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A ROLE OF FSH-LH-PROLACTIN HORMONES LEVELS AMONG INFERTILE WOMEN.

Health Science

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ABSTRACT

INTRODUCTION: Infertility is a disease of the reproductive system defined by the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse. Main cause of female infertility is obesity, blockage of fallopian tube, age factor, pelvic inflammatory disease, chromosomal abnormalities, amenorrhea and endocrinological dysfunction. Hormonal abnormalities that affect ovulation, that include hyperthyroidism, hypothyroidism and hyper-prolactinemia. FSH, LH and Prolactin hormones plays important role in infertility.

METHOD: The investigation was carried out at Vardaan hi-tech pathology laboratory in Dhoraji in duration of 1st June 2019 to 31st December 2019. FSH, LH & Prolactin were measured by using enzymatic fluorescence assay method.

RESULT: The total of 100 women were involved in the study. The level of FSH (3.9 to 12.0mIU /ml). Among them 60(60%) patients are normal range and 22 (22%) patients are at lower side of the normal range and 18 (18%) patients are at above the normal range.

The level of LH (1.9 to 12.5mIU /ml) results of 55(55%) patients were within normal range (1.9 to 12 mIU /ml) and 20(20%) patients are above the normal range and 25 (25%) patients are below the normal range.

The serum Prolactin (5 to35ng/ml) concentration was increased for 10 (10%) patients. The prolactin concentration results of 59 (59%) patients were within the normal range and 31 (31%) patients are below the normal range. High prolactin level is called hyperprolactinemia as the main cause for infertility.

CONCLUSION: In this study we found that hormone FSH, LH level is normal and Prolactin level high which is one of the most important causes infertility in women.

KEYWORDS

Infertility, FSH, LH, Prolactin, Hormonal abnormalities.

INTRODUCTION:

"Infertility is a disease of the reproductive system defined by the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse."

The percent of infertility is reported to be 10-15% worldwide. It is estimated that infertility affects globally 50 to 80 million people and currently 8-10 million infertile couples are estimated to be in India (1). Main cause of female infertility is obesity, blockage of fallopian tube, age factor, pelvic inflammatory disease, chromosomal abnormalities, amenorrhea and endo-crinological dysfunction (2, 3). Hormonal abnormalities that affect ovulation, that include hyperthyroidism, hypothyroidism, and hyperprolactinemia (4).

Now hormonal disturbance has been conceived of major importance in the knowledge of ca uses and diagnosis of female infertility. Raise in FSH in women may indicate a reduction in the production of good quality eggs and embryos for fertilization (5).

Prolactin plays a significant role in the reproductive health of both women and men. Its main role, however, is to stimulate the production of milk in women after childbirth. In other words, prolactin triggers lactation. Levels of prolactin have been found to be a measure of sexual satisfaction in both men and women (6).

LH is a hormone that is produced in the pituitary gland in both men and women. In women, LH is significance part of the menstrual cycle. It works in conjugation with follicle-stimulating hormone. The rise in estrogen tells the pituitary gland to pause producing FSH and to start making more LH. The shift to LH causes the eggs to be released from the ovary, a process called ovulation. Commonly, higher than normal levels of LH in a woman may mean the ovaries are absent or not functioning. In a young woman, high levels may mean that puberty is early low levels of L+H in the blood may indicate anorexia, an issue in the pituitary gland, stress, or damage to the hypothalamus in both men and women (7).

Metabolic disorders including increased serum levels of Luteinizing hormone (LH) and Follicle-stimulating hormone (FSH) is common in these patients and health of women with PCOS is deeply affected in the long term (8). Almost in 40% of women who have polycystic ovaries, the excess amount of LH is secreted. The risk of infertility and miscarriage increases in this group of patients. Hypersecretion of LH is created followed by hyposhysis-ovarian unsteroidic feedback dysfunction. (8.)

AIM AND OBJECTIVE:

The aim of the present study was to evaluate the serum levels of Follicle Stimulating hormone (FSH), Luteinizing hormone (LH) and Prolactin hormone in infertile women that were referred from different infertility clinics and centers.

MATERIAL AND METHODOLOGY:

The investigation was carried out at Vardaan hi-tech pathology laboratory in Dhoraji in duration of 1st June 2019 to 31st December 2019 after taking permission of institutional ethical committee. Diagnosis of disease was collected under the supervision of instructions of maternity doctors and according to the clinical signs and laboratory findings. Finally, among a total data were collected from 100 women patients as referred by a Gynecologist for infertility investigation.

