Profile of Infertile Males Attending a Tertiary Care Hospital of Raipur City (C.G.)

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ABSTRACT *Introduction-* *Infertility is defined as inability to conceive after one year of regular unprotected sexual intercourse. Most cases of male infertility reflect an abnormal sperm count or quality .in about 90%of cases of a low sperm count, the reason is deficient sperm production. The semen analysis is a crucialfirst step to be done for the evaluation of causes of male infertility. A number of other factors have the potential to influence male fertility and need to be considered. These included age, environmental exposures, smoking and drug and alcohol use. With the above background, the present study was conducted to see the profile of infertile males in the study area.*

Material and Method-The present study was undertaken at Department of Obstetrics and Gynecology, Dr. BRAM hospital, Pt. J.N.M. medical college Raipur (C.G.), India. All the couples attending infertility OPD seeking advice for infertility management were registered. Ethical considerations were met through intuitional ethical committee. Each patient was informed and consent was taken.Male partner of the couple was inquired about his Detailed Background information. His martial life in years, whether primary or secondary infertility, duration of infertility, history regarding any contraceptive used, whether having any previous issue was inquired. Detailed medical, Surgical and Sexual history of the patients was taken. A comprehensive seminal analysis was done other relevant investigations were also done. Data was compiled in MS-Excel and checked for its completeness and correctness. Then it was analyzed.

Observations- *Maximum number of patients belongs to age group 26-30 years in case of primary infertility and incase of secondary infertility maximum number of patients belonged to age group 31-35 years.Semen analysis was the most common investigations which were done in 87.6% of patient s before coming to our hospital. Maximum no. of patients 61% was having frequency of intercourse thrice weekly. Hydrocele was the most common abnormality detected while performing urological examination (42.8%). Most of the patients were having normal phallus (93%) with abnormality detected, out of which most common abnormality was hypospadias (42.8%).*

Conclusion- *The main purpose of the male evaluation is to identify and treat correctable causes of sub fertility. The male infertility evaluation can uncover significant medical and genetic pathology that could affect the patient's health or that of his offspring.*

INTRODUCTION

Infertility is defined as inability to conceive after one year of regular unprotected sexual intercourse. Fecundity is defined subjectively as the ability to conceive and carry a child to term. Fecundability is a statistician term denoting the probability of pregnancy in an individual menstrual cycle [1]. Typical fecundability is approximately 0.2 per month (2 conceptions out of every 10 couples attempting). Conception is normally achieved within 12 months in 80-85% of couples using no contraceptive measures i.e. approximately 15% of couples attempting their first pregnancy meet with failure [2].

Primary infertility is the inability to conceive a child by a man or women who has never previously had a child , while secondary infertility is the inability to conceive by a man or women who has previously had one or more children . Sub fertility can be defined as low fecundability(monthly probability of conception) due to known or unknown causes.

Approximately 50% of affected couples have causal or associated male factors as a cause of infertility [2, 3]. For these reasons, the male evaluation is conducted systematically to acquire relevant information from the history, physical examination,and semen analysis and hormone assessment. Inmen, infertility is defined as the inability to fertilize the ovum, whereas sterility is defined as the lack k of sperm production.

Male fertility depends upon three things:
A. Adequate production of spermatozoa by the testis.

B.Unobstructed transit of sperm through the seminal tract and.

C.satisfactory delivery to the ovum.
Hindrance in any of the above levels may contribute to male infertility .The male infertility evaluation can uncover significant medical and genetic pathology that could affect the patient's health or that of his offspring.

The main purpose of the male evaluation is to identify and treat correctable causes of sub fertility and to achieve pregnancy.

The major causes of male infertility include cryptorchidism,varicocele, endocrine hypogonadism, infec-

tions and idiopathic infertility; other less prevalent causes include coital disorders, sperm antibodies, testicular tumors, general diseases and genital tract obstruction [4].

Most cases of male infertility reflect an abnormal sperm count or quality .in about 90%of cases of a low sperm count, the reason is deficient sperm production. The semen analysis is a crucialfirst step to be done for the evaluation of causes of male infertility.

A number of other factors have the potential to influence male fertility and need to be considered. These included age, environmental exposures, smoking and drug and alcohol use [5]. Unlike women whose fertility declines with age, men do not seem to show a marked decline in fertility potential as they grow older.

