ISSN: 0975-8585

Research Journal of Pharmaceutical, Biological and Chemical Sciences

Prolactin in Primary Female Infertility in Rural Population.

Parijatham S*, and Saikumar P.

Balaji Medical College and Hospitals, Bharath University, Chennai, Tamilnadu, India.

ABSTRACT

To study the incidence of hyperprolactinemia among the infertile females. Menustral and ovulatory disturbances are associated with hyperprolactinemia. Amenorrhea, oligomenorrhea anovulation are seen with increased prolactin levels. There are reports stating that in two thirds of women both galactorrhea and amenorrhea coexixts. There are infertile females who have regular menstrual cycle showing increased level of prolactin. This study was done to estimate the incidence of increased levels of prolactin in primary infertile females among the rural population in and around Kancheepuram District. Serum prolactin level was done as a routine investigation among 42 patients attending the infertility clinic and 25 controls. Prolactin levels were increased in primary infertile women (13.53±1.4ng/ml) compared to fertile women (5.11±0.73ng/ml). Serum prolactin levels should be done in all infertile women. Mild correction of prolactin may give better result in infertile women.

Keywords: prolactin, ovulation, amenorrhea, galactorrhea, infertility

Corresponding author

ISSN: 0975-8585

INTRODUCTION

In general, primary infertility is defined as one year of unprotected intercourse without any conception. Common hormonal disorders of female reproductive system often lead to infertility. Delayed conception or infertility in females leads to major psychological problems. Proper evaluation of problems in infertility involves a multidimensional diagnostic approach [1]. One of the major routine investigations is the assessment of hormonal levels. In rural areas of Kancheepuram District infertile females were routinely subjected to blood investigation, ultrasound and hormonal estimation which included Thyroid profile, FSH and LH. Prolactin estimation has been overlooked. Prolactin assessment has been considered an important component of infertility work up in women [2]. Prolactin is a peptide hormone containing 199 amino acid residues and 3 disulphide bridges having structural similarity to human growth hormone and human chorionic stomatomammotropin. Various factors like sleep, nursing, stress, pregnancy, hypothyroidism, drugs etc., affect the secretion of human prolactin. According to Ganong, "the normal plasma prolactin concentration is approximately 5 ng/ml in men and 8ng/ml in women. Pulsatile secretion of GnRH is decreased by hyperprolactinemia which in turn affects the fertility potential by interfering with ovulation [3, 4]. This disorder has been implicated in menstrual and ovulatory dysfunctions like amenorrhea, oligomenorrhea, anovulation, inadequate corpus luteal phase and galactorrhea [5, 6]. However, many infertile women have normal menstrual cycle despite increased serum prolactin level. The aims of the study were to find the prevalence of hyperprolactinemia in female infertility after exclusion of tubal factor and male factor infertility in hospital-based study and to investigate the impact of serum prolactin on primary infertility.

MATERIALS AND METHODS

The cases included 42 infertile female subjects were promoted to attend the infertility clinic at Sree Balaji Medical College and Hospital. The inclusion criteria for the selection of cases were age between 20-40 years and duration of marriage more than one year and primary infertility. Infertility investigation in the women included: a detailed medical history, a gynecological examination, an ultrasonography, a hormonal profile, screening for infectious diseases and hysterosalpingograph. The exclusion criteria were male factor infertility and amongst the female factors were tubal factor, any congenital anomaly of the urogenital tract, or any obvious organic lesion. Institutional ethical committee clearance was obtained. Written informed consent was taken from all the subjects. Study group included: Group I: Included the female subjects with only female causes alone (husband's semen analysis were within normal limits). The female causes may be PID, Tubal factor, PCOS, etc., Group II : Included the infertile females where no definite causes were found in both partners. Age, Height, Weight and BMI matched infertile cases were compared with the fertile controls who had delivered minimum of 1 child. Serum prolactin was estimated by ELISA method.

ISSN: 0975-8585

RESULTS

Table I: Comparison of serum prolactin levels among Group I, Group II and controls

Parameter	Control (25)	Group I - female factor (n=24)	Group II - unexplained factor (n=18)
PROLACTIN ng/ml	5.11 ±0.73	15.97 ±1.47 **	11.09 ±1.41 **

** P< 0.05 when compared to controls.

Table I showed that prolactin level is significantly greater in infertile women than in fertile women. The values were statistically significant when compared with control.

DISCUSSION

Hyperprolactinemia is a common problem seen in infertile women [7]. A higher occurrence of hyperprolactinemia was seen in the infertile group as compared to the controls. High circulating levels of Prolactin may inhibit ovarian function and ovulation by both central and peripheral mechanisms. The suppressed gonadal function of prolactin include short luteal phase, reduced central FSH and LH levels, decreased granulosa cells, decreased estradiol levels and ultimately amenorrhoea.

Steger RW, Chandrasekar V, Zhao W and Clement –Lacroix , in their study on mice found that both ovulation and the number of primary follicles are reduced as a result of disrupted prolactin receptor expression [8,9].

Demura found that the reduction in number of primary follicles underscore the luteotropic function of prolactin,but do not explain suppressed gonadal function observed in patients with hyperprolactinemia [10].

AZ Mohammed found that increased prolactin may be the cause of low oestrogen and progesterone concentration in infertile subjects resulting in decrease in serum LH and FSH [11]. Sunitha Tirumalasetty states that infertility associated with hyperprolactenemia is reversible with treatment [12]. Lowering of prolactin levels to near normal or normal is often necessary to allow ovulation

CONCLUSION

Female infertility is a silent problem in our country which plays an important role in those females affected. By correcting the prolactin to normal or to near normal level the problem associated with prolactin may be overcome.

REFERENCES

[1] Williams C, Giannopoulos T, Sherriff EA. J Clin Pathol 2003;56:261–7.
[2] Cramer DW, Sluss PM, Powers RD, McShane P, Ginsburgs ES, Hornstein MD, et al. J Assist Reprod Genet 2003;20(6):210–5.
[3] Poppe K, Velkeniers B. Ann Endocrinol (Paris) 2003;64(1):45–50

[4] Zollner U, Lanig K, Steck T, Dietl J. Arch Gynecol Obstet 2001;265(1):16–20
[5] Mishra R, Baveja R, Gupta V. J Obstet Gynecol India 2002;52:40–3.
[6] del Pozo E, Wyss H, Tollis G, Alcañiz J, Campana A, Naftolin F. Obstet Gynecol 1979;53(3):282–6.
[7] Choudhary SD, Goswami A. J Assoc Physicians India 1995;40: 243-7.
[8] Steger RW, Chandrasekar V, Zhao W et al. Endocrinol 1998; 139: 3691 - 3695.
[9] Clement-Lacroix P, Ormandy C, Lepescheux L, et al. Endocrinol 1999; 140: 96-105.
[10] Demura R. Ono M, Demure H, et al. J Clin Endocrinol Metab 1982; 54: 1246-1250.
[11] AZ Mohammed. Ann African Med 2000;2003; 4: 3.
[12] Sunitha Tirumalasetty, Neelima Tirumalasetti. IJPRBS 2013; 2:107-113.