

Research Article

Occurrence of Galactorrhea in Females with Hyper prolactinemia

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Abstract: The aim of the study was to find out the prevalence of galactorrhea in hyperprolactinemia. The study included fifty women with primary infertility attending the infertility clinic. Out of the 50 infertile women enrolled in the study, galactorrhea was present in 13(26%) females and 39.13% of the females with hyperprolactinemia had galactorrhea. Also, galactorrhea was seen in 33.33% of the females with hypothyroidism and hyperprolactinemia. It was observed that prevalence of galactorrhea was associated with the severity of hyperprolactinemia. All females with hyperprolactinemia had S.Prolactin ≥ 75 ng/ml had galactorrhea. One female with normal S.Prolactin levels had galactorrhea. In conclusion the all patients of infertility should be investigated for S.Prolactin levels despite the absence of galactorrhea.

Keywords: hyperprolactinemia, galactorrhea

INTRODUCTION

The hormone Prolactin (PRL) has a vital role in a variety of reproductive functions, though the main action of Prolactin is inducing and maintaining lactation. Oscar Riddle *et al.*; [1] were the first to state that the effective stimulus to milk secretion is provided by the hormone prolactin.

Prolactin is a 23 kDa polypeptide hormone (198 aminoacid) synthesized in the lactotroph cells of the anterior pituitary gland. After secretion, prolactin circulates in 3 forms [2]:

- 1) Monomeric form: 23 kDa form is the predominant form
- 2) 'big' prolactin: 50 kDa. Macroprolactinemia denotes the situation in which high levels of the circulating 'big prolactin' molecules are present
- 3) 'big big' prolactin: 100kDa which have high immunogenic properties, but poor or no biological effect.

Elevation of 'big big' prolactin can explain why some patients with high prolactin levels have no galactorrhea. Prolactin secretion is under dual regulation by hypothalamic hormones. The predominant signal is tonic inhibitory control of hypothalamic dopamine which traverses the portal venous system to act upon pituitary lactotroph D2 receptors. The predominant physiologic consequence of

hyperprolactinemia is hypogonadotropic hypogonadism (HH) which is due to suppression of pulsatile GnRH.

Women can present with symptoms of oligomenorrhea, amenorrhea, galactorrhea, decreased libido, infertility, and decreased bone mass. It is observed that only about one third of females with hyperprolactinemia exhibit galactorrhea because breast milk production requires estrogen and hyperprolactinemia often results in an ovulation or more severe secondary hypogonadotropic hypogonadism and low circulating estrogen. The structural heterogeneity of prolactin offers another possible explanation. Isolated galactorrhea, with normal serum prolactin levels may also be seen. This can be explained by the variable molecular heterogeneity of the peptide hormone

METHODS

This was a hospital based observational study conducted in Department of Obstetrics and Gynaecology, Zenana Hospital, SMS Medical College, Jaipur from May 2013 to august 2014. Fifty females with primary infertility attending the OPD were enrolled in the study after obtaining an informed consent. Patients with history of thyroid disorder, thyroid surgery or taking any thyroid medication or medications which can cause raised prolactin levels were excluded from the study. A detailed history was obtained including the history of galactorrhea. A general physical, breast and pelvic examination were done. S.prolactin and S.TSH levels were obtained.

RESULTS

Table-1: Distribution of Cases According to Galactorrhoea in Hypothyroidism and Hyper prolactinemia

| Galactorrhoea | Hyper prolactinemia | Hyper prolactinemia with Hypothyroidism | Hypothyroidism | Total |
|---------------|---------------------|---|----------------|-----------|
| Present | 9(39.13%) | 3(33.33%) | 1(5.56%) | 13 |
| Absent | 14(60.87%) | 6(66.67%) | 17(94.44%) | 37 |
| Total | 23 | 9 | 18 | 50 |

Table-2: Comparison of Mean Prolactin and Mean S.TSH Levels in Presence or Absence of Galactorrhea

| Parameters | Galactorrhea Present (n=13) | Galactorrhea Absent (n=37) | P-value | Significance |
|-------------|-----------------------------|----------------------------|---------|-----------------|
| S.Prolactin | 67±18.48 ng/ml | 36.3±18.85 ng/ml | <0.05 | Significant |
| S.TSH | 4.0±2.22 ng/ml | 7.3±5.45 ng/ml | >0.05 | Not-significant |

Table-3: Distribution of Cases According to the Level of S.Prolactin Levels

| S.Prolactin | Galactorrhea present | Galactorrhea absent | Total |
|--------------|----------------------|---------------------|-----------|
| <25ng/ml | 1 | 17 | 8 |
| 25-49.9ng/ml | 0 | 5 | 5 |
| 50-74.9ng/ml | 7 | 15 | 22 |
| ≥75ng/ml | 5 | 0 | 5 |
| Total | 13 | 37 | 50 |

Out of 50 women enrolled in the study, galactorrhea was present in 26% of the females while hyperprolactinemia was seen in 64% of the cases. It was found that only 39.13% of the females with hyperprolactinemia had galactorrhea. 33.33% of the females with both hypothyroidism and hyperprolactinemia had galactorrhea. It was also observed that prevalence of galactorrhea was associated with the severity of hyperprolactinemia. All five females with S.Prolactin ≥ 75 ng/ml had galactorrhea while those with low levels did not show galactorrhea. One female with normal S.Prolactin levels had galactorrhea.

DISCUSSION

The aim of this study was to scrutinize the distribution of galactorrhea in females with primary infertility and to study the correlation between galactorrhea and hyperprolactinemia. In this study, it was found that out of 50 females, 13(26%) females had galactorrhea. Mishra R *et al.*; [3] found a prevalence of 25% while Awasthi Kumkum [4] reported galactorrhea in only 9% of the infertile women. Therefore, no consistent relationship between infertility and galactorrhea can be established.

39.13% of hyperprolactinemic females had galactorrhea in our study while Awasthi Kumkum *et al* reported that 18% in hyperprolactinemic females had galactorrhea. Mishra *et al.*; [3] found galactorrhea in 25% hyperprolactinemic cases. Freeman *et al.*; [5] Suh HK *et al.*; [6] and Farkouh *et al.*; [7] explained such discrepancies in the immunoassays and the biological effects of prolactin on the basis of peptide

polymorphism. An elevation of immuno reactive form that has minimal biologic effect ('big big' prolactin) could explain the reason for hyperprolactinemia with no galactorrhea. However, it had immunogenic properties and a rise in this peptide can be implicated as a cause of infertility. It was found that galactorrhea was associated with higher prolactin levels and this association was found to be statistically significant ($p < 0.05$).

CONCLUSION

Assessing all the observations, it may be concluded that patients with infertility with or without galactorrhea should be evaluated. Absence of galactorrhea per se should not rule out hyperprolactinemia which is an important endocrinological abnormality in infertility.

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