsulinemia or indirectly through chronic inflammation and obesity. Resveratrol is an active component of grape, which has been shown to have anti-proliferative and anti-diabetic properties. Based on the association exists between diabetes and breast cancer, this study was designed to investigate the effects of Resveratrol on breast cancer cells (MCF-7) in an *in vitro* model of hyperinsulinemia.

Methods: MCF-7 cells were treated with Resveratrol and/or Doxorubicin (DOX) in a time- and dose-dependent manner. The proliferative response was evaluated by XTT assay and apoptosis was quantified after treatment by annexin V-FITC-propidium iodide (PI) double staining using flow-cytometer.

Results: Briefly, our results demonstrated that Resveratrol inhibited the proliferation of MCF-7 cells in a time (24-72 hours) and dose (25-150 μ M) dependent manner in hyperinsulinemia condition. Moreover, Resveratrol enhanced the cytotoxicity of DOX, so that pre-treatment of MCF-7 cells with low dose Resveratrol equalized cytotoxic effect of 0.1 μ M DOX to the level achieved when cells were treated with 50 fold higher concentration of DOX (5 μ M). Also, Resveratrol showed to have apoptotic effect on MCF-7 cells in hyperinsulinemia too.

Conclusion: The findings of the present study demonstrated that Resveratrol may be considered as an efficient anti-proliferative agent for antagonizing growth promoting effects of Insulin in breast cancer cell lines.

Biography

Fatemehsadat Amiri is currently working as an Assistant Professor in Department of Nutrition, School of Public Health, Iran University of Medical Sciences in Iran. Her area of expertise and interest is diabetes from cellular-molecular and clinical view.

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