Original Article

Hyperprolactinemiea

Hyper – Prolactinemiea in Subfertile Women

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ABSTRACT

Objective: To determine the frequency of Hyperprolactinemia in subfertile women presenting to Nishtar Hospital Multan.
Study Design: Case series study.
Place and Duration of Study: This study was carried out in Gynae and Obst. Outpatient Department and Gynae and Obst. Units of Nishtar Hospital, Multan from Oct. 2009 to March 2010.
Material and Methods:- A total of 111 Patients with subfertility were selected which were fulfilling inclusion criteria.
Results: The prevalence of HPR in subfertile women at Nishtar Hospital Multan is 31.53%, and it is more common in women with primary subfertility i.e. 23.42% than in secondary subfertility where it is 8.10%.
Conclusion:- It is concluded that hyperprolactinemia(HPR)leads to anovulation which is a main cause of subfertility, more common among women with primary subfertility than secondary subfertility.
Key Words: Hyperprolactinemia**,** Female Subfertility**,** Prolactin**,** Anovulation

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INTRODUCTION

Subfertility is the failure of conception after at least 12 months of regular, unprotected intercourse[1]. Based on this 60-80 millions couples all over the world can be labelled as suffering from subfertility[2].
The prevalence of subfertility in industrialized countries has been quoted as 20% and seems to be on the rise[3]. About 84% couples who have regular sexual intercourse and who do not use contraception, conceive within a year, while about 92% couples that are trying to conceive will do so within 02 years[4]. Couples with primary subfertility have never been able to conceive[5].
Subfertility because of its medical, social and psychological implications, is a serious problem. Recent advancements have increased the possibility of success in the treatment of subfertility. But the peak human fertility i.e. the chance of pregnancy per menstrual cycle in the most fertile couples, is no higher than 33%, so it is unrealistic to expect a higher chance of pregnancy than this from any fertility treatment[6]. However prediction models for spontaneous pregnancy have been developed which can select subfertile couples that have good prospects, who can be expectantly managed[7]. Delay in child bearing and the adverse effect of the age on women's fertility have increased referrals for sub-fertility investigations and treatment. In the past 25years, the percentage of births to women age 30 years or above in England and Wales have doubled[8]. About one in six couples in the U.K require referral for investigation and treatment for subfertility[9].
There are many biological causes of subfertility some of which may be bypassed with medical intervention[10]. Latest figures on subfertility causes in couples in which the women is under 25 years of age, are 40% female, 23% male, 17% combined and 10% unexplained[11]. About 15% couples actually have more than one causes of subfertility[12].
As a result of public awareness about subfertility and its treatment options available, more and more couples are expected to seek treatment for the condition[13].

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MATERIALS AND METHODS

This case series study was conducted in Gyn/obs outpatient department and Units of Nistar Hospital, Multan from March 2008 to September 2008. A total of 111 Patients with subfertility were selected which were fulfilling inclusion criteria, from the Gynae Outpatient Department or Gynae Units of Nishtar Hospital Multan. Relevant data of cases including personal data, presenting complaints, type of subfertility and mode of admission were recorded. We measured serum prolactin level of all selected women.

RESULTS

This study determines the frequency of HPR in subfertile women presenting to Nishtar Hospital Multan. A total of 111 women were included in this study, out of these 72 women were with primary subfertility and 39 with secondary subfertility. All cases have age limit of 19-39 years, with majority aged 20-35 years(80%). 88 women presented in Gynae Outpatient Department and 23 women were admitted in Gynae

Units of Nishtar Hospital Multan. Serum prolactin level were more than 25µg/L in 35women (31.5%), 26 women with primary subfertility (23.4%) and 9 women with secondary subfertility (8.1%). Among women with HPR, 7 women had regular menstrual cycle(20%), while 28 women presented with menstrual irregularities (80%), 22 women had oligomenorrhea (65%) and 4 women had galactorrhea (12%). The prevalence of HPR in subfertile women at Nishtar Hospital Multan is 31.53%, and it is more common in women with primary subfertility i.e. 23.42% than in secondary subfertility where it is 8.10%.

Table No.1: Age Distribution (n=111)

Age (years)	No. of patients	%age
19-25	27	24.3
26-30	34	30.5
31-35	28	25.2
36-39	22	20.0

Table No.2: Frequency of hyperprolactinemia in primary and secondary subfertility (n=111)

	Subfertile women	Primary	Secondary
No.	111	72	39
Serum prolactin >25µg/L	35	26	09

Table No.3: Percentage of hyperprolactinemia in primary and secondary subfertility (n=111)

Type of Subfertility	Cases	Women with serum prolactin >25µg/L	%age
Primary	72	26	23.4
Secondary	39	09	08.1
Total	111	35	31.5

Table No.4: Mean age at presentation among women with primary and secondary subfertility

Type of subfertility	Mean age at presentation (Years)
Primary	26.1
Secondary	32.1

DISCUSSION

Subfertility is a socio-medical problem faced by 15-25% of married population varying in different areas of world.Female factors as well as male factors play a significant role and their treatment accordingly is more successful and cost effective[14].

