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Impact of hypothyroidism on sex hormones level, cystic ovaries and infertility in women

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Abstract

The goal of our project was to evaluate hypothyroidism and its effect on sex hormones for patients' women. One hundred patients had visited the endocrine clinic in Thi- Qar province, Iraq. The results showed the effect of hyperactive or unusually energetic TSH was usually caused hypoactive of FT- 4 and FT- 3 that affect on sex hormones levels and produced a significant $P < 0.05$ for different sex hormones, such as Prolactin, LH, FSH, Progesterone and FT- 4 a significant difference was shown only in Prolactin, TSH hormones levels which are generally secreted from the anterior pituitary gland. TSH (Thyroid Stimulating Hormone) and prolactin hormones were playing and contribute to the development of the cystic ovaries in women. This study measures the level of prolactin, TSH, FT- 4, and FT- 3 in ladies suffering from polycystic ovaries, while the hyperactive TSH causes hypoactive of FT- 3 and FT- 4. But from this study showed prolactin causes cystic ovaries $P < 0.05$ there is a significant overlap between hypothyroidism, prolactin, and cystic ovaries.

Keywords TSH, T- 3, T- 4, Prolactin, Cystic Ovaries and Patients

Introduction

Hypothyroidism during adult life produces Myxedema. The indication of this disorder is edema when the facial tissues to be bloated and it is called Myxedema. Myxedema is characterized by having a Brady heart rate, reduced body temperature, and increased susceptibility to low temperature. The patient can be hypersensitive to particular general lethargy, muscular weakness, and a tendency to be overweight. The brain has already reached maturity. Mental impediment does not occur, although mental functions may be delated so that the person will be drowsy. Myxedema takes place many time over more than in females than in males (Tortora and Derrickson, 2018).

The result of hypothyroidism contributes to a change in the length of women's cycle and a lot of bleeding, the state of amenorrhea, and polymenorrhagia, which will depend on estrogen level through women's cycle and ovulation.

Cystic ovary syndrome (COS) is the most common female endocrinopathy in women of reproductive age, ovarian

dysfunction, which can cause rare menstruation or absence of it (Abdulmajeed, 2018).

Materials and methods

Samples

Blood samples (5-10 ml) have been collected from 100 patient's women who visited the internal clinic to seek medical advice after suffering signs such as fatigue, tiredness, loss of appetite, and breathing difficulties. The other group of patients (20) was suffered infertility, so they have been sent by the physician to the lab to detect their fertility hormones.

Analysis of data

The analysis of data program SAS (2012), this program can contribute to deal with the correlation coefficient between different parameters of women in the study (SAS, 2012).

Results

Table 1: Correlation coefficient between hypothyroidism and sex hormones level in women.

Parameters	Prolactin	LH	FSH	Progesterone	Testosterone
TSH	0.06 NS	-0.009 NS	-0.52 *	0.38 *	0.12 NS
FT3	-0.46 *	-0.41 *	0.33 *	0.39 *	-0.29 NS
FT4	0.62 *	-0.11 NS	0.20 NS	-0.09 NS	0.24 NS
• (P <0.05) , NS: Non-Significant					

The result showed there were significant differences of TSH with FSH and progesterone P <0.05 and significant FT3 with all hormones in Table 1. Just FT4 significant with prolactin.

Table 2: Correlation coefficient between hypothyroidism and cystic ovaries in women.

Parameters	Cystic ovaries	Level of sig.
Prolactin	0.29	*
TSH	-0.21	NS
FT3	-0.06	NS
FT4	-0.02	NS
(P <0.05) , NS: Non-Significant		

The result showed there was a significant P <0.05 for prolactin with cystic ovaries in women.

Discussion

The study focused on examining the correlation between hypothyroidism and sex hormone levels in women. There was a significant difference of TSH (thyroid-stimulating hormone) on FSH and progesterone P < 0.05, as well FT- 3 causes significant P <0.05 for difference all hormones in Table 1 and FT- 4 recorded significant just in prolactin hormone.

The results were shown there was a correlation between hypothyroidism and cystic ovaries.

From this situation found a significant difference with prolactin hormone and cystic ovaries formation P <0.05 and no significant with other hormones such as TSH, FT- 3, and FT- 4. Polycystic ovary syndrome (PCOS) includes clinical (amenorrhea, baldness, acne, and fertility disorder). Changes in endocrine make increased different levels of hormones such as prolactin, estrogen, and androgen as well decreased level of progesterone and metabolic disorder (Jelodar and Askari, 2012).

Luteinizing hormone suppressed by prolactin hormone secret from the anterior pituitary gland and inhibition the ovulation, of women by decreased estrogen and associated with infertility.

Women through polycystic ovary syndrome have a propagation of hyper-prolactinemia in addition for that to have a high luteinizing hormone standard. Women with PCOS may have decreased the production of dopamine from the hypothalamus, and thereafter have hyper concentrate of prolactin hormone (Hamoda et al., 2012).

Increased production standard and its impact on steroid secretion of human gonads. Prolactin was watch by it suppresses two both hormones 17 beta-estradiol and progesterone by ovaries (Demura et al., 1982).

Conclusions

From this study, there was an overlap between hypothyroidism and sex hormones. The study prevalence has indicated that serum prolactin contributed to PCOS, indicating that prolactin gave a significant difference with polycystic ovary syndrome.

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Conflict of Interest

The author hereby declares no conflict of interest.

Consent for publication

The author declares that the work has consent for publication.

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