Original Article

High Contribution of Male Partners to Infertility

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Abstract

Objective: The objective of the study was to investigate the male factors, their clinical pattern and association with infertility issues.
Methodology: This is a descriptive unblended, retrospective study of 1393 infertility cases presented to our gynecology infertility clinic from 2017-2020. We assessed semen analysis of all patients presenting to our clinic for pattern of infertility and incidence.
Results: The age of the male patients ranged from 19 years to 64 years with a mean of 33.62±6.08 years. The mean values of volume of the semen was 3.01±0.83, total sperm count was 48.11±30.89 millions/ml and mean sperm motility in semen sample (%age) was noted to be 47.47±18.82. Total sperm motility less than 40 percent (asthenozoopsermic) was observed in 37.3% patients, and Asthenozoospermia was the leading cause of infertility, attributing to 37.3% of the patients. Quite a large number 15.4% of the patients had oligospermia followed by 3.1% patients who had Azoospermia.
Conclusion: According to the results male infertility was high among couples reporting infertility in our area. Our study shows clear attribution to a greater number of male factor to the infertility issues having asthenozoospermia as the commonest finding observed.
Keywords: Male Infertility, Male factor, Semen Analysis

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Introduction

The world health organization (WHO) considers infertility as the inability for a couple to achieve pregnancy after one year of regular sexual intercourse without the use of contraception.[1] According to WHO statistics about 50-80 million people worldwide suffer from infertility.[2] Male contribution to infertility has been observed in 50% of the cases. Many studies have shown that about half of all cases of infertility occur due to female factors, and 20 to 30% male factors, 20 to 30 percent due to common causes of both gender.[3]

Recent studies by researchers show that male factors are present in 20-70 percent of infertility cases. These findings are significantly broader than previously reported.[4] In 50% of infertile Couples, abnormal semen parameters are male infertility factor, however in 30% to 40% of infertile couples, where male infertility factors are not clearly evident. Infertility in the absence of clear abnormal sperm parameters seems to be idiopathic and may be caused by severe factors such as endo sperm factors, reactive oxygen species, and genetic abnormalities.[5] So, numbers do not accurately represent male infertility, in all regions of the world. In deed on a global level there is lack of accurate statistics on rate of male infertility.

The rapid evolution of invasive management treatment in the form of assisted reproductive techniques, involving millions of rupees, have reduced the interest of clinicians to properly investigate diagnose and treat the causes of male infertility. There is now an increasing trend of opting for a rapid ART solution, and neglecting informative and potentially correctable and urological analysis of male partner. Men with certain

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medical disorders, which maybe the most probable cause of their suboptimal semen quality are not properly addressed and treated. Due to negligence and inadequate assessment of male partners, the female partners go through expensive, stressful and invasive procedures. Which can be reduced significantly with proper investigation of male factors responsible for infertility.

Methodology

This descriptive study was conducted on infertile patients who reported in CMH Kharian Medical College and Gynae Care & IVF Center Gujrat, from 2017 to 2020. The ethical approval of the study was take from ethical review committee of CMH medical college kharian. Data was retrieved from lab records. The couples included from study had regular unprotected intercourse for at least one year. With not having achieved the deserved results. Semen samples were collected by masturbation after abstinence of 2 to 6 days. Patient semen analysis was done at the same laboratory at the same standards semen analysis which was according to word health organization.[6] Patient according to their spermiogram parameter were classified on the basis of WHO classification as normozoospermia, azoospermia, oligozoospermia and asthenozoospermia.

Results

The age of the male patients ranged from 19 years to 64 years. With a mean age of 33.62±6.08 years. The mean volume of the semen was 3.01±0.83, ranging from 0 to 13.5 ml. The mean value of the total sperm count was 48.11±30.89 millions/ml and similarly the mean value of mean sperm motility in semen sample (%age) was noted to be 47.47±18.82 as elaborated in table I.

The distribution of Asthenozoospermia status showed that in terms of motility of sperm, it was noted that total sperm motility less than 40 percent (asthenozoopsermic) was observed in 37.3% patients, Majority (62.7%) of patients were Normospermic having a total motility of sperm greater than 40 percent with unremarkable semen analysis report. Asthenozoospermia was the leading state of infertility, attributing to 37.3% and in most (62.7%) of the patient's normal mobility was recorded. The distribution of Status of Azoospermia and Oligospermia revealed that quite a large number 15.4% of the patients had oligospermia followed by 3.1% patients who presented with Azoospermia as shown in table II.

Table I: Distribution of Characteristics of study sample.