Evaluation of serum prolactin level is useful in the management of female subfertility[15]. Exess prolactin level decreases secretion of GnRH from hypothalamus and FSH, LH from the pituitary gland resulting in decrease secretion of estrogen and progesterone in the ovary which may manifest clinically as oligomenorhea, amenorrhoea, galactorrhea or subfertility.

During present study period total number of 111 women with history of subfertility, either primary or secondary, were included and their serum prolactin levels measured. Serum prolactin level were more than 25µg/L in 35women (31.5%), 26 women with primary subfertility (23.4%) and 9 women with secondary subfertility (8.1%).Among women with HPR ,7 women had regular menstrual cycle (20%), while 28women presented with menstrual irregularities (80%), 22 women had oligomenorrhea (65%) and 4 women had galactorrhea (12%). This study has illustrated that HPR is one of the causes of anovulatory subfertility. Majority of women in present study were with primary subfertility and with menstrual disorders. HPR adversely affects fertility potential by impairing GnRH pulsatility and thereby ovarian function.

A comparatively high prevalence of irregular menstruation, acne and polycystic ovarian syndrome may reflect higher prevalence of HPR in primary subfertility. High concentrations of FSH have been observed to be associated with subfertility. It is reported that decrease in the level of gonadotrophins in women with HPR[16], which leads to anovulatory subfertility. Another study also showed that women with hyperprolactinemia have decreased levels of FSH and LH due to decrease secretion of GnRH from hypothalamus, which in turn leads to decrease secretion of estrogen and progesterone in the ovary, manifesting clinically as oligomenorrhea, amenorrhea, galactorrhea or subfertility[17].

Bevan et al suggest that decline in gonadotrophins in hyperprolactinemic women indicates an association between gonadotrophin deficiency and hyper-prolactinemia[18]. Their view is that this may be an indirect sign of functional hypothalamic pituitary interruption due to inhibitory effect of prolactin on gonadotrophins release.

Rolland et al also observed low estradiol secretion in hyperprolactinemic women which in turn leads to impaired follicular growth and results in subfertility[19].

Morris et al reported 24% infertility yperprolactinemic women and 27% quoted in an Indian study[20].

According to a study, it has been suggested that hypogonadism seen in hyperprolactinemic women is due to the high circulating levels of prolactin interfering with the action of the gonadotrophins at the ovarian level and impairing normal gonadal steroid secretion, which in turn alters positive feedback at the hypothalamic and pituitary levels[21]. This leads to lack of gonadotrophin cyclicity and to infertility.

Yamaguchi et al found decreased LH secretion in hyperprolactinemic women[22]. Uilenbroek and Linden reported that prolactin can have a direct inhibitory effect on follicular estradiol production[23]. This might contribute to the reduced fertility seen in women with hyperprolactinemia.

Ben-David and Schenker reported that transient hyperprolactinemia at midcycle might disturb fertilization and embryo implantation[24].

It is suggested from all above studies that any alteration in HPG-Axis contributes to abnormal prolactin secretion and hyperprolactinemia due to any cause

leads to altered gonadotrophins secretion, affecting ovarian function and resulting in subfertility.

In a prospective study, serum prolactin level were checked in women at the time of the couple initial consultation for subfertility[25]. There were 1.77% (15 out of 844 women) with elevated levels of prolactin. In our study the prevalence of HPR was 31.5% which is higher than the study in USA. In a study conducted at California in July 2005, 48% women with hyper-prolactinemia had subfertility[26].

Results of a study showed that HPR is found in 64.91% of women with primary subfertility and 35.09% of women with secondary subfertility[27].

The prevalence of HPR in subfertile women were studied in different parts of world, it was higher in Iraq i.e. 60%[28], while in Hyderabad, India have prevalence of HPR 41% in subfertile women.

CONCLUSION

On the basis of this study, it is concluded that hyperprolactinemia leads to anovulation which is a main cause of subfertility, more common among women with primary subfertility than secondary subfertility. As fertility can be restored in these women by treating them with dopamine agonist which can normalize prolactin level and permit ovulation. So, serum prolactin level should be checked in all women presenting with subfertility.

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