FREQUENCY OF MALE FACTOR AND ABNORMALITIES OF SEMEN ANALYSIS IN INFERTILE COUPLE.

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ABSTRACT... Infertility is a global health issue. Male factor contribute to infertility in more than half of sub fertile couples. Their diagnosis is easy by simple test of husband semen analysis. This study has been designed to know the contribution of male factor and frequency of abnormalities of semen in infertile couple. Objectives: To determine the frequency of male factor in infertile couple and to evaluate the different abnormalities in semen. Study Design: Descriptive study. Setting: Department of Obstetrics and Gynecology in Nishtar Hospital Multan. Period: From January 2019 to June 2019. Material & Methods: Study started after taking approval from hospital ethical committee. Study included 200 subfertile couples after informed consent attending the outpatient department. The partner of female attending the fertility clinic between ages 20-40 were selected. History taken from female partner regarding age of husband, duration of subfertility, type of subfertility any drug intake and medical illness of husband. Result: Among 200 couples 64(32%) had abnormal semen parameters 24 had oligospermia. Eight had azoospermia and 60 had asthenospermia. 20 patients had teratospermia. Conclusion: Male factor is significant contributor of infertility therefore awareness is needed in order to engage more males partner in evaluation and management of infertility.

Key words: Asthenospermia, Azoospermia, Infertility, Oligospermia, Semen Analysis, Teratospermia.

INTRODUCTION
Infertility impacts 8 to 12% of couples worldwide with 40% attribution of male factors.¹ The prevalence of infertility in Pakistan is 22% with 4% primary and 18% secondary subfertility.² Data available reveals that in approx. 20-25% cases of infertility, pathology are found in man alone and in another 30% both man and woman were abnormal.³ In 90% cases cause of infertility can be identified and in 50% of cases, couples conceive with treatment.⁴ Of all the infertile couples only 15% have identifiable problem in semen parameters.

Male factor was being ignored previously but now it is no more untreatable problem. Since 1980, the fertility rate for man in their 30s was more than 21% in contrast to the study in 2006 data showed that fertility rate in man younger than 30 years has decreased worldwide by 15%.⁵ Male factor infertility is term that encompasses different conditions to sperm function that make it difficult to fertilize an egg under normal condition.⁶ There are many factors and medical illnesses leading to male infertility e.g. genetic causes, cryptorchidism, varicocele, orchitis, genital tract obstruction, occupation and environmental factors and iatrogenic infertility. Semen analysis is single most important investigation with sensitivity of 89.6% that is able to detect 9 out of 10 men with genuine problem of infertility.⁷ In order to establish evidence based reference values for semen analysis WHO 2010 manuals describe limit of normal volume are 1.5ml, total sperm count 15million/ ml, progressive motility of 40% viability 58% and normal form of 4%. Screening for anti-sperm antibodies is not included in this value as there is no evidence for its effective treatment to improve fertility. Oligospermia is used to describe seminal fluid analysis where concentration of spermatozoa is below the lower reference value. Asthenospermia is spermatozoa...
with poor motility and teratospermia is abnormal morphology for given reference value. Our social stigma is that society only blame female for infertility. From this study we could know the incidence of male factors in this area so that we can involve them and educate them on the treatment of particular issue. Male partner often believe as they have no sexual dysfunction so they cannot be responsible for infertility. This study has been designed to know the contribution of male factors and frequencies of different abnormalities in infertile couple. Researchers have shown that early diagnosis and treatment are necessary to mitigate these problems which are associated with male infertility.  

MATERIAL & METHODS  
This was prospective study of seminal fluid parameters of infertile couple. This study was conducted in Department of obstetrics and gynecology for a period of six months from 1st January 2019 to 31st June 2019. Study started after taking approval from hospital ethical committee. Study included 200 subfertile couples after informed consent attending the outpatient department. The partner of female attending the fertility clinic between ages 20-40 were selected. History taken from female partner regarding age, duration of subfertility, type of subfertility any drug intake and medical illness of spouse. Detail instructions were given for semen collection like abstinence of 3-5 days and sample collected in sterile pipette by masturbation technique. One laboratory was selected to avoid inter laboratory variation. All the information was recorded in specially designed Performa. All the couples whose report of semen analysis not available and who never consented were excluded from study. The semen was analyzed for volume, number of spermatozoa in one ml, motility and morphology of spermatozoa. For comparison of data WHO reference value 2010 was used. Data gathered was analyzed by SPSS 21. Descriptive statistics were calculated in frequency, mean ± SD. Data was collected for age, years of sub fertility and type of sub fertility and presented in frequency and percentages and mean ± SD.

RESULT

Semen analysis is the cornerstone of laboratory evaluation of infertile couples. 200 samples of infertile couples were analyzed. 128 couples have primary subfertility and 72 had secondary subfertility as shown in Figure-1. Regarding age distribution 88 patients were age between 22-30years while 112 patients were of age 31-40. So the mean age of this group is 32. Demography in terms of age, duration of sub fertility and type of sub fertility shown in Figure1. Mean age of duration of subfertility is 3.7 years. All the samples were analyzed according to WHO criteria 2010 among which 64 had abnormal semen analysis. We also compared the different abnormalities in semen analysis reports and results are given in tabulated form.

