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Title: Polymorphisms of Leptin (-2548 G/A) and Leptin Receptor (Q223R) Genes among Jordanian Breast Cancer Females

Abstract

Breast cancer is the most common cancer among females. Breast cancer is curable during its early stages and is lethal during its late stages. Leptin are hormones produced by adipose tissues with opposite effects on tumor growth, The while leptin promotes tumor development and metastasis.

Aims: This study is aimed to assess the possible association of leptin levels with breast cancer risk, in addition to investigate the relationship between LEP (-2548 G/A) and LEPR (Q223R) polymorphism and breast cancer risk among Jordanian females. Methods: A total of 60 blood samples collected from breast cancer patients were analyzed to identify; the serum level of leptin, leptin and Leptin receptor related polymorphism. A total of 40 healthy females were enrolled as control group. Serum level of leptin were detected by enzyme-linked immunosorbant assay (ELISA), DNA from patients and control were amplified and analyzed by polymerase chain reaction-restriction fragment length polymorphism (PCR-RFLP) assay. Results: The distribution of the two polymorphisms in the studied population were consistent with the Hardy-Weinberg equilibrium. Leptin level was significantly lower in breast cancer patients compared to the controls (p0.05). Conclusion: Our results showed a significant association between low leptin levels in serum and Q223R polymorphism (in leptin receptor gene) with an increase of breast cancer risk. Moreover, No association was found between -2548 G/A polymorphism (in leptin gene) with breast cancer risk. Further studies with larger sample size are suggested.