INTRODUCTION

Infertility is a medical problem that affects a vast proportion of the world's young population (10-15%). The inability to bear children impacts the psychological and emotional lives of the couples who face this condition.

Hormonal disorders of female reproductive system are comprised of a number of problems resulting from aberrant dysfunction of hypothalamic-pituitary-ovarian axis. Clinical and experimental studies have suggested a close relationship between the hypothalamic-pituitary-thyroid axis and the hypothalamic-pituitary-ovarian axis. Proper evaluation of hormonal disorders involves a multidimensional diagnostic approach, with a pivotal contribution from clinical laboratories.

Measurement of thyroid hormones and prolactin has been considered an important component of infertility workup in women. Thyroid dysfunctions interfere with numerous aspects of reproduction and pregnancy. Several articles have highlighted the association of hypothyroidism or hyperthyroidism with menstrual disturbance, anovulatory cycles, decreased fecundity and increased morbidity during pregnancy.

The prevalence of hypothyroidism in women in the reproductive age (15-45 years) varies between 2% and 4%. Despite normal thyroid stimulating hormone (TSH) and free thyroxin (FT4) concentrations, some patients may exhibit the clinical picture of hypothyroidism. In response to hypothyroid state a compensatory increase in the discharge of central hypothalamic thyrotropin releasing hormone occurs, which results in stimulation of prolactin (PRL) production, leading to hyperprolactinemia. Hyperprolactinemia adversely affects the fertility potential by impairing pulsatile secretion of gonadotropin releasing hormone (GnRH) and hence interfering with ovulation. The prevalence of hyperthyroïdism in infertility is about 8% in the study by Goswami et al. and 3.07% by Sharma et al. The precise impact of hyperprolactinemia on fertility is still ill-defined.

Awareness of thyroid and prolactin states in the infertile couple is crucial because of its significant, frequent and often reversible or preventable effect on infertility. The present study age matched primary infertile females were compared with normal fertile females to assess status of prolactin and thyroid stimulating hormone (TSH). Approximately 85-90% of healthy young couples conceive within 1 year, most within 6 months. Infertility therefore affects approximately 10-15% of couples and is an important part of practice of many clinicians.

Infertility can be primary or secondary. In primary infertility, couples have never been able to conceive, while in secondary infertility, in which a prior pregnancy, although not necessarily a live birth has occurred. Definition of infertility differ with demographers tending to define infertility as childlessness in a population of women of reproductive age while the epidemiological definition is based on Trying for' or Time to' a pregnancy, generally in a population of women exposed to a probability of conception.

Infertility is a worldwide problem affecting people of all communities, though the cause and magnitude may vary with geographical location and socioeconomic status, approximately 8-10% couples within the reproductive age group present for medical assessment, generally following 2 years of failed effort to reproduce.

Data explored from WHO by the ICMR suggest that approximately 13-19 million couples are likely to be infertile in India at any given time. (ICMR & NAMS 2005)

In any series of infertile marriages, the main etiological factor is found in the females in about 40% of cases; about 35% of the husbands concerned have some degree of infertility. In 10-20% of cases, a combination of factors operates and the rest have unexplained infertility.

Aims & objectives of our study

1. To detect the prevalence of hyperthyroidism in subfertile women.
2. To identify prevalence of hyperprolactinemia in subfertile women.
3. To evaluate the combined effect of hyperthyroidism & hyperprolactinemia in those cases.

MATERIALS AND METHODS

The Observational Study diagnosed 100 cases of primary infertile
Our study found that the mean of TSH (mean±s.d.) of the patients was 5.00 (5.0%) patients had abnormal Per Vaginal and 95.0% patients had normal P/V finding in all cases within normal limit. We found that per abdomen finding in all cases normal. It was showed that the mean of T3 (mean±s.d.) of the patients was 2.5658 ± 0.825 with range 1.2600-6.1200 and the median was 2.4500.

We found that the mean of FT4 (mean±s.d.) of the patients was 1.7068 ± 0.762 with range 0.6600-4.2200 and the median was 1.6700. Our study found that 36.0% patients had hyperprolactinemia and 64.0% patients had normal prolactin status. It was showed that the mean of prolactin (mean±s.d.) of the patients was 23.9750 ± 15.7091 with range 0.6600-99.8000 and the median was 20.1500.

We had that all patients had normal adnexal finding. It was showed that all patients had normal tubes and normal Uterus as per HSG examination. We found that all patients had normal Uterus as per USG. It was showed that 22.0% patients did NOT conceive, 18.0% patients did not take medication/follow up and 60.0% patients had conceived after treatment. We found that association between TSH status vs. prolactin status was statistically significant (p<0.0001).

We found that kappa value is 44.2%. So it is intermediate to good agreement between thyroid & prolactin in case of infertile women.

**DISCUSSION**

In my present study 35% cases having primary infertility comes in the age group of 26-30 years, 25% patients under the age range 21-25, and 40% present after the age 30.

The study of Maheswari et al showed that fertility is at its peak between the ages of 18 and 24 yrs, while it begins to decline after age 27 and drops at a somewhat greater rate after age 35. So my study is similar to this result.

Another study of Taylor et al described that fertility begins to decline in females from the age of 30, although the reduction in fertility is greatest in women in their late 30s and early 40s. For women up to 25 years old the cumulative conception rate is 60% at six months and 85% at one year, but conception rates for women aged over 35 are less than half of this.

