ABSTRACT

The aim of the study was to estimate the levels of follicle stimulating hormone, luteinizing hormone and prolactin hormone in Primary infertile women in Mumbai, Maharashtra, India. The present investigation was carried out at Biochemistry Department, functioning at Grant Medical College & Sir J.J. Group of Hospitals, Byculla, Mumbai, from May 2011 to August 2011. Sample size was 30 Primary infertility Female. The inclusion criteria for the selection of cases were diagnosis of primary infertility, age between 20-40 years and duration of marriage more than one year. The exclusion criteria that were adopted during case selection were male factor infertility and amongst the female factors were tubal factor, any congenital anomaly of the urogenital tract, or any obvious organic lesion.

The protocol for infertility work up in the women included: a detailed medical history, a gynecological examination, a hormonal profile (prolactin, FSH and LH). Five milliliters of fasting venous sample obtained in the morning of day second of menstrual cycle for serum biochemical analysis. Serum was separated and stored for further analysis. All the hormones, serum prolactin, LH and FSH were estimated using chemiluminescence kits.

The serum FSH hormonal levels of the infertile women were lower level when compared to control groups & it was found to be statistically **highly significant**. The serum FSH mean & SD is 6.340 ±1.497 (P<0.0001) in the infertile group and 9.98 ±2.99 in control group.

The serum LH concentration was lower level in the infertile group than in the control group. & it was found to be statistically **highly significant**. The LH mean & SD is 4.077 ±2.91 (P<0.0001) in the infertile group & 7.85 ±1.24 in control group.. The serum Prolactin concentration was increased in infertile group compared with control group. & it was found to be statistically **highly significant**. The serum Prolactin mean & SD is 25.22 ±5.744 (P<0.0001) in the infertile group & 17.89+ 1.82 in control group.
INTRODUCTION

Infertility is a medical problem that affects a vast proportion of the world’s young population (10-15%). A large proportion of the world’s population has no access to medical treatment for infertility and even in developed and emerging economies there are great inequalities in access to proper diagnosis and treatment. Infertility in this study is defined as inability to conceive after one year of unprotected adequately time intercourse. It has two types, primary infertility; it is a term used for a couple who have never achieved a pregnancy. Secondary infertility referred to a couple who have previously succeeded in achieving at least one pregnancy even if this ended in abortion (1).

Generally infertility is a multifunctional condition with more than one factor contributes to have the disease (1). Many parameters are outlined for the cause of infertility like age, lifestyle and physical problems etc. Greater focus on education and careers among women has triggered other trend in modern society, less frequent, early and late marriages and more frequent divorce are among the most striking cases of delayed childbirth. Expanding contraceptive options and access to family planning and legalized abortion services have markedly contributed to the declined birth rate. An ongoing epidemic of sexually transmitted infection, associated with increased risk of subsequent infertility of Chlamydia infection. The major causes of infertility include ovulatory dysfunction (15%), tubal and peritoneal pathology (30-40%), and male fact (30-40%) and uterine pathology (2).

1. FSH (follicle stimulating hormone):
   Human Follicle Stimulating Hormone (FSH) is a glycoprotein (M.W. approximately 30000d). FSH is secreted by the basophilic cells of the anterior pituitary. FSH is responsible for the proliferation of the follicular cell, for the development of the graafian follicle and for ovum maturation. (3)

2. LH (luteinizing hormone)
   Luteinizing hormone (LH, also known as lutropin) is a hormone produced by the anterior pituitary gland. In Females, an acute rise of LH called the LH surge triggers ovulation and development of the corpus luteum. (3)

3. Prolactin
   Prolactin is one of several hormones that is produced by the pituitary gland. The most important role of prolactin is to stimulate milk production in women after the delivery of a baby. (4)
AIMS & OBJECTIVES

- The aim of the study was to estimate the levels of serum follicle stimulating hormone, luteinizing hormone and prolactin levels in Primary infertile women by IMMULITE 1000 chemiluminescent immunoassays.
- To study the comparison between concentration of serum FSH, LH and Prolactin in Primary infertile women.

Materials and methods

- It was observational study. Patient attending chemiluminescent lab in Biochemistry department taken as cases & control. The study was conducted at Biochemistry Department, functioning at Grant Medical College & Sir J.J. Group of Hospitals, Byculla, Mumbai, from May 2011 to August 2011. Sample size was 30 Primary infertility Female. The inclusion criteria for the selection of cases were diagnosis of primary infertility, age between 20-40 years and duration of marriage more than one year. The exclusion criteria that were adopted during case selection were male factor infertility and amongst the female factors were tubal factor, any congenital anomaly of the urogenital tract, or any obvious organic lesion.(1)
- Five milliliters of fasting venous sample obtained in the morning of day second of menstrual cycle for serum biochemical analysis. Serum was separated and stored for further analysis. All the hormones were estimated using chemiluminiscence kits of serum prolactin.(2)
Statistical Analysis

Unpaired t test was applied for the comparison of hormonal levels in control and infertile women. Significance level was taken as $P<0.0001$. 
RESULT

The serum FSH hormonal levels of the infertile women was lower level when compared to control groups & it was found to be statistically highly significant. The serum FSH mean & SD is 6.340 ±1.497 (P<0.0001) in the infertile group and 9.98 ±2.99 in control group.

The serum LH concentration was lower level in the infertile group than in the control group. & it was found to be statistically highly significant. The LH mean & SD is 4.077 ±2.91 (P<0.0001) in the infertile group & 7.85 ±1.24 in control group.

The serum Prolactin concentration was increased in infertile group compared with control group. & it was found to be statistically highly significant. The serum Prolactin mean & SD is 25.22 ±5.744 (P<0.0001) in the infertile group & 17.89±1.82 in control group.

DISCUSSION

We found statistically significant decreased in serum FSH&LH with increased in serum prolactin levels in primary infertile women than in the control group. Our study coincide with study of Kyungza Ryu et al. (1991), states that 65.5% of infertile women with proper two phase menstrual cycles suffered from luteal phase defects but in 28.7% of cases lower values of FSH and LH were noticed.(5). According to Emo kpae M . A. et, there may be failure at the hypothalamus or pituitary (hypogonadotropic-hypogonadism) which result in decreased in serum FSH&LH with increased in serum prolactin levels and leads to infertility(4). Our study coincide with study of Emo kpae M . A. et, suggest that increased in serum prolactin result in amenorrhea because of defect in the positive feedback of estrogen on LH, an lead to decreased in serum LH & FSH values.(6)

Our study coincide with study of K. Mohan & Mazher Sultana & suggest that decrease level of LH in the midcycle clearly indicates that there is a possibility of anovulation. Low levels of FSH and LH which may further explain the abnormal or delay ovum maturation. .(2)

According to A. Z. Mohammed increased prolactin may be the cause of low estrogen and progesterone concentration in the infertile subjects results in decrease in serum LH & FSH in infertile women (7).
We found statistically significant decreased in serum FSH&LH with increased in serum prolactin levels in primary infertile women than in the control group. There was a significant association between abnormal menstrual patterns & anovulatory cycles as observed in infertile groups with raised serum prolactin level. There is also a higher prevalence hyperprolactinemia in Infertile groups.

**BIBLIOGRAPHY**


