

Association of Estrogen Receptor TA Repeats with Endometrial and Ovarian Cancers in Basrah Province

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Abstract

Background: Ovarian and endometrial malignancies are complex diseases, since a defect in hormone balance can be the most important cause of tumor formation. **Aim of study:** Examine and identify the association between ER TA repeats with endometrial and ovarian cancers in Basrah women. **Patients:** Groups include 50 healthy controls and 50 cancer patients, divided into 20 endometrial cancer patients and 30 ovarian cancer patients. **Results and Discussion:** The result shows TA 11–12 repeats are the most common in endometrial cancer in 68% of cancer patients, followed by TA \geq 10 in 8% and 4% for both 13–14 repeats and \leq 15, whereas TA repeats 11–12 and \leq 15 repeats are the most common in ovarian cancer in 22% for each one, followed by \geq 10 TA in 10% and 13–14 in 6%. The control groups have four groups of repeat numbers: 11–12 TA repeat in 68%, 13–14 in 20%, \leq 15 in 10%, and \geq 10 in 2%. Simultaneously, a substantial association exists between the two types of cancers and the TA repeat length variation of the estrogen receptor type alpha. **Conclusion:** The length of the TA repeat in estrogen receptor alpha has a significant risk for ovarian and endometrial cancer.

Keywords: Ovarian cancer- Endometrial cancer- TA repeat polymorphism and Estrogen receptor α

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Introduction

Endometrial cancer (EC) is a prevalent type of cancer in Europe, and the infection is managed by professionals from different health specializations. Nowadays, significant progress has been achieved in the treatment of endometrial cancer patients in the fields of molecular biology and minimally invasive surgery. In 2020, 417,367 cases were recorded and 100,000 deaths, so the ratio increased with aging and rising obesity rates among people in high-income countries [1]. Surgery is the first choice in the early stages, followed by a care follow-up for many years.

The defect in hormone balance is considered the major cause of EC infection. The estrogen signaling caused by estrogen receptor α (ER α) acts as a carcinogenic indication in some cases, leading to special treatment to control this signal during infection. In spite of the fact that there is a correlation between estrogen signaling and EC cases, the function of ER through molecular aspects is still poorly identified; however, the research progresses, increasing the understanding between them [2].

Ovarian cancer (OC) is the most prevalent malignancies after cervix and uterine, since it is asymptomatic until it spread due to more than two-thirds of patients already have advanced illness at the time of diagnosis. Ovarian cancer is one of the major complexes in the field of surgery, which requires serious and complex treatment and depletes the patient's mental and physical energy, leading to the highest death rates among all female genital malignancies [3, 4]. The five years cause-specific survival ranges from (20%) in stage four and (40%) in stage three to (70%) in stage two and (90%) in stage one [5].

Fifteen to twenty percent of patients contain germline mutations, even though over eighty percent of cases are sporadic and lack a documented genetic tendency. A significant DNA damage response (DDR) system, homologous recombination repair (HRR) pathways, are affected in half of the patients by mutations in these genes [6].

Hormonal imbalance is one of the many potential contributing factors to the development of ovarian cancer.

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