



STUDY CORRELATION OF HYPERPROLACTINEMIA AND MENSTRUAL DISORDER IN INFERTILE WOMEN

Obstetrics & Gynaecology

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ABSTRACT

Objective: To "Study the correlation of Hyper prolactinemia and Menstrual disorder in Infertile Women" **Method :-** The present study was conducted on 100 women (50 infertile women and 50 fertile women) attending the outpatient and inpatient Department of Obstetrics and Gynaecology in associated District women hospitals of ASMC, PRATAPGARH over a period of twelve months during the year 2023-2024. Fasting venous sample was obtained in the morning of day 3 of menstrual cycle & estimations of serum prolactin estimated. The incidence of hyper prolactinaemia and menstrual irregularities was studied **Results:-** The majority of the infertile and fertile women had normal prolactin level. In infertile group, the prevalence of hyperprolactinemia was slightly higher in the infertile group in comparison with that of the fertile group. There was a positive correlation between hyper prolactinemia in the infertile subjects (06%). $P < 0.05$. Hyperprolactinemia was depicted in 28% of the infertile women. Menstrual complaints were found in 54% cases **Conclusions:-** In this study there is a no significant correlation between increased prolactin levels & menstrual disorder in infertile women.

KEYWORDS

INTRODUCTION

Hormonal disorders of female reproductive system comprise of a number of problems resulting from aberrant dysfunction of hypothalamic-pituitary- ovarian axis. These relatively common disorders often lead to infertility. Failure to conceive following 1 year of regular intercourse without the utilization of contraception is defined as infertility that can be either primary or secondary.

According to WHO, the national prevalence of primary and secondary infertility in India is 3% and 8% respectively. According to the standard protocol, infertility evaluation usually identifies different causes, including male infertility (30%), female infertility (35%), the combination of both (20%), and finally unexplained or "idiopathic" infertility (15%).

Prolactin, a 198-amino acid polypeptide secreted by the anterior pituitary lactotroph, is the primary trophic factor responsible for synthesis of milk by the breast. Hyperprolactinemia is an endocrine disorder involving hypothalamic- pituitary axis that results from multiple causes, including medications, hypothyroidism, and pituitary disorders. Prolactin (PRL) secretion is inhibited by PRL inhibitor factor that is secreted from hypothalamus, enhanced by dopamine antagonism and thyroid-releasing hormone (TRH). Hyperprolactinemia adversely affects the fertility potential by impairing pulsatile secretion of GnRH and hence interfering with ovulation. This disorder has been implicated in menstrual and ovulatory dysfunctions like amenorrhea, oligomenorrhea, anovulation, inadequate corpus luteal phase and galactorrhea Mishra R et al (2002)¹.

MATERIAL & METHOD

To "STUDY THE CORRELATION OF HYPER-PROLACTINEMIA & MENSTRUAL DISORDER IN INFERTILE WOMEN" 100 women attending OPD in the Department of Obstetrics and Gynaecology, at DISTRICT WOMEN HOSPITAL, AUTONOMOUS STATE MEDICAL COLLEGE, PRATAPGARH March 2023 to February 2024. The study was conducted in two broad groups as follows:-

1. STUDY GROUP-This group included 50 female patients 20-40 years of age with either primary or secondary infertility.
2. CONTROL GROUP- This group included age matched 50 fertile patients.

STUDY GROUP

- The Inclusion Criteria: Women with infertility, age between 20-40 years. Duration of marriage more than 1 year.
 - The exclusion Criteria:
- a) Tubal factor

- b) Congenital anomaly of the urogenital tract ,or any obvious organic lesion.
- c) Any history of thyroid disease or previous thyroid surgery or being on thyroid medications.

A Detailed clinical history was taken with special reference to age, Education, Occupation, Socioeconomic status, Residential area (rural/urban), Drug intake, Contraception use, Treatment received by husband, Coital frequency, Period of infertility, Seeking treatment for infertility and a known congenital anomaly in the patient Menstrual history was taken regarding-cycle, flow and duration, LMP (last menstrual period) association with pain in abdomen and passage of clots.