Schwartz et al (1983) showed no significant decline in sperm density, semen volume or total sperm count in their study of 833 fertile men aged 21 to 50 yrs. They did show a decline is sperm motility and percent normal cells but the levels were still in the normal range and unlikely to affect fertility in these men [6].

Chronic alcohol abusers suffer direct facts of alcohol on the testes, hypoplasia of the spermatogonia and seminiferous tubule atrophy; resultant testicular atrophy and impotence as per available studies. Conversely, light to moderate alcohol consumption has shown no adverse reproductive effects in few studies.

With the above background, the present study was conducted to see the profile of infertile males in the study area.

MATERIAL AND METHOD
The present study was undertaken at Department of Obstetrics and Gynecology, Dr. BRAM hospital, Pt. J.N.M. medical college Raipur (C.G.), India. All the couples attending infertility OPD seeking advice for infertility management were registered. Ethical considerations were met through intuitional ethical committee. Each patient was informed and consent was taken.

Male partner of the couplewas inquired about his name age, wife's name and age, address,income,education, type of occupation (work) whether sedentary worker,labourer, factory worker, working in chemical factory, solvent factory, pesticide factory or working in factory where there is exposure to high temperature i.e. blast furnace,bhattietc. duration of occupation in years and socio economic status.

His martial life in years, whether primary or secondary infertility, duration of infertility, history regarding any contraceptive used, whether having any previous issue was inquired. Detailed medical, Surgical and Sexual history of the patients was taken. Any history of use of recreational substances like bidi,ganja,gutkha, tobacco marijuana, and cocaine was asked. H/o cigarette smoking with special reference to chain smoking, no. of cigarettes was asked, H/O alcohol intake with special reference to its amount per drink and frequency per week was asked.

General physical examination like built height,weight, BMI, pulse, BP was done. Systemic examination like presence of asthma,bronchitis, chronic sinusitis was done (to rule out immotile cilia syndrome like young syndrome and kartnagarsyndrome). Detailed examination of cardiovascular system to note vascular disorder which

may cause erectile dysfunction. Cardiac efficiency was noted to know whether patient can perform sexual act.

Physical examination was done to assess body habitués for the presence of obesity, gynecomastia and secondary sexual characteristics and other relevant examinations were also done.

Routine investigations like Hb, TLC,DLC, ESR, VDRL urine routine microscopic blood sugar estimation was done. A comprehensive seminal analysis was done other relevant investigations were also done.

Depending upon the patient profile treatment was given and patient was followed upand ultimate goal of achieving pregnancy was noted. Data was compiled in MS-Excel and checked for its completeness and correctness. Then it was analyzed.

OBSERVATIONS
Table no.1 Distribution of cases according to type of infertility

Type of infertility	No. of cases n =100	Percentage (%)
Primary	83	83
Secondary	17	17
Total	100	100

Out of 100 male patients 83 were of primary infertility and 17 were of secondary infertility. **[Table-1]**

Table No.2 Distribution of cases according to age of patients.

Sino.	Age	Total N=100		Primary N=83		Secondary N=17		P. value
		No	%	No	%	No	%	
1	20-25	11	11	9	10.8	2	11.7	>0.05
2	26-30	49	49	46	55.42	3	17.6	<0.001
3	31-35	26	26	18	21.6	8	47.5	<0.05
4	36-40	11	11	8	9.6	3	17.6	<0.05
5	41-45	2	2	1	1.2	1	5.8	<0.001
6	46-50	1	1	1	1.2	0	0	_
	Total	100	100	83	100	17	100	
Mean -+ SD		28+-10.68		29.38+-9.98		34.5+-11.23		>0.05

Maximum number of patients belongs to age group 26-30 years in case of primary infertility and incase of secondary infertility maximum number of patients belonged to age group 31-35 years. Youngest p was aged 20 yrs and oldest was aged 52 yr. **[Table-2]**

Table-no.3 Distribution of cases according to age of spouse.

