

Semen Profile of Infertile Males Attending Private Infertility Clinic of Metropolitan City of Pakistan

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ABSTRACT

Objective: To determine the semen profile of male partner of infertile couples coming for treatment of infertility in a private infertility clinic of metropolitan city of Pakistan.

Methods: A retrospective study was conducted in Australian concept infertility medical center, Karachi from January 2017 to August 2017. Data of married males unable to conceive after 12 months of regular unprotected intercourse were retrieved from the medical record. The semen analysis was the baseline investigation that was carried out to analyze the different sperm abnormalities. WHO criteria published in 2010 was used to assess the motility and morphology of the sperms.

Results: A total of 120 couples were screened to find out the reason behind infertility. Amongst these, 61 (50.83%) males were found to have infertility. Oligoasthenospermia was found higher, i.e. 26 (42.6%). Total sperm count was found less than the normal values in 70.50% men, live count in 98.40% men, rapid linear motility in 95.10% men and normal morphology in 60.70% men. A significant association of total sperm count was found with type of infertility (p-value 0.002) and male infertility type (p-value 0.032).

Conclusion: Oligoteratozoospermia was observed as predominant cause of infertility among males. Semen analysis could be used as a baseline investigation to exclude male causes before going for extensive and invasive investigation of females.

Key words: Semen profile, male partner, infertility

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INTRODUCTION

Infertility is a common health issue worldwide.¹ It is defined as the inability of a couple to conceive after 12 months of regular unprotected intercourse.² Worldwide approximately 49 million couples are affected by infertility. In particular, male factors are involved in 20 to 30% of infertility cases.³ Various studies have revealed that analysis of semen profile remains as the single most useful and fundamental investigation in the search for the cause of infertility in males.^{4,5} It is a simple test that assesses the formation and maturity of sperm as well as how the sperm

interacts with the seminal fluid so it provides insight not only on sperm production but sperm quality as well.⁶ The parameters which are measured in semen analysis are total and live sperm count, motility, and morphology and PH.⁷

In our population where infertility is considered a female issue, and husbands are not willing to go for too many tests, screening by semen analysis provides us with a baseline before going for extensive investigation. We conducted this study with the aim to assess the semen profile of male partners in couples coming for treatment of infertility in a private infertility clinic of the metropolitan city of Pakistan.

METHODS

This retrospective study was conducted in Australian concept infertility center, Karachi from January to August 2017. Institutional approval was obtained prior to conducting of the study. Data of married males unable to conceive after twelve months of regular unprotected intercourse were recorded from the medical record. The WHO calculator for sample size was used for the estimation of sample size taking confidence interval 95%, margin of error 6%, reported abnormally low sperm motility 12.1%⁸. The sample size came out to be 113. However, we have enrolled 120 participants. The semen analysis was the baseline investigation that was carried out to analyses the different sperm abnormalities. The sample for semen analysis was collected after abstinence from intercourse for 3 days. The sperm sample was collected by masturbation in a private room in the infertility clinic. A sterile container was provided to the person. After collection, the sperm sample was handed immediately to the laboratory technician at room temperature the date and time of ejaculation were noted. A complete analysis of the amount of seminal fluid was done within one hour of ejaculation. The quantity or volume of semen was measured; similarly, the PH of the fluid was

also noted. Microscopic examinations for the total and live sperm count were done. The motility and morphology of the sperms were assessed by the WHO criteria published in 2010.⁹

RESULTS

A total of 120 couples were screened to find out the reason behind infertility. Amongst these, the cause of infertility was females in 32 (26.7%), males (n=40, 33.3%), both (n=21, 17.5%) while unexplained cause in 27 (22.5%). (Figure 1) Overall, 61 (50.83%) males were found to have infertility.

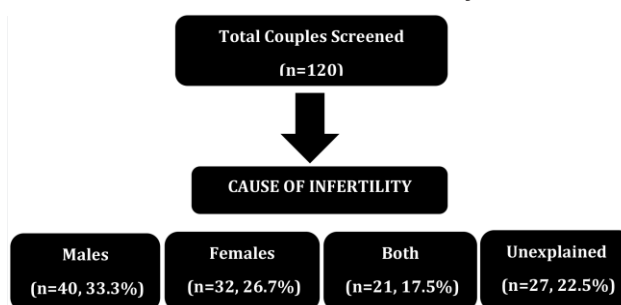


Figure 1: Total number of couples screened for infertility cause (n=120)

The median age of the infertile males was 40 (32-44) years while years of infertility were 7 (4-11) years. Oligoasthenospermia was observed as a predominant cause of infertility among males (n=26, 42.6%) followed by oligospermia in 15 (24.6%), oligoasthenozoospermia in 12 (19.7%), whereas terazoospermia and azoospermia were observed in 4 (6.6%) patients each.

