

Correlation between BMI and Thyroid Hormones in Infertile Groups

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Abstract

Infertility is the failure to become pregnant after 12 months of copulation without contraception. Thyroid defect in function can be caused by: menstrual disorder, an ovulatory phase and lower fertility. This search formed to assess the importance of thyroid syndromes in infertility women and importance of the autoimmunity by assessing the value of TSH, T3, T4, & anti Thyroid peroxidase antibody in infertile women compared to the consequences with women controls. The direction in this search started from March 2015 to September 2015 at Karbala Maternity Hospital, infertility unit, and some private clinics. It showed a significant relation between TPO and BMI in controls and patients with a p-value (<0.002 , <0.0001) respectively, and a significant relation between BMI and T4 in patients and controls with a p-value (<0.0001), and shows a significant relation between BMI and sex hormones. The relation between BMI and sex hormones shows no significant relation with LH in patients but significant in controls with a p-value (<0.0001) and relation with FSH was not significant in patients and controls, and relation with E2 shows a significant relation in patients with a p-value (<0.01) but not significant in controls. This search directed to estimation of the relationship between thyroid function and sex hormones with BMI. Where the height of BMI affects the body to increase TPO and T4 and affect estradiol, we recommend that women maintain their body weight within normal.

Keywords: BMI, T3, T4, TSH, TPO, E2, infertility, thyroid syndromes

Introduction

Infertility (clinical definition) is currently defined as 1 year of unwanted non-conception with unprotected intercourse in the fertile phase of the menstrual cycles. Infertility (clinical definition) is currently defined as 1 year of unwanted non-conception with unprotected intercourse in the fertile phase of the menstrual cycles.

Hormonal disturbance of women reproductive system involves a number of troubles generating from disorder of the hypothalamic-pituitary-ovarian axis. These comparatively communal disorders often cause infertility^[1]. Infertility (clinical definition) is defined as 1 year of undesirable non-conception with unprotected

copulation in the fertilization phase of the menstrual cycles^[2]

It is classified into: Primary infertility: in female whose gestation suddenly miscarries, or whose gestation produced in a still born child, without always having had a live birth. Second infertility: in women that frequently involuntarily miscarry or the pregnancy comes to a still birth next to the preceding pregnancy or a previous portability to a pregnancy to a live birth^[3]. Thyroid disorders are the major common endocrine disease in women at generative age. Due to the above mentioned features of thyroid hormones, estimation of thyroid functions during both pregnancy and treatment of infertility and treating related pathologies become important. In the primary stage of pregnancy thyroid hormones are actively involved in the step of placentation; because it was detected that T3 and epidermal growth factor have synergistic effect in the culture media^[4]. Pituitary hormones such as TSH, prolactin or growth hormone may do supporting with FSH and

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LH to improve the pass of non-growing follicles into the growth phase^[5]. The correlation between fatness and procreative function has been famous for a lot of years and it is still being research . Obesity may weaken or damage generative system by Impacting both the ovaries and endometrium ,this harmful effects of fatness on generative consequence are well known ^[6]. But, it is not easy to refer to the exactly how action of the fatness affects to the generative system due to it is complicated . increased the fat in female heightens polycystic ovarian syndrome (PCOS), and anovulation and may cause hypothalamic hypogonadism^[7,8].

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Material & Method

Study design: The study is case-control , based study designed to determine thyroid disorders in infertile female. We directed through the time from March 2015 to September 2015 at Karbala Maternity Hospital , infertility unit, and some private clinics. The

search consisted of a whole number of 143 females at procreative stage, the age range was among (15-43) years. The patients were 92 infertile women and 51fertile women. Control samples were collected from the community and some of the staff in the hospital and the university. Diagnosis of infertility and patient selection were done by gynecologist present in infertility unit at Karbala Maternity Hospital. Blood samples were collected from all participants; sera were separated and frozen for measurement of T3, T4, TSH, & Anti-TPO using ELISA device in Imam Hussein Teaching Hospital.

