PROLACTIN ASSAY - A MUST FOR INFERTILITY WORKUP

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SUMMARY

The present study shows the incidence of hyper prolactinaemia to be 5.48% in our Infertility Clinic. The most significant finding was 70% of these patients presented with regular menstrual cycles. Gal actor rhoea was seen in only 28% of patients. Pituitary tumour accounted for 12% cases of hyper prolactinemia. Patients with pituitary adenoma had a significantly higher (P) baseline Serum Prolactin level than other causes. There was no correlation betwen serum FSH, LH and Prolactin levels. Corrected pregnancy rate was 14.3% in bromoergocryptine induced pregnancies. There were no abortions or congenital anomalies in these pregnancies.

INTRODUCTION

A patient with hyperprolactinaemia presents with a broad spectrum of signs and symptoms to a variety of subspecialities. The importance at hyperprolactinaemia in menstrual disturbances and infertility is well recognized Classical presentation described with hyperprolactinaemia is secondary amenorrhoea with or without galactorrhoea. In clinical practise it is not uncommon to see a patient with hyperprolactinaermia presenting with regular anovulatory cycles, oligomenorrhoea, primary amenorrhoea or luteal phase defect. Numerous reports have shown that 20-30% patients with hyperprolactinaemia have prolactin producing pituitary microadenoma.

This paper evaluates the causes and various menstrual patterns in hyperprolactinaemia patients at our infertility clinic. The role of estimation of other pituitary hormones namely FSH & LH and their correlation to serum prolactin level is also discussed. The management of these patients with bromoer gocryptin is also described.

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PATIENTS AND METHODS

Included in the study are 50 patients between 17 to 35 of age with raised serum prolactin level. These patients were attending the infertility clinic at Kasturba Hospital, Manipal Serum prolactin was estimated by radioimmunoassay using the HPRLK-PR Kit. Hyperprolactinaemia was defined as serum prolaction level in a fasting midmorning sample more than 24.5 ng/ml. A detailed history was recorded and laboratory analysis of serum T3, T4, TSH, FSH and LH were performed in these patients. Pituitary space occupying lesions were evaluated by CTs can in 6 patients in whom serum prolactin level was more than 100 ng/ml.

The remaining patients had lateral x-ray of skull and/or tomography of sella tursica. A lesion of 1 cm in size was defined as macroadenoma and less than 1 cm as microadenoma. Bromocryptine was administered orally in doses varying from 2.5 mg to 7.5 mg daily with food. The dose schedule for each patient was individualised depending upon clinical and laborartory responses.

RESULTS

Out of 912 patients attending the Infertility clinic for a period of 2 years from January 1988 to January 1990. 50 patients had raised serum prolactin. The incidence of hyperprolactinaemia in this study population was 5.48%. The various causes of hyperprolactinaemia are enumerated in Table 1. Three patients (6%) had radiographic evidence of pituitary macroadenoma. Three other patients had a serum prolactin level of more than 150 ng/ml but lesions were detected on radiograph of pituitary fossa and tomography. They were suspected to have pituitary microadenoma by definition of high prolactin level (100 ng/ml). We did not have any drug induced hyperprolactinamia. Primary hypothyroidism was seen in 3 patients. Serum TSH was found to be more sensitive indicator of hypothyroidism than serum T3 or T4.

In incidence of galactorrhoea is given in Table 2. Galactorrhoea was not a constant feature in hyperprolactinaemic patients. Only 28%of the patients had demonstrable galactorrhoea.

TABLE 1
Causes of Hyper prolactinaemia

Causes	No of patients n = 50	Mean PRL level ng/ml	%
Idiopathic	41	67.77	82
Pituitary Macro adenoma	3	232.50	6
Suspected Microadenoma	3	310.0	6
Primary Hypothyroidism	3	78.20	6

TABLE 2
Incidence of Galactorrhoea in Patients with Hyperprolactinaemia

No.of Patients having PRL	No.of Patients having galact orrhoea	%
50	14	28

Serum prolactin levels in patients with macroadenoma, microadenoma and without adenoma are given by Table 3.