As studied by Roupa Z et al which consisted of 110 infertile women, regarding age, 64.5% were 20-29 years old, 20.0% were 30-39 years old, 11.8% were 40-49 years old and 3.7% were over 50 years old. The present study is almost similar to both the previous studies. Table 3 shows the duration of infertility for most of the cases were 5 years interval i.e 22 cases, a period of 3 years found in 21% of cases, and 1% of patients present with a duration of infertility of 10 years old. As per Roupa Z et al study regarding period of infertility 3 years is found be 21% and 4 to 5 years was 20%. So present study is nearly similar to this study.

WHO has classified the socio-economic status as per capita annual income into low, middle and high income group. Present study on socio economic distribution shows 24.5% cases belong to low socio economic status, 53% cases belong to middle socio economic status and 22.5% of cases belong to high socio economic status. My present study shows 24% belong to low literacy group, 31% high literacy and 45% patients come from middle literacy group.

As per Roupa Z et al it was seen that maximum number of infertile patients belongs to middle socio-economic status and middle literacy group. My study is comparable to above study. The cause may be that tertiary health services are not easily approachable to low socioeconomic and low literacy group people or they may be ignorant that infertility is a health problem. The low proportion of High socio economic group in our study may be due to their opting for private sector care.

In the present study the most common menstrual disorder that patient complained was Oligomenorrhoea constituting 28% reflecting ovulatory disorder being the most common cause, amenorrhoea and metromenorrhagia constituting of 8% &12% respectively. Amenorrhoea found to be 8%. 25% patients had normal menstrual flow and least common disorder is Dysmenorrhea.

The study carried by Goswami et al 22 shows a menstrual disorders...
hypothyroidism, whereas 4% from hyperthyroidism, and 43% belong to euthyroid. The prevalence of hyperprolactinemia in women of reproductive age (20-40 years) varies in the study of Goswami et al 22 between 2% to 4%. Most infertile women (87%) were euthyroid and 5% cases are hyperprolactinemia. But in present study it was found be high prevalence of hyperprolactinemia.

Most of the infertile women (77.5%) were euthyroid in the study of Santosh Fupare et al 24 and the prevalence of hyperprolactinemia in the cases were (4%). Hypothyroidism was seen in (18%) of the infertile women. Study of Flooja Nupur et al 25 showed among infertile women, 52.5% of cases were euthyroid, 30% hyperthyroid and 17.5% was hyperprolactinemia. But it was came to be (36%) hyperprolactinemia in Sharma et al study. So my study it is not comparable.

Study on (Table) shows 36% of total infertile patients belong to hyperprolactinemia, and 64% having normal prolactin value. In Goswami et al 22 study hyperprolactinemia was depicted in 41% of the infertile women and the incidence of hyperprolactinemia was 46% among primary infertility cases according to the study by Avari Kumukum et al 26. So my present study showing similar result to both studies.

The study of Omer Mohamed Shoaib et al 27 shows hyperprolactinemia is more commonly seen in patients suffering from primary infertility which was found to be (76%) as compared to Hooja Nupur et al 25 whose study was 28%. But Sharma et al 28 gave higher prevalence of hyperprolactinemia (59.37%) in infertile women.

Study of Santosh Fupare et al 2 found a rise in serum FT4 and FT3 in the infertile group which was non-significant and similarly in studies of Kumukum et al, Hooja Nupur et al it was found be non-significant.

Present study shows that out of 36 hyperprolactinemic infertile women 32 are hyperprolactinemic therefore incidence of hyperprolactinemia in hyperprolactinemic infertile women is 88.9% and was statistically significant (p value <0.01).

As per Santosh Fupare et al 24 Prolactin and TSH were positively correlated with each other. Therefore, we can say that hyperprolactinemia & hypothyroidism plays key role in etiopathogenesis of infertility. As per the study, they observed a greater percentage of infertile women with hypothyroidism exhibiting hyperprolactinemia (40.7%). The findings in this study strongly correlate with the findings of study by Goswami Binita et al 22, they found 46.1% infertile women with hyperprolactinemia had hyperprolactinemia. Present study showing similar result to above study. Flooja Nupur et al 25 there was significant correlation between serum TSH and Prolactin levels and infertility. 80% women with raised prolactin and abnormal thyroid levels were infertile.

Study shows Out of 100 cases 15 cases(15%) conceive after 18-24 months of treatment and 47(47%) cases after 8-18 months and 38(38%) of cases were lost to follow up regarding conception. As per Indu Verma et al 29 study 23.9% were hyperprolactinemia after treatment for hyperprolactinemia, 76.6% of infertile women conceived within lyr to 1.34 year. Infertile women with both hyperprolactinemia and hyperprolactinemia also responded to treatment and their PRL levels returned to normal. So similar result was also obtained by my study.

Study shows Out of 100 cases only 60% cases conceived after treatment and 38% cases had not taken medication properly and 22% cases did not conceive after medication. Study of Indu Verma et al 29 showed after treatment of hyperprolactinemia and hyperprolactinemia the conceive rate was 58%. Present study shows similar result.

One study shows Out of 100 cases 40 cases conceived after treatment of hyperprolactinemia and hyperprolactinemia. Treating hyperprolactinoid and hyperprolactinemia significantly increases the rate of conception.
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