Characteristics	N	Min	Max	Mean	SD
Age of respondents (yrs)					
Age of patients	1393	19	64	33.62	6.08
Volume of Semen (ml)					
Volume of semen	1393	0	13.5	3.01	0.83
Total Sperm count millions per (ml)					
Sperm count	1393	0	128	48.11	30.89
Mean Sperm Motility in Semen Sample (%age)					
Active Sperms	1393	0	75	47.47	18.82

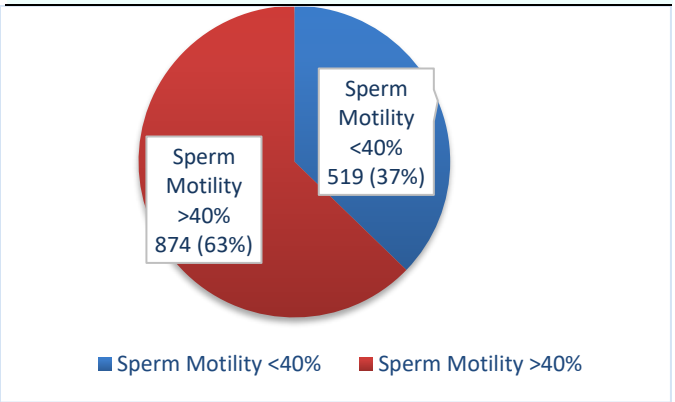

Figure 1. Frequency of Asthenospermia among Male Infertile Patients

Table II: Distribution of Asthenozoospermia, Azoospermia and Oligospermia status

Characteristics	Frequency	Percent	Cumulative Percent
Asthenozoospermia status			
Asthenospermia	519	37.3	37.3
Normal motility	874	62.7	100
Status of Azoospermia and Oligospermia			
Azoospermia	43	3.1	3.1
Oligospermia	214	15.4	18.4
Normospermia	1136	81.6	100
Total	**1393**	**100**	

Discussion

In our region traditionally women were held responsible for not bearing a child in a relationship. Couples usually, at first instance seek help of a gynecologist for this matter. Our study shows clear attribution to a greater number of male factor to the infertility issues. In our study asthenozoospermia was the commonest findings observed. Asthenozoospermia is characterized by reduced sperm motility in semen and found to effects approximately 19% of infertile men, in different studies.[7]

Sperm motility plays a central role in both natural and several forms of assisted fertilization. Since only progressive sperm cell will swim through the vagina, cervical mucous, tortuous endometrium and ultimately end at the ampullary site of the fallopian tube for fertilization. In searching the literature, we came across a study which was over span of 10 years from 2010 to 2019 on an African population which showed a progressive decreased in sperm motility from 38 percent to 5 percent.[8] Which is alarming. Asthenozoospermia is basically a weak, low sperm motility. asthenozoospermia greatly compromises male fertility. As the mere purpose of carrying male genetic material up the cumbersome female tract is compromised, which is the whole purpose of a sperm. We observed in our data that asthenozoospermia was effecting 37.3 percent of the male population. A similar study by Likechebelu et al in Nigeria quoted a32 percent prevalence of asthenospermia in male infertile population[9], other studies have quoted a 17.5% asthenozoospermia in Sudanese infertile males. 18.7% asthenozoospermia is quoted in a sample population of Beunos Aries Argentina population.[10,11] Another study I would like to quote by Zheng J et al shows asthenospermia the leading cause of male infertility in their group of men being studied for infertility. They found that 19% of the men had asthenospermia.[12]

Next percentage of sperm abnormalities detected was oligozoospermia. Oligozoospermia is defined as sperm concentration of less than 15 million per ml of ejaculate. The chances of a successful fertilization with oligozoospemia is very less as successful healthy sperm reaching the ovum decreases along the length of the female tract and any disease decreasing the sperm motility and concentration will also result in DNA fragmentation.[13,14]

Study conducted by ZeqirajA, et al showed in their study that infertile men presenting with oligozoospermia showed a very high rate of DNA sperm fragmentation.[15] Layonal et al compared normozoospermic individuals with oligo and asthenozoospermic individuals and found a strong correlation with oligospermic individuals and DNA fragmentation.[16] In our study 18.4% of male population was oligozoospermia. A similar study conducted by B Fouzia et al in Punjab has shown 11% prevalence of oligozoospermic population which greatly coincides with our results.[17] But in the same study they find a higher prevalence of azospermic population to be 14.8%, which contradicts our study.

Azoospermia is defined as the absence of sperm in ejaculate is identified in 1% of total men population and 10 to 15% of infertile population.[18] Azoospermia can be as high as 20% among male infertility cases.[19] Study by Unal et al showed 10.3 % of male infertile patients showing azoospermia. They find in their study that an accountable cause of azoospermia was attributable to ductus deference agenesis, next one was hormonal disorders e.g. hypogonadotrop in hypogonadism and hyperprolactinemia, and the orchitis and chemotherapy.[5] Impaired reproduction and infertility have long been issues, and they continue to be major clinical concerns that impact 8–12% of couples globally. About 40–50% of cases of infertility are caused by "male factor" infertility, and 3.1% of men had sperm parameters that are not optimum.[20]

Conclusion

According to the results male infertility was high among couples reporting infertility in our area. Our study shows clear attribution to a greater number of male factor to the infertility issues having asthenozoospermia as the commonest finding observed. In infertile couple the woman is the most frequently accused person of incapability to do so. Our study provides evidence contrary to the most general social belief of females as the sole cause of infertility, and we found male as a major contributor to infertile couples.