TABLE 3

Serum Prolactin levels in Patients with Macroadenoma, Microadenoma and without Adenoma

Serum Pralactin level ng/ml	Macro-adenoma N=3	Suspected microade-noma N=3	No Adenoma N=44
25-50	-	-	22
51-100	-	-	15
101-200	1	2	7
200	2	1	-

Patients with pituitary adenoma had a significantly higher (P) baseline prolactin level (mean 271.6 ng/ml) than those with no adenoma (mean 65.22 ng/ml).

TABLE 4

	Serum FSH N=50	Serum LH N=50
Normal	22	35
Low	28	3
High	-	12

Serum F S H and L H level in 50 hyper prolactinaemic subjects is given in Table 4. In our laboratory normal level of serum FSH range is 25 MIU/dl and serum LH-5-40 mIU/dl In 28 patients (56%) FSH was low while it was normal in 22 (44%) cases. Serum LH was normal in 35 patients (70%); low in 3 patients (6%) and high in 12 patients (24%). There was no overall correlation between serum LH, FSH and prolactin level.

Menstrual pattern and serum prolactin level in hyperprolactinaemic infertile women are given in Table 5. Out of 50 patients only 8 (16%) had amenorrhoea (either primary or secondary) while 14% had some menstrual irregularity. The most significant finding was 35 (70%) patients had normal menstrual cycles, 26% had regular anovulatory and 14% had regular ovulatory cycles.

Out of 50 patients in this series 28 came for regular follow up and received bromoergocriptine in dosage of 2.5 to 7.5 mg for a period ranging from 1 to 6 months. 22 patients did not come for a follow up. 4 patients conceived and delivered term babies.

TABLE 5

MENSTRUAL PATTERN AND SERUM PROLACTIN LEVEL

Menstrual Pattern	Mean Serum PRO ng/ml	No.of Patients N=50	%
Primary amenorrhoea	48.2	2	4
Secondary amenorrhoea	262.5	6	12
Oligomenorrhoea	101.5	3	6
Irregular menstrual cycles	74.78	4	8
Regular anovulatory cucles	111.36	13	26
Regular ovulatory cycles	56.54	22	44

The corrected pregnancy rate was 14.3%. There were no congenital anomalies or abortion or foetal anomalies in bromoergocruptine induced pregnancies.

DISCUSSION

The availability of radioimmunoassay and CAR scan has considerably increased the number of patients in whom pituitary tumours are diagnosed. In our series 3 patients (6%) were diagnosed to have pituitary adenoma based on radiographic findings. The mean serum prolactin level in patients with secondary amenorrhoea (262.5 ng/ml) was significantly higher than that in patients with oligomenorrhoea, irregular menstruation and regular anovulatory cycles (95.88 ng/ml). These findings suggest that higher the prolactin levels, the more significant will be menstrual disturbance. Galactorrhoea was not a constant feature in hyperprolactinaemia patients. Our findings that only 28% of the patients had demonstrable galactorrhoea is comparable to approximately 30% association seen inmost of the series. (Lawrence et al, 1983; Sinha et al 1989).

In most women with hyperprolactinaemia the pulsatility of LH secretion is markedly deranged with abnormalities in both the frequency and amplitude of pulsations. We found no correlation between serum FSH, LH and prolactin levels. Our corrected pregnancy rate was 14.3% with no abortion or congenital anomaly. Rajan and Ambika (1984) have reported 12 pregnancies with bromoergocryptin with no abortion or congenital anomaly.

CONCLUSION

Hyperprolactinemia is commonly encountered in setting of amenorrhoea falactorrhoea and infertility. Presence of hyperprolactinemia in patients without menstrual irregularity (76%) and galactorrhoea (72%) as seen in this study suggests that prolactin estimation is mandatory in all infertile patients. Serum FSH & LH has no much role in hyperprolactinemic patients, so they may not be routinely done in those patients. Ovulation can be safely induced with bromoergocruptine in these infertile patients with or without radiographic evidence of pituitary adenoma. This drug has significantly advanced the management of hyperprolactinaemic state.

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