AAJMS [Formerly IJMS], January 2021; 4(1):51-53; ISSNe 2522-7386; DOI: http://doi.org//10.32441/aajms.4.1.4

THESIS ABSTRACT

Evaluation the Levels of Osteocalcin, Granulin, Cathepsin K and some others Biochemical Parameters in Women Sera with Premature Ovarian Insufficiency

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A Ph D thesis conducted in Department of Biochemistry, Tikrit University College Of Medicine (TUCOM), Tikrit, Iraq, under the supervision of Assistant Professor Dr. Moutaz Sabah Humaied, and Assistant Professor Dr. Firas Shawqi Abdulrazaq, 2020.

DOI: https://doi.org/10.32441/aajms.4.1.4

Background

Premature ovarian insufficiency is a primary ovarian defect characterized by the absence of menarche (primary amenorrhea) or premature depletion of ovarian follicles before the age of 40 years (secondary amenorrhea). POI is a heterogeneous disorder which means that it might have a variety of causes. It is characterized by low levels of gonadal (estrogen) hormones and high levels of gonadotropins hypergonadotropic hypogonadism. Diagnosis is based on finding of the amenorrhea before age on 40 and associated with test

for follicle stimulating hormone (FSH), Estradiol (E2) and Anti mullerian hormones (AMH) level.

Aim of the study

This study aims to evaluate the level of several hormones and biochemical parameters associated with premature ovarian insufficiency in Iraqi women comparing the results with healthy women (control).

Patient and methods

Sixty women with Premature ovarian insufficiency, divided to two groups, primary amenorrhoea 26 (43.34%) and secondary amenorrhea34 (56.66%). Each group of them is compared with thirty apparently healthy women as control group. The cases of POI were selected in general hospital setting inside Kalar Town, Iraq, Kurdistan region between dates of first march 2019 to first February 2020. Blood samples were aspirated from all individuals from day 2-5 in women with normal menstrual cycle and any day in women with amenorrhea. The first part of this study is devoted to the measurement of body Mass Index (BMI), subdivided POI according to the primary amenorrhea, and secondary amenorrhea and measurement of serum Osteocalcin (OC), Granulin (GRN), cathepsin K (CTK), Luteinized hormones (LH), Follicle Stimulating Hormone (FSH), Anti Mullerian hormones (AMH), Estradiol (E2) Estrogen receptor (ERs) , progesterone, progesterone receptor (PRs), parathyroid hormones (PTH), vitamin D, calcium, phosphorus for all studied groups.

Results

In the present study, there was statistically significant in the serum Osteocalcin, Granulin, LH, FSH, AMH, Estradiol, progesterone , Estrogen receptors, Progesterone receptors, Parathyroid hormones , vitamin D, phosphorus level in all POI women, but no significant in the serum cathepsin k and calcium levels, when compared with control groups. As well as when comparing subgroups primary amenorrhea and secondary amenorrhea with control groups significant difference showing in serum Osteocalcin, Granulin, LH, FSH, AMH, Estradiol, Progesterone, Estrogen receptors, Progesterone receptors, Parathyroid hormones, vitamin D, calcium, phosphorus level, but no significant in the serum cathepsin K. In addition, the others subgroups showing no significant difference in the levels of Osteocalcin, cathepsin K, Granulin, LH, FSH, AMH, Estradiol, progesterone,

Estrogen receptors, Progesterone receptors, Parathyroid hormones, vitamin D, calcium, phosphorus in subgroup primary amenorrhoea when compared with secondary amenorrhoea group. Non significant positive correlation there was observed between serum AMH with body mass index and significant positive correlation between Granulin with body mass index. Significant negative correlation between LH, FSH and estradiol receptors with body mass index. Negative correlation between serum Granulin levels and LH levels, positive correlation between cathepsin K with progesterone receptors and negative correlation between cathepsin K with estradiol receptors. Significant positive correlation between serums Granulin with progesterone receptors. In addition, significant positive correlation between serum Osteocalcin with estradiol levels.

Conclusion

Women with primary ovarian insufficiency demonstrated significantly high serum Osteocalcin and Granulin level than healthy control suggesting a very high serum Osteocalcin may be used as biomarker for the diagnosis of premature ovarian insufficiency.