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Tamoxifen's antiproliferative effects on estrogen positive and triple negative breast cancer

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Tamoxifen has been used in a hormone therapy for estrogen receptor positive (ER+) breast cancer. Although tamoxifen is more used for ER+ breast cancer, but it also has antineoplastic effects on triple negative breast cancers. This study sought to compare effects of tamoxifen on two different cancer cells to compare its antiproliferative effects. In the present study, we used 4T1 (triple-negative Balb/c mammary carcinoma cell) and T47D (human breast ductal carcinoma cell) cell lines, and we employed cell growth assay at different concentrations of tamoxifen (4, 8 and 32 µM for 4T1 cells and 2, 4, 8, 16, 32 and 64 µM for T47D cells) after passaging cells in regular condition. In order to do this, we used methyl thiazolyl blue colorimetric method (MTT assay) to measure the viability rates of two carcinoma cells. After that, we applied acridine orange/propidium iodide fluorescent staining to observe cell apoptosis. As we detected the IC50 of tamoxifen for 4T1 cells was 8µM and 16µM for T47D cells; this expressed that although triple negative cells were more resistant to tamoxifen but their Ic50 concentration was less. It shows that 4T1 cells are more sensitive to tamoxifen than T47D. But this antiproliferative effect is more permanent in ER+ cells than triple negative cells. Finally, we conclude that tamoxifen can be an effective treatment for both triple negative and ER+ breast cancers, but its single effect is not so much.

Biography

Reza Zohdi Aghdam has completed his PhD from Tehran University of Medical Physics. He has published more than three papers.His interested in Medical physics and working as a professor in urmia university of medical sciences.

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