

### Short Communication

# Hyperprolactinemia, hypothyroidism, hirsutism and polycystic ovary syndrome among females of couples referred to assisted reproductive technology for male factor infertility in Tabuk City, Kingdom of Saudi Arabia

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### ABSTRACT

**Objectives:** Hyperprolactinemia, hypothyroidism, hirsutism and polycystic ovary syndrome are important treatable causes of secondary infertility, the present study aimed to investigate the rate of these disorders among females of the couples referred for male factor infertility. **Methods:** This retrospective cross-sectional study conducted at King Salman Armed Force Hospital (KSAFH), Tabuk, Kingdom of Saudi Arabia during the period from May 2012 to May 2014. The medical records of 115 patients were reviewed using a structured checklist to collect the following information: Demographic data; sperm concentration, motility, and morphology in males; hyperprolactinemia, hypothyroidism, hirsutism, and polycystic ovary syndrome in females. The research was approved by both the committees of King Salman Armed Force Hospital and the University of Tabuk. The Statistical Package for Social Sciences (SPSS) was used for data analysis. **Results:** They were 115 couples with male factor infertility; their mean age was 35.2 ±6.3 years for men and 29.7 ±5.1 for females. The duration of infertility was 6.5 ±4.2 years. The commonest seminal abnormality was oligospermia in 38.3%, azoospermia in 27%, asthenospermia in 20%, and teratospermia in 1.7% of males. hyperprolactinemia, hypothyroidism, hirsutism, and polycystic ovary syndrome was evident in 12.2%, 6%, 2.7%, and 1.7% respectively. **Conclusion:** Hyperprolactinemia, hypothyroidism, hirsutism, and polycystic ovary syndrome are not uncommon among the wives of infertile men, physicians may need to screen and treat when appropriate for these serious treatable disorders.

**Keywords:** Hyperprolactinemia, hypothyroidism, hirsutism, polycystic ovary syndrome, male factor infertility.

### INTRODUCTION

Infertility is a globally widespread health dilemma, about 8-15% of couples are affected. The burden is bi-

directional especially for the females who are often seen as the one to blame for infertility and faced with social

**Table 1.** Basic characteristics of the study group (n=115)

Character	Mean± SD
Husband age	35.2 ±6.3
Wife age	29.7 ±5.1
Duration of infertility (years)	6.5 ±4.2
Sperm concentration (millions)	12.1 ±6.4
Sperm motility%	25.6 ±23.8
Normal sperm form	15.8 ±13.6

disregard, marital problems, unhappiness, and emotional stress (Adeniji et al., 2003; Orhue et al., 2008). The male factor infertility contributed to 30-40% of the pathology, another 30-40% is due to female causes, while both and unexplained factors constituted the remaining 20-40% (Owolabi et al., 2013; Umeora et al., 2009).

Although the etiology of male factor infertility is largely unidentified, however, upward trends of the prevalence sexually transmitted and urogenital infections have been reported (Butt et al., 2013; Ojiyi et al., 2012). Infections could lead to infertility through different mechanisms including decreased sperm production, impaired function and genital tract obstruction (Shaikh et al., 2011; Monavari et al., 2013). The seminal analysis is of paramount importance in the work up of infertility as it gives an insight of sperm production, motility, and morphology (Jajoo et al., 2013). Other factors that may lead to infertility are the varicocele, hyperprolactinemia, hypothyroidism, sexual dysfunctions, ejaculatory factors, and immunological conditions (Monavari et al., 2013).

In female, different hypothalamic, pituitary, thyroid, adrenal, and ovarian disorders may lead to anovulation and infertility. Thyroid dysfunction can affect fertility in various ways resulting in high prolactin levels, sex hormone imbalances, anovulatory cycles, and luteal phase defect (Poppe and Velkeniers, 2003). Polycystic ovary syndrome (PCOS) is the most frequent endocrinopathy in women, affecting up to 10% of those at reproductive age, characterized by ovulatory dysfunction, hyperandrogenism, and metabolic changes (Carmina, 2012).

Infertility is a serious health issue in the Kingdom of Saudi Arabia accounting for 19% in some regions (Al-Turkey; 2015), it is estimated that more than half million couples are waiting assisted reproductive technology. The pattern of infertility differs in various communities, and it is vital for the diagnosis and management of this significant health problem. Thus we conducted this research to study the common endocrine disorders among females of the couples referred for male factor infertility.

## Subjects and Methods

This cross-sectional study carried out at King Salman Armed Force Hospital (KSAFH), Tabuk, Kingdom of Saudi Arabia. 115 couples with male factor problem records during the period from May 2012 to May 2014 were reviewed. A structured checklist was used to collect the following information: Demographic data; diabetes, hypertension, varicocele, hemiplegia, inguinal hernia, and the seminal characteristics including sperm concentration, motility, and morphology in males. The following female factors were also recorded: Hyperprolactinemia, thyroid status, polycystic ovary syndrome diagnosis, hirsutism, and other female disorders. The research was approved by both the committees of King Salman Armed Force Hospital and the University of Tabuk.