References

1. Henriques MC, Loureiro S, Fardilha M, Herdeiro MT. Exposure to mercury and human reproductive health: a systematic review ReprodToxicol. 2019;85:93-103.
1. 2.Kumar N, Singh AK. Trends of male factor infertility, an important cause infertility: a review of literature. J Hum Reprod Sci. 2015;8(4):191-6.
2. 3.Masoumi SZ, Parsa P, Darvish N, Mokhtari S, Yuvange M. Roshanaei G. An epidemiologic survey on causes of infertility in patients reffered to infertility center in Fatemieh Hospital in Hamadan. Iran J Reprod Med 2015;13(8):513.
3. Agarwal A, Mulgund A, Hamada A, Chyatte MR. A unique view on male infertility around the globe. Reprod Biol Endocrinol. 2015 Apr 26;13:37. doi: 10.1186/s12958-015-0032-1.
4. Oztekin U, Caniklioğlu M, Sarı S, Selmi V, Gürel A, Işıkay L. Evaluation of Male Infertility Prevalence with Clinical Outcomes in Middle Anatolian Region. Cureus. 2019 Jul 10;11(7):e5122. doi: 10.7759/cureus.5122.
5. World Health Organization Geneva:WHO Press; 2010. Laboratory Manual for the Examination and Processing of Human Semen, 5th ed.
6. Askari M, Kordi-Tamandani DM, Almadani N, Mc Elreavey K, Totonchi. Identification of a homozygous GFPT2. Variant in a family with asthenspermia. Gene. 2019;699:16-23.
7. 8.Dcunha R, Hussain RS, Ananda H, Kumari S et al. Current insights and latest updates in sperm motility nd associated

applications in assisted reproduction. Rerod.Sci,2022;29(1):7-25.
8. Ikechebelu JI, Adinma JI, Orie EF, Ikegwuonu SO. High prevalence of male infertility in southeastern Nigeria. J ObstetGynaecol. 2003 Nov;23(6):657-9.
9. 10.Bayasgalan G, Naranbat D, Tsedmaa B, Tsogmaa B, Sukhee D, Amarjargal O, et al. Clinical patterns and major causes of infertility in Mongolia. J ObstetGynaecol Res. 2004 Oct;30(5):386-93.
10. Cegar B, SipeticGrujicic S, Bjekic J, Vuksanovic A, Bojanic N, Bartolovic D, et al. Understanding the Male Perspective: Evaluating Quality of Life and Psychological Distress in Serbian Men Undergoing Infertility Treatment. Life (Basel). 2023;13(9):1894.
11. Zheng J, Lu Y, Qu X, Wang P, Zhao L, Gao M, Shi H, Jin X. Decreased Sperm Motility Retarded ICSI Fertilization Rate in Severe Oligozoospermia but Good-Quality Embryo Transfer Had Achieved the Prospective Clinical Outcomes. PLoS One. 2016 Sep 23;11(9):e0163524.
12. Avellino GJ, Lipshultz LI, Sigman M, Hwang K. Transurethral resection of the ejaculatory ducts: etiology of obstruction and surgical treatment options. Fertil Steril. 2019 Mar;111(3):427-43.
13. Xu B, Niu X, Wang Z, Li P, Qin C, Li J, et al. Novel methods for the diagnosis and treatment of ejaculatory duct obstruction. BJU Int. 2011 Jul;108(2):263-6.
14. 15.Liu DY, Gordon Baker HW. High frequency of defect in sperm-zonapellucida interaction in oligozoospermic infertile men.Hum Reprod.2004;19(2):228-33.
15. 16.Zeqiraj A, Beadini S, Beadini N, Aliu H, Gashi Z, Elezaj S, et al. Male infertility and sperm DNA fragmentation. Open Access Maced J Med Sci. 2018 Aug 14;6(8):1342-5.
16. 17.Campos LGA, Requejo LC, Miñano CAR, Orrego JD, Loyaga EC, Cornejo LG. Correlation between sperm DNA fragmentation index and semen parameters in 418 men seen at a fertility center. JBRA Assist Reprod. 2021;25(3):349-57.
17. Butt F, Akram N. Semen analysis parameters: experiences and insight into male infertility at a tertiary care hospital in Punjab. J Pak Med Assoc. 2013;63(5):558-62.
18. Cocuzza M, Alvarenga C, Pagani R. The epidemiology and etiology of azoospermia. Clinics (Sao Paulo). 2013;68 Suppl 1(Suppl 1):15-26.
19. Kumar N, Singh AK. Trends of male factor infertility, an important cause of infertility: A review of literature. J Hum Reprod Sci. 2015;8(4):191-6.