Obstetrical history was taken for – Duration of marriage, parity, previous abortion, mode of delivery, no of alive/dead infants.

A past and family history was taken regarding diabetes mellitus, thyroid disorder pregnancy loss, thrombotic disorders and tuberculosis in any site or any operation on or near genital tract, any other previous illness and operations.

A detailed personal history was taken regarding eating habits addiction to tobacco, alcohol, caffeine, any contraception practiced or duration for which contraception has been practiced.

General examination a thorough general examination was done with special reference to General condition, pulse rate, blood pressure, temperature, respiratory rate, pallor, icterus, edema, lymph adenopathy, height, weight, body mass index Systemic examination a thorough systemic examination of central nervous, cardiovascular, respiratory, gastrointestinal system was done to diagnose any system specific disease.

Along with with routine investigation, specific biochemical investigations done were:-

- Serum prolactin,
- Pelvic ultra sonography to rule out any other pelvic organ deformity.

Sample Collection and Analysis

Taking all aseptic and antiseptic precautions, 5 ml of fasting venous sample was obtained in the morning of day 3 of menstrual cycle for serum biochemical analysis. Serum was separated and stored for further analysis. Estimations of serum prolactin was done by micro well Prolactin Enzyme Immuno Assay which is a solid phase enzyme immunoassay based on the "sandwich" principle

OBSERVATION

Table-1 Distribution Of Cases Of Control And Study Group According To Menstrual Pattern

Symptoms	Control group		Study group		P value
	No of cases	percentage	No of cases	Percentage	
Regular pattern	39	78%	23	46 %	0.005
Irregular pattern	11	22%	27	54%	
Scanty menstruation	05	10%	05	10 %	
Heavy menstrual bleeding	01	02%	00	00%	
Frequent cycle	01	02%	01	02%	
Infrequent cycle	02	04%	09	18%	
Scanty+Infrequent cycle	02	04%	11	22%	
HMB+frequent cycle	00	00%	01	00%	
HMB+ Infrequent cycle	00	00%	00	02%	

Table 1 show that out of 50 cases in control group, maximum women had regular pattern 39(78%), and irregular pattern were present in 11(22%) which comprised of 05 (10%) cases of scanty menstruation, 2(4%) cases of infrequent cycle, 2(4%) cases had scanty menstruation with infrequent cycle, 1(2%) had Heavy menstrual bleeding and 1(2%)case had frequent cycle. In study group out of 50 cases, maximum had regular pattern 23(46%) and irregular pattern were present in 27(54%) which comprised of 11(22%) cases of scanty menstruation with infrequent cycle, 09(18%) cases of infrequent cycle, 05 (10%) cases of scanty menstruation, 1(2%) cases had frequent cycle and 1(2%) case had heavy menstrual bleeding with frequent cycle.

Table- 2 Distribution Of Cases Of Control And Study Group According To Prolactin Level

Serum prolactin level	Normal prolactin level		Hyperprolactinemia		P-value
	Control group	Study group	Control group	Study group	
No of cases	46 (92%)	36 (72%)	04 (08%)	14 (28%)	0.009
Mean value (ng/ml)	11.85 ± 5.36	11.70 ± 5.47	38.96 ± 4.34	56.13 ± 51.70	

Table 2 shows that out of 50 cases of control group 46(92%) had normal prolactin level (mean 11.85±5.36) and only 04(08%) cases had hyperprolactinemia (mean 38.96±4.34). In study group out of 50 cases 36(72%) had normal prolactin level (mean 11.70±5.47) and 14(28%) cases had hyperprolactinemia (mean 56.13±51.70).