The collected Data were entered and analyzed using (SPSS) statistical program version 19. The data were presented as frequencies and percentage.

## RESULTS

Out of the 115 medical records of the couples referred for assisted reproductive technology due to male factor, the mean age was 35.2 ±6.3 and 29.7 ±5.1 years for males and females respectively, the duration of infertility was 6.5± 4.2 years, the sperm concentration was 12.1 ±6.4 million, and sperm motility was 25.6 ±23.8. Table 1.

Four male patients, (3.5%) had diabetes mellitus, 2.7% had high blood pressure, a varicocele was found in 9.6% of males, 0.9% of patients had hemiplegia, while an inguinal hernia was detected in 0.9% of men. Table 2.

The most prevalent seminal abnormality detected was oligospermia which was reports in 38.3%, azoospermia in 27%, and asthenospermia was reported in 20% of males, 7.8% had oligoasthenospermia, 4.3% were diagnosed with oligoteratospermia, teratospermia was found in 1.7% and Teratoasthenospermia in 0.9%. Table 3.

In the present study, 12.2% of females had

**Table 2.** Male co-morbidities

Co-morbidity	No%
Varicocele	11(9.6%)
Diabetes	4(3.5%)
Hypertension	3(2.7%)
Hemiplegia	1(0.9%)
Inguinal hernia	1(0.9%)

**Table 3.** Seminal abnormalities among the study group

Abnormality	No %
Oligospermia	44(38.3%)
Azoospermia	31(27.0%)
Asthenospermia	23(20.0%)
Oligoasthenospermia	9(7.8%)
Oligoteratospermia	5(4.3%)
Teratospermia	2(1.7%)
Treatoasthenospermia	1(0.9%)

**Table 4.** Female infertility factors

Character	No %
Hyperprolactinemia	14(12.2%)
Hypothyroidism	7(6%)
Tubal factor	7 (6%)
Hirsutism	3(2.7%)
PCOS	2(1.7%)
Other ovarian factors	2(1.7%)
Obesity	1(0.9%)
Uterine factors	1(0.9%)
Sickle cell anemia	1(0.9%)
No abnormality	77(67%)

hyperprolactinemia, 6% were hypothyroid, hirsutism was found in 2.7% of women, 1.7% had polycystic ovary syndrome, and other female elements were illustrated in Table 4.

## DISCUSSION

In the present study, although the couples were referred for male factor infertility, however still a considerable number of females presented with infertility factors including, hyperprolactinemia, hypothyroidism, hirsutism, and polycystic ovary syndrome.

The present data showed that hyperprolactinemia was evident in 12.2% of females in accordance with the previous studies in which it was reported in 18.3% of female. Different rates of hyperprolactinemia was published in the various countries; the highest rate was found in Iraq (60%) and lowest in the United States of America. The variable rates of hyperprolactinemia could be partially explained by the level of stress in different countries (Anderson et al., 2002; Raber et al., 2003;

Olivar et al., 2003). Hypothyroidism can affect fertility luteal phase defects, anovulatory cycles or sex hormone imbalance, in the current study hypothyroidism was reported in 6% of patients, in similarity to a study published in India (Verma et al., 2012) and concluded clinical hypothyroidism in 8.9% of women. Hirsutism is a well-known cause of infertility, in the current data, 2.7% of the patients presented with the abnormality. 1.7% had polycystic ovary syndrome.

Rather than going for more costly tests or invasive procedures in couple refer for male factor infertility, it is better to measure thyroid-stimulating hormone (TSH) and prolactin for the female at an early stage of check up (Indu et al., 2012). It is necessary to diagnose and treat them carefully, For example, if you give a simple oral treatment for hypothyroidism in asymptomatic infertile women can give good results.

Regarding the male partners, the association of varicocele with male infertility is controversial. In the present study, a varicocele was reported in 9.6% in agreement with Ugboma et al. (2012) in Nigeria who

found that 10% of males had a varicocele. Oligospermia was reported in nearly one-thirds (38.3%) of men, the present finding was in contradiction to a study conducted in Riyadh, Saudi Arabia and concluded oligospermia in 27.2% (AlEnezi et al., 2014), the current results were lower than that reported in Nigeria (Ugboaja et al., 2010). The present results were in similarities with a study done in Federal Medical Centre Abeokuta (Chukwunyere et al., 2015). In the current study, 20% and 1.7% of patients had asthenospermia and teratospermia respectively, in line with Chukwunyere et al. (2015) who concluded asthenospermia in 25%. The present study has many limitations: it is a retrospective study and conducted at a single tertiary center, so generalization cannot be insured.

## CONCLUSION

Hyperprolactinemia, hypothyroidism, hirsutism and Polycystic ovary syndrome were not uncommon among female's partners of sterile males, an effort is needed to screen for and treat when appropriate for these reversible causes of infertility.

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