Hormonal tests: The levels of serum Follicle stimulating hormone (FSH), Luteinizing hormone (LH), and prolactin were measured by using enzymatic fluorescence assay method.

METHODOLOGY:

2 ml of whole blood was taken three times after interval of 10-10 minutes aseptically through antecubital vein from the subjects in the menstrual cycle 1 to 3 days. The whole blood was allowed to clot, thereafter, serum was separate and used for analysis. Than 200microL serum add in FSH and LH kit. In prolactin 200microL pooled sera was estimated.

RESULT:

The total of 100 women were involved in the present study. The women population was found between the age group of 18-45 years.

The level of FSH (3.9 to 12.0 mIU /ml). Among them 60(60%) patients are normal range and 22(22%) patients are at lower side of the normal range and 18(18%) patients are at above the normal range.

The level of LH (1.9 to 12.5 mIU /ml) results of 55(55%) patients were within normal range (1.9 to 12.5 mIU /ml) and 20(20%) patients are above the normal range and 25(25%) patients are below the normal range.

The serum Prolactin (5 to 35 ng/ml) concentration was increased for 10 (10%) patients. The prolactin concentration results of 59(59%) patients were within the normal range and 31(31%) patients are below the normal range.

Table 1: The distribution of patients according to the level of LH, FSH and prolactin hormones.

Name of Hormone	Normal Range	Low Level	High Level
FSH	60(60%)	22(22%)	18(18%)
LH	55(55%)	25(25%)	20(20%)
Prolactin	59(59%)	31(31%)	10(10%)

Table 2: The observed frequency and percentage of FSH, LH, and Prolactin hormones characteristic studied by infertile female age.

CHARACTERISTIC	GROUP	FREQUENCY	PERCENTAGE
AGE	10-15	0	0 %
	16-20	04	4 %
	21-25	15	15 %
	26-30	20	20 %
	31-35	40	40 %
	36-40	20	20 %
	41-45	1	1 %
	Above 45	0	0 %

DISCUSSION:

Hormone levels in infertile women had been evaluated by many researchers. Higher level of FSH and LH is rarely found in infertile women with a proper menstrual cycle.

In our study, total number of patient is 100. The level of FSH (3.9 to 12.0 mIU /ml). Among them 60(60%) patients are normal range and 22(22%) patients are at lower side of the normal range and 18(18%) patients are at above the normal range.

The level of LH (1.9 to 12.5 mIU /ml) results of 55(55%) patients were within normal range, and 20(20%) patients are above the normal range and 25(25%) patients are below the normal range.

The serum Prolactin (5 to 35 ng/ml) concentration was increased for 10 (10%) patients. This present studies indicated hyperprolactinemia as the cause for infertility in female. The prolactin concentration results of 59 (59%) patients were within the normal range and 31(31%) patients are below the normal range.

In our study the prevalence of FSH level low in 22 (22%) patient is comparable to K. Mohan. et. al. 2010 reported FSH is 30 (42.9%) patient is also similar to our study.

In our study the prevalence of LH level is low in 25 (25%) patient is comparable to K. Mohan. et. al. 2010 reported LH is 30 (42.9%) patient is not similar to our study.

In our study the prevalence of prolactin level increase in 10 (10%) patient is comparable the incidence of high prolactin level as the cause of infertility was reported to be 18% by Avasthi kumkum. et. al. (2006) and 25% by Mishra. et. al. (2006), is also similar to our study.

In our study FSH, LH level is normal and prolactin level increase is main criteria of infertility. I hope, in future more research in this hormonal infertility.

NOTE: - High prolactin level is called hyperprolactinemia as the main cause for infertility.

CONCLUSION

The increased hormone Prolactin and normal level of FSH, LH were found in infertile women. We should analyze the responsible factors for elevated level of Prolactin. The increased levels of hormone may be associated with infertility and other clinical manifestations. The elucidation of such studies helps us to achieve a more thorough understanding of female infertility. This study will be very useful in prevention and management of infertility. This can establish counseling strategies possible for those who are affected by the reproductive dysfunction. Endocrine tests should be undertaken to identify all infertile women.

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