Table 3- Menstrual Pattern In Control And Study Group With Hyperprolactinemia

Symptoms	Normal prolactin		Hyperprolactinemia	
	Control group	Study group	Control group	Study group
Regular pattern	37	18	02	05
Scanty menses	04	03	01	02
Heavy menstrual bleeding	01	00	00	00
Frequent cycle	01	00	00	01
Infrequent cycle	02	06	00	03
Scanty+Infrequent cycle	01	09	01	02
HMB+frequent cycle	00	00	00	01
HMB+ Infrequent cycle	00	00	00	00
Total	46	36	04	14
P value	0.202		0.06	

P1=0.005 (between 2 group in normal prolactin level cases)

P2=0.06 (between 2 group in hyperprolactinemia cases)

P3=0.202 (between study group of normal prolactin and hyperprolactinemia)

Table 3- Shows that in the control group out of 4(8%) cases of hyperprolactinemia 2(4%) cases had regular pattern, 1(2%) had scanty menses and 1(2%) had scanty menses with infrequent cycle and out of 46(92%) cases with normal prolactin level 37(74%) cases had regular

pattern followed by 4(8%) cases of scanty menstruation, 2(5%) cases of infrequent cycle and 1(2%) case of each heavy menstrual bleeding, frequent cycle, scanty menstruation with infrequent cycle.

In the study group out of 14(28%) cases of hyperprolactinemia 5(10%) had regular pattern followed by 3(6%) cases of infrequent cycle, 2(4%) cases of scanty menstruation 2(4%) cases of scanty menses with infrequent cycle, 1(2%) case had heavy menstrual bleeding with frequent cycle and out of 36(72%) cases with normal prolactin level 18(36%) cases had regular pattern followed by 9(18%) cases of scanty menses with infrequent cycle, 6(12%) cases of infrequent cycle and 3(6%) cases of scanty menstruation.

DISCUSSION

In present study, lower occurrence of hyperprolactinemia 04(08%) was seen in the control group as compared to the study group 14(28%). P=0.009 i.e. significant. There is significant association between infertility and hyperprolactinemia. Incidence of hyperprolactinemia in study by Tasneem A et al (2011)³ had an incidence of 4.9%, and in Sirohi T et al (2018)⁴ study 18% which was lower.

In present study 2(50%) patients of hyperprolactinemia had galactorrhoea in control group while in study group 8(57.2%) cases had galactorrhoea. P =0.04 i.e. significant. There is significant association between galactorrhoea and hyperprolactinemia.

In the present study, in hyperprolactinemia with regular menstrual pattern were 2(50%) cases in control group and it was 5(35.8%) in study group while irregular menstrual pattern in control and study group were 2(50%) and 09(64.2%) respectively. p value=0.202 i.e. not significant. Therefore there is no significant association between hyperprolactinemia and menstrual abnormalities.

Similar finding were seen in study by Avasthi K et al (2006)⁵ 37% and 63% subjects with hyperprolactinaemia had regular and irregular cycles respectively. In study by Sharma P et al (2017)⁶ 61% had menstrual abnormalities. While in study by Alaa Shaker et al (2015)⁷ 46.15%, Nallusamy S et al (2016)⁸ 30% cases had menstrual abnormalities which was lower than present study.

CONCLUSION

The present study was carried out on 100 cases between 20-40 year of age attending Department of Obstetrics and Gynaecology in associated District women hospitals of ASMC, PRATAPGARH over a period of twelve months during the year 2023-2024.

On the basis of observations made in the study, following conclusions were drawn:

1. A total of 100 cases studied and were comprised of 50 infertile women and 50 fertile women.
2. Maximum cases in control and study group had regular menstrual pattern i.e. 41(82%) and 32(64%) respectively (p =0.005) followed by scanty menses 07(14%) and 05(10%) respectively.
3. In control group 4(8%) and in study group 14(28%) had hyperprolactinemia. This showed higher occurrence of hyperprolactinemia in study group as compared to control group (p=0.009).
4. Out of 04(08%) cases of hyperprolactinemia in control group 02(04%) had regular menstrual pattern and 02(04%) had irregular menstrual pattern, while out of 14(28%) cases of hyperprolactinemia in study group 05(35.8%) had regular menstrual pattern. Menstrual irregularity were present in 09(64.2%) cases. (p=0.202)

Problems in infertility are challenging and taxing to the clinician which can be solved just by tackling some simple endocrinological conditions. The problem of infertility is seen in women with higher age groups due to the trend of late marriages. Presence of hyperprolactinaemia should be looked for in subjects with oligomenorrhoea, amenorrhoea and galactorrhoea.

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