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EFFECT OF ODANACATIB IN COMBINATION WITH LETROZOLE ON APOPTOSIS OF BREAST CANCER CELLS

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ABSTRACT

Background: Letrozole, an aromatase inhibitor is widely used in the treatment of estrogen receptor positive post-menopausal breast cancer. Odanacatib(Cathepsin K inhibitor) can be used to prevent bone loss and skeletal morbidityin the advanced breast cancer. In this study, the interaction between the letrozole and odanacatib has been assessed.

Methods: The cell viability was determined by MTT assay.The MCF-7 cells were treated with letrozole and odanacatib either alone or in combination and the resulting apoptosis was analyzed by DNA fragmentation assay. Bax, Bcl2 and NFκBlevels were determined by western blotting.

Results: IC_{50} value of letrozole and odanacatib in MCF-7 cells after 48hrs of exposure were determined to be 100nM and 5µM respectively. DNA fragmentation was observed for all groups by using agarose gel electrophoresis. Immunoblot results revealed significant increasein the expression of Bax in combination group when compared to letrozole and odanacatib treated alone, whereas Bcl2 and NFκB showed significant decrease incombination while comparing to letrozole and odanacatib alone.

Conclusion: Increased effectiveness of the odanacatib-letrozole combination in inducing apoptosis provide the evidence that this combination can be used to treat breast cancer.

Key words: *Breast cancer; Letrozole; Odanacatib; Apoptosis*