![Figure-1. Type of infertility (n=200).](image1)

![Figure-2. Classification based on Sperm Count (n=200).](image2)

| Age     | No. of Patient | Percentage |
|---------|----------------|------------|
| 21-30yrs| 88             | 44%        |
| 30-40yrs| 118            | 48%        |

| Motility      | No. of Patient | Percentage |
|---------------|----------------|------------|
| Normal        | 140            | 70.00      |
| Asthenospermia| 60             | 30.00      |
**DISCUSSION**

Infertility is global reproductive health care issue and its social and psychological consequences cannot be ignored. As per the WHO estimates 60-80 million couples in world suffered from subfertility.\(^7\) One in every four couples in developing country has been found to be affected by infertility. In our gynecologic clinics almost half patients presents with subfertility. According to WHO survey from 1990 to 2004 infertility affects 15% couple globally. In present study 64% were of primary sub fertility and 35.20% cases were of secondary subfertility. Ten year study in India showed 74.7% cases had primary sub fertility, both studies showed that primary sub fertility is more than two times.\(^11\) In contrast four year study conducted in Nigeria showed 70% patients had secondary sub fertility and 30% had primary sub fertility.\(^12\)

Reports of Semen analysis give us indication on testicular function and integrity of male genital tract which guide us for treatment plan. It also guides to fertility and not a certain proof of fertility of an individual except in cases of azoospermia where cumulative conception rate is zero.\(^13\) The study highlighted that male factor exclusively contribute about 32% to subfertility. In study conducted in Nigeria showed male factor in 52.38%. A randomized clinical trial told 40% attributed to male factor.\(^1\) A large study comprise of ten years told male factor identified in 23.9% and abnormality in semen analysis in 22.7% and sexual dysfunction in 1.2% only.\(^13\) Similarly another study showed male infertility in 40% subfertile couples.\(^14\) The study by KoboriY tells male factors infertility in 50% of couples.\(^15\)

In our study 44% cases were age group 20-30 years and 46% were of age group 30-40%. In study conducted in Nigeria age of male partner is 30-60 years with mean of 31 years.\(^16\) In study conducted by Abrain A and Aziz M in India it was found that majority of infertile men were within the age interval of 26-30 years. As already discussed fertility rate in men younger than age 30 has decreased worldwide.\(^5\)

In present study 84% cases had normospermia, 12% cases had oligospermia and 4% cases had azoospermia. This study was comparable to study conducted in Jinnah Postgraduate medical center semen abnormality was found in 30% cases and oligozoospermia in 5% and azoospermia in 1.7% cases.\(^18\) Similarly studies conducted in Nigeria 52.38% of male partner were normospermic while 26.98% and 20.64% were azoospermic and oligospermic respectively.\(^19\) A comparative study conducted in NIH Pakistan showed oligospermia in 23.2% and azoospermia in 13.3% asthenozoosperma in 10.5% and teratospermia in 2.4 %.\(^20\) In contrast in study conducted in Dow Medical College 50.83% males were found to have infertility. Oligoteratozoospermia was observed as predominant cause of infertility.\(^21\)

Primary function of spermatozoa is the delivery of male pronucleus to fertilize egg to enable to undertake complex function involved a in the process of fertilization. A human spermatozoon has developed a highly specialized morphology with its various structural components tailored to specific functional contribution.

The presence of human spermatozoa was first described over 30 years by Van leeuwhock. In present study over 90% had normal morphology and 10% had teratospermia. In a study by Adenjii RA et al most common multiple factors abnormality in the study population had astheno/ oligospermia.e 25.5% while 3 defects oligo/ astheno/teratospermia were noticed in 13.1% of the subject.\(^22\)
In our study we also compared different abnormalities in semen and found asthenospermia is most common abnormality and occur in 60% patients and oligospermia in 37.5%, teratospermia in 31.5% and azoospermia in 12.5%. In contrast A study of 1186 male in Yasmin clinic in Jakarta showed most common abnormality is oligozoospermia(39.7%) followed by azoospermia (24.4%), teratozoospermia (2.6%) and Asthenospermia (5.9%). This is comparable to study conducted by kitporntheanunt M et-al showed asthenoteratospermia is most common finding i.e. 84% among all abnormalities in semen, oligoasthenoteratospermia occur in 10.7% and 4% had teratospermia.

In summary abnormal semen quality remains a significant contribution to overall infertility in our environment among all abnormalities asthenospermia is most common.

CONCLUSION
Male factor solely contribute about 32% to subfertility among them asthenospermia is most common. The limitation of this study is to find cause of different abnormalities in semen parameters and to find the cause effect relationship. We have to find the geographic and environmental effects also.

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