

# COMPARATIVE STUDY OF GONADOTROPIN-RELEASING HORMONE RECEPTOR IN FALLOPIAN TUBE BY IMMUNOHISTOCHEMISTRY AMONG WOMEN WITH ECTOPIC PREGNANCY, HYSTERECTOMY AND TUBAL LIGATION

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## ABSTRACT

**Objective:** Detection of GnRH receptor expression by immunohistochemistry techniques in human fallopian tubes during luteal phase of menstrual cycle among women subjected to tubal ligation with history of normal pregnancy, ectopic tubal pregnancy and hysterectomized women.

**Patients and Methods:** This comparative study involved 39 females with history of ectopic pregnancy who underwent emergency laparoscopy (ages ranged from 15-45 years), 40 women were operated on for elective hysterectomy (ages ranged 25-45 years) due to various benign gynecological reasons. The causes of hysterectomy include 30 patients with multiple uterine fibroid, 7 patients with adenomyosis and 3 patients with vaginal bleeding and not responding to treatment. Further 40 women subjected to cesarean section with bilateral tubal ligation at term pregnancy (ages ranged 26- 45 years) were also included in the study. The exclusion criteria included patients with pelvic inflammatory disease, endometriosis and luteinizing-hormone-releasing hormone analogue users. The study was carried out during the period from September 2014 till June 2015 at Basrah Maternity and Childhood Hospital. Their histopathologic examinations of the endometrium proved to be in luteal/secretory phase.

Fallopian tubes were removed and collected from patients undergoing surgical removal of it due to tubal ectopic pregnancy after hysterectomy as well as women operated on for tubal ligation. Fallopian tubes from ectopic pregnancy cases, hysterectomy patients and women with tubal ligation were preserved in 10% formalin and were taken to the Pathology Laboratory, Al-Saddar Teaching Hospital for the purpose of histopathology (Hematoxyline and eosin staining method) and immunohistochemical (avidin-biotin-alkaline phosphatase technique) investigations.

## RESULTS

The highest incidence responding rate (49%) of ectopic pregnancy noticed among age group of >25-35 years in comparison to the hysterectomized group (75%) among age group of >35-45 years and to women with tubal ligation group which was >35-45 years. All relationships are statistically significant ( $P < 0.001$ ). Also, women with history of ectopic pregnancy (28.2%) are more reliable for reoccurrence of ectopic in comparison to the hysterectomized women (7.5%) with significant statistical difference ( $P < 0.05$ ). An interesting result is women with no parity and infertility (53.8%) tend to develop ectopic pregnancy more than others. The relationship is statistically significant ( $P < 0.05$ ).

On histopathological examination, numerous pale chorionic villi were detected in the lumen of the fallopian tube. There were also sheets of trophoblast, lying free in the lumen. A brown precipitate in the cytoplasm of the cells of the fallopian tube indicated positive staining by primary antibody while no staining was detected in negative samples by using immunohistochemistry examination.

*Even there is a difference in the distribution positivity of gonadotropin-releasing hormone (GnRH) receptor detection among ectopic pregnant women (58.9%), hysterectomized women (82%) and only 10% among women with tubal ligation in the fallopian tube at the luteal phase of menstrual cycle by using immunohistochemistry technique but statistically is marginally significant ( $P=0.069$ ). While the negative distribution for GnRH receptor was higher among women with ectopic pregnancy (41.1%) in comparison to women who were operated on for hysterectomy (18%) and to women with tubal ligation (90%).*

*The immunoreactive GnRH receptor was identified in the fallopian tube samples from patients with ectopic pregnancy, in the mucosa of the tube alone (5 out of 39) or chorionic villi only (6 out of 39) or both of them the mucosa as well as villi (13 out of 39). The differences were statistically insignificant ( $P>0.85$ ).*

*Conclusion: Therefore, the interaction between the embryo and the maternal reproductive tract via the GnRH system may play an important role during gamete maturation, fertilization, pre-implantation, implantation and embryonic development.*

**KEYWORDS:** *Comparative Study of Gonadotropin-Releasing Hormone, Histopathological, Hysterectomized*