# HISTOLOGICAL CHANGES IN THE PAROTID GLAND IN OVARIECTOMIZED RATS AND THE POSSIBLE PROTECTIVE ROLE OF ESTROGEN AND VITAMIN E: HISTOMORPHOMETRIC AND ULTRASTRUCTURAL STUDY

## Thesis

*Submitted for partial fulfillment of the requirements of M.D. degree in Anatomy&Embryology*

*By*

**YasmeenEwees Mohammed**

Assist. Lecturer of Anatomy&Embryology

Faculty of Medicine-Fayoum University

*Under supervision of*

**Dr. SoheirHelmy El Sharouny**

**Professor of Anatomy &Embryology**

**Faculty of Medicine - Cairo University**

**Dr.Ayman Abo-EleneinRizk**

**Assistant Professor of Anatomy &Embryology**

**Faculty of Medicine - Cairo University**

**Dr.MahaKhaledAbd-Elwahed**

**Assistant Professor of Anatomy&Embryology**

**Faculty of Medicine - Fayoum University**

**Faculty of Medicine-Fayoum University**

**2017**

# Summary

Menopause is the time of cessation of menstruation. During this period women commonly complained of hot flushes, vaginal dryness and sleepdisturbances.Dry mouth is a common problem in women after menopause due to salivary glands dysfunction as a result of reduced estrogen secretion from the ovaries.

The aim of the present work is to elucidate the effect of artificial menopause on the parotid gland of the adult female albino rat and investigate the possible protective role of estrogen and vitamin E.

Forty five adult female albino rats were used in this study. The animals were randomly divided into four groups. Group I (normal control 5 rats, not subjected to any manipulations, sham control 10 rats, five rats were given distilled water and the other five were subjected to lower abdominal incision). Group II, were subjected to bilateral ovariectomy. Group III,Theywere submitted to bilateral ovariectomy and then received estrogen orally 1 mg/kg/day daily. Group IV,They were submitted to bilateral ovariectomy and then received estrogen(1 mg/kg/day orally)+vitamin E(400 mg/kg orally) daily.

Three months after ovariectomy the rats were sacrificed using high dose ether, the parotid gland was excised and prepared for light and electron microscopic study.

The light microscopic study revealed that bilateral ovariectomy produced histopathological changes in the parotid architecture. The parotid acini showed cytoplasmic vacuoles, pyknosis of nuclei, dilatation and congestion of blood

vessels. There was reduction in the glycogen content and increase in collagen fibers deposition.The ultrastructuralchanges includevacuolation of the acinarcell cytoplasm, condensation of the nuclei and clumping of the chromatin material and dilatation of the rough endoplasmic reticulum.

Estrogen co-administration was markedly successful in preventing the adverse effect of artificial menopause on the parotid gland. Vitamin E supplementation with estrogen produced marked improvement of the pathological changes in the parotid gland after bilateral ovariectomy.

The histomorphometricstudyof the mean percentage area of collagen fibers as well as the mean optical density of glycogen content and the number of damaged acini in each group and the subsequent statistical analysis supported the above mentioned findings.

It can be concluded that menopause had a deleterious effect on the parotid gland. Concomitant treatment with estrogen could prevent the pathological changes but supplementation of vitamin E with Estrogen produced marked improvement in these changes.