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Enhancement of Aromatase Inhibitors Action by Extra Virgin Olive Oil (EVOO) Through Cholesterol Metabolism Pathway in MCF-7 Cells

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Background: Olive oil and cancer relationship has been proved by the support of many evidences. Present study aim to investigate whether EVOO and Oleic acid (OA) could enhance the effects of aromatase inhibitors (Letrozole and Anastrozole) in MCF-7 cells as well as to investigate its influence on aromatization.

Materials and Methods: The viability of the cells was assessed by MTT test. MCF-7 cells were divided into seven groups as flows: Letrozole treated, Anastrozole treated, Anastrozole combined with EVOO, Letrozole combined with EVOO, Anastrozole combined with OA, Letrozole combined with OA and control group. Estrone and cholesterol lysates were measured.

Results: MTT test results showed that for both Letrozole and Anastrozole combination with (EVOO or OA) significantly decreases the viability of the cells in comparison of standalone Anastrozol and Letrozol. Letrozole and Anastrozole treatments significantly increase the levels of cholesterol in comparison with the control, while combination treatments showed significant decreases in cholesterol levels. Standalone Letrozole or Anastrozole treatment significantly decreased estrone level while combination treatment highly significantly decreases the level of Estrone. Significance was determined according to p-value <0.05.

Conclusion: EVOO and OA potentiate aromatase inhibitors action lowering of Cholesterol, which acts as a precursor for estrogens hormones and cholesterol metabolites biosynthesis hence preventing MCF-7 cells proliferation.

Biography

Dr. Amar Mohamed Ismail is head Department of Biochemistry and Molecular Biology, Faculty of Science and Technology, Al-Neelain University – Sudan. Amar has his expertise in endocrinology and metabolism especially in breast cancer cells. In this work we aimed to investigate whether extra virgin olive oil and oleic acid could enhance the effects of aromatase inhibitors (letrozole and anastrozole) in estrogen receptor-positive MCF-7 cells, as well as to investigate its influence on cholesterol pathway.

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