Result

Statistical analysis in table(1) of BMI in relation with thyroid hormones test shows significant relation between BMI and TPO in patients and controls p – value (<0.0001,<0.002) respectively, and no significant relation between BMI and T3 in patients but significant in controls p-value(<0.01) , and significant relation between BMI and T4 in patients and controls p-value (<0.0001) , and shows significant relation between BMI and TSH in patients p-value(<0.0001) but no significant in controls , the relation between BMI and sex hormones shows no significant relation with LH in patients but significant in controls p-value (<0.0001) and relation with FSH was not significant in patients and controls , and relation with E2 shows significant relation in patients p-value (<0.01) but no significant in controls.

Table (1): relation between BMI with thyroid hormone test and hormonal female in patients and controls .

Parameters	Group	R-sequar	correlation	P value	Sig.
BMI &TPO	Patients	0.02973	0.152**	<0.0001	Yes
	Controls	0.0402	0.025	0.338	Yes
BMI & T3	Patients	0.0894	0.024	0.243	No
	Controls	0.916	-0.059*	0.019	Yes
BMI & T4	Patients	0.788	-0.013	<0.0001	yes
	Controls	0.802	0.175*	<0.0001	yes
BMI & TSH	Patients	0.8822	0.086**	<0.0001	yes
	Controls	0.8998	-0.007	0.794	No
BMI &LH	Patients	0.794	0.004	0.828	No
	Controls	0.842	0.173**	<0.0001	Yes
BMI &FSH	Patients	0.824	0.026	0.195	No
	Controls	0.8006	-0.014	0.584	no
BMI &E2	Patients	0.1092	0.052*	0.016	Yes
	Controls	0.4102	-0.167**	<0.0001	yes

** significant in (0.01) level

* significant in (0.05)level

Discussion

Infertility is a medicinal, publically and physically problems in Iraqi society^[10]. Most of patients in this study were with primary infertility; this agrees with previous studies^[9,11]. Most newly married couples seek pregnancy and attend health services more frequently than those who already have a child. Moreover; Iraqi families take primary infertility much more seriously than secondary infertility.

Twenty percent increased or decreased from typical body mass can have impact on ovulation. Correlation between increased lipid and ovulatory disorders show for early-onset fatness^[12]. Abnormal Thyroid functions is related to the increased in body mass, clinical hypothyroidism are commonly related with : mass increase, low temperature , and metabolism speed^[13]. Results of the present study BMI in relation with thyroid hormones test shows significant relation between BMI and TPO in patients and controls p –value (<0.0001,<0.002) respectively this result, Results of the present study BMI in relation with thyroid hormones test shows significant relation between BMI and TPO in patients and controls p –value (<0.0001,<0.002) respectively, and no significant relation between BMI and T3 in patients but significant in controls p-value(<0.01) , insignificant relationship between BMI with T4 in patients but significant in controls p-value (<0.0001) , this consequence are compatible with earlier search made by ^[15] and not compatible with a earlier search done by ^[14], The reason for the difference with the researcher may be that he compared men and women while in our research the comparison between the patient and control, when relation between T3 and BMI the result shows no significant in patients but significant in controls p-value(<0.01) , and shows significant relation between BMI and TSH in patients p-value (<0.0001) but no significant in controls our results are consistent with a precedent searches done by ^[14,16] and not compatible with a precedent search done by ^[15],Results of the present study the relation between BMI and sex hormones shows no significant relation with LH in patients but significant in controls p-value (<0.0001) and relation with FSH was not significant in patients and controls ,our results are consistent with a previous study done by ^[17,18] and relation with E2 shows

significant relation in patients p-value (<0.01)our results are consistent with a precedent search done by ^[18] , but no significant in controls. our results not correspond to a precedent search done by^[18].

Conclusion

At our search was conducted to research the relationship or correlation between thyroid function as well as sex hormones with BMI women . Where the height of BMI affects the body to increase TPO and T4 and affect estradiol , we recommend that women maintain the body weight within normal.

Ethical Clearance: The project plan displayed on the scientific committee and scientific ethical committee and get approval

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