The median total sperm count was 14 (3-47) million/ml, the live count was 5 (1-20), rapid linear motility was 0 (0-10) and normal morphology was 4 (1-7). When compared semen analysis with the WHO recommended normal values, it was found that total sperm count was found less than the normal values in 70.50% men, live count in 98.40% men, rapid linear mortality in 95.10% men and normal morphology in 60.70% men. (Table 1)

Comparison of semen analysis with the general characteristics of the infertile patients showed that total sperm count was found

significantly associated with the type of infertility (p-value 0.002) and male infertility type (p-value 0.032). (Table 2)

Table 1: Semen analysis of infertile men (n=61)

	Median	25 th percentile	75 th percentile	Patients with values less than WHO normal values
Total Sperm Count, in million/ml	14	3	47	70.50%
Live Count	5	1	20	98.40%
Rapid Linear Motility	0	0	10	95.10%
Normal Morphology	4	1	7	60.70%

DISCUSSION

This study was conducted in a private fertility care institute of Pakistan with the aim to determine the semen profile of male partner of the infertile couple. The findings of this study have revealed oligoasthenospermia as a predominant cause of infertility followed by oligospermia, oligoasthenozoospermia, terazoospermia, and azoospermia.

The WHO recommended normal values of 2010 was used to determine the normal semen analysis in infertile males. The findings revealed the majority of the infertile males with the lower live count, followed by low rapid linear motility, low total sperm count and low normal morphology. However, when compared with the general characteristics, total sperm count was the only variable found significantly associated with the type of infertility and male infertility type.

The investigation for the male partner included analysis of different sperm parameters is a simple and non-invasive investigation as compared to the more invasive investigation of the female partner. In a recent meta-analysis, it was reported that standard semen analysis including seminal volume, sperm concentration, motility and normal sperm morphology is not sufficient to predict the male fertility potential as it cannot provide

information about physiological sperm functions.¹⁰

Studies reported that impotence or psycho-sexual problems are also one of the significant problems in males.^{11,12} A recent study from Pakistan reported a high prevalence of the psychogenic etiology of impotence, particularly in young males.¹³ In a recent clinical based study in India, it was revealed that stress is a common problem associated with deteriorating mental and physical health in men seeking fertility treatments.¹⁴ Furthermore, studies have reported that levels of fearfulness and psychosomatic complaints are more among the infertile men when an andrological factor is involved.¹⁵⁻¹⁷ In our practice, we usually referred these patients to a urologist for workup and therapy.

The findings of this study could be observed in the light of limitation that this study failed to collect data on certain important predictor variables like BMI, physical activity, smoking history, diabetes mellitus, and testis size. Previously studies have been conducted which have reported testicular problems like varicocele, epididymitis, sexually transmitted disease, cystitis, testicular torsion, and cryptorchidism in infertile patients.¹⁸ Moreover, another study has reported relationship of male abstinence with sperm volume, concentration, motility and morphology.¹⁹ In spite of these limitations, this study is a significant effort in the determination of semen profile from a private sector institute of Pakistan. Further large-scale studies are strongly recommended in our institutes which can assess the semen profile considering all important variables.

CONCLUSION

The finding of this study concluded that male infertility was found in the majority of the couples coming for treatment of infertility. Moreover, semen analysis could be used as a baseline investigation to exclude male causes before going for extensive and invasive investigation of females.

Table 2: Comparison of semen analysis with the general characteristics of the infertile patients (n=61)

	Total Sperm Count, in million/ml			Live Count			Rapid Linear Motility			Normal Morphology		
	Low n (%)	High n (%)	p-value	Low n (%)	High n (%)	p-value	Low n (%)	High n (%)	p-value	Low n (%)	High n (%)	p-value
Age, years												
≤40	24 (70.6)	10 (29.4)	0.985	34 (100)	0 (0)	0.258	33 (97.1)	1 (2.9)	0.423	18 (52.9)	16 (47.1)	0.166
>40	19 (70.4)	8 (29.6)		26 (96.3)	1 (3.7)		25 (92.6)	2 (7.4)		19 (70.4)	8 (29.6)	
Duration of infertility, years												
≤8	26 (74.3)	9 (25.7)	0.451	35 (100)	0 (0)	0.242	34 (97.1)	1 (2.9)	0.388	19 (54.3)	16 (45.7)	0.237
>8	17 (65.4)	9 (34.6)		25 (96.2)	1 (3.8)		24 (92.3)	2 (7.7)		18 (69.2)	8 (30.8)	
Type of Infertility												
Primary	39 (79.6)	10 (20.4)	0.002	48 (98)	1 (2)	0.618	46 (93.9)	3 (6.1)	0.379	28 (57.1)	21 (42.9)	0.256
Secondary	4 (33.3)	8 (66.7)		12 (100)	0 (0)		12 (100)	0 (0)		9 (75)	3 (25)	
Male Infertility type												
Oligospermia	14 (93.3)	1 (6.7)	0.032	15 (100)	0 (0)	0.85	14 (93.3)	1 (6.7)	0.816	11 (73.3)	4 (26.7)	0.18
Oligoteratozoospermia	17 (65.4)	9 (34.6)		25 (96.2)	1 (3.8)		24 (92.3)	2 (7.7)		14 (53.8)	12 (46.2)	
Terazoospermia	1 (25)	3 (75)	0.032	4 (100)	0 (0)	0.85	4 (100)	0 (0)	0.816	3 (75)	1 (25)	0.18
Azoospermia	4 (100)	0 (0)		4 (100)	0 (0)		4 (100)	0 (0)		4 (100)	0 (0)	
Oligoasthenoteratozoospermia	7 (58.3)	5 (41.7)	0.032	12 (100)	0 (0)	0.85	12 (100)	0 (0)	0.816	5 (41.7)	7 (58.3)	0.18

Chi-square test was applied, p-value <0.05 was taken as significant
 WHO reference values for semen analysis 2010 was used for categorization of low and high of semen profile

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