Age in yrs	Primary n=83		Secondary n=17		Total n=100		P. Value
	No	%	No	%	No	%	
20-25	16	19.2	1	5.8	17	17	<0.01
26-30	54	65.0	9	52.9	63	63	>0.05
31-35	9	10.8	4	23.5	12	13	<0.05
36-40	4	4.8	2	11.76	6	6	<0.01
41-45	0	0	1	58	1	1	_
46-50	0	0	0	0	0	0	_
Total	83	100	17	100	100	100	
Mean +_SD	28.9+_10.23		30.6+_12.33		29.48+_8.2		>0.05

Wives of maximum no. of patients 63% belonged to age group 26-30 yrs.[Table-3]

Table no. 4 Distribution of cases according to duration of infertility

S.N.	Dura-tions in year	Total N=100		Primary N=83		Secondary N = 17		P Value
1	1-3	55	55	45	54.2	10	58.8	>0.05
2	4-6	28	28	27	32.5	1	5.8	<0.001
3	7-10	11	11	6	07.2	5	29.4	<0.001
4	>11	6	6	5	6.02	1	5.8	>0.05
	Total	100	100	83	100	17	100	
Mean +_SD		2.76+_3.28		3.23+_3.68		2.98+_3.23		>0.05

Maximum number of patients (55%) had their duration of infertility 1-3 yrs. [Table-4]

TableNo. 5. Distribution of cases according to educational standard.

Qualifica-tion	Total N=100		Primary N=83		Secondary N = 17		P Value
	NO	%	NO	%	NO	%	
Illiterate	2	2	1	1.2	1	5.8	<0.001
Primary education	6	6	4	4.8	2	11.76	<0.05
Middle education	20	20	16	19.2	4	23.5	>0.05
Higher education	38	38	31	37.3	7	41.1	>0.05
Graduate	24	24	21	25.3	3	17.6	>0.05
Post graduate	10	10	10	12.04	0	0	-
Total	100	100	83	100	17	100	-

Most of the patients (38%) were educated up to higher education. (10+2). [Table-5]

Table no. 6 Distribution of cases according to occupation (sedentary work)

Hrs of sitting	Total N=23 *		Primary N=6 *		Secondary N = 29 *		P Value
	NO	%	NO	%	NO	%	
Up to 4 hrs	1	4.3	0	0	1	3.4	
4-6 hrs	1	4.3	0	0	1	3.4	
6-8 hrs	5	21.7	2	33.3	7	24.1	>0.05
8-10 hrs	7	30.4	3	50	10	34.4	<0.05
10-12hrs	9	39.1	1	16.6	10	34.4	<0.01
Total	23	100	6	100	29	100	
Mean+_SD	10.23+_6.68		7.99+-3.23		8.0+-5.45		>0.05

*   Out of 83 patients of primary infertility 23 were sedentary worker (n = 23)

**   Out of 17 cases of secondary infertility 6 were sedentary worker (n=6).

**   Out of 100 cases only 29 were sedentary worker (n=29)

Most of the patients with sedentary job (69%) were having sitting habit of 8-12. [Table-6]

Table no. 7 Distribution of cases according to previous investigations.

Investiga-tions	Primary n=73		Secondary n=8		Total n=81		P Value
	NO	%	NO	%	NO	%	
Semen analysis	64	87.67	7	87.5	71	87.6	>0.05
USG scro-tum	6	8.2	1	12.5	7	8.6	>0.05
Testicular biopsy	2	2.7	0	0	2	2.4	-
Hormonal analysis	1	1.3	0	0	1	1.2	-
Total	73	100	8	100	100	100	

Semen analysis was the most common investigations which were done in 87.6% of patient s before coming to our hospital. [Table-7]

Table no.8 Distribution of cases according to medical disorders

Disease	Total n=46		Primary n=38		Second-ary n=8		P. value
	No	%	No	%	No	%	
DM	2	4.3	1	2.63	1	12.5	<0.001
TB	4	8.6	3	7.8	1	12.5	>0.05
Bronchitis	3	6.5	2	5.2	1	12.5	<0.01
Pleural effu-sion	1	2.17	1	2.63	0	0	-
Asthma	4	8.6	4	10.5	0	0	-
Malaria	1	2.17	1	2.63	0	0	-
Jaundice	1	2.17	1	2.63	0	0	-
MI	1	2.17	1	2.63	0	0	-
Chronic sinusitis	2	4.3	2	5.2	0	0	-
Pneumonia	2	4.3	2	5.2	0	0.	-
H/O high fever	5	10.8	4	10.5	1	12.5	>0.05
STD/UTI	13	28.2	9	23.0	4	50	<0.05
Post pubertal mumps	3	6.5	3	7.6	0	0	-
Tonsillitis	1	2.17	1	2.5	0	0	-
Hyperthy-roidism	2	4.3	2	5.1	0	0	-
Bipolar dis-order	1	2.17	1	2.5	0	0	-
Total	46	100	38	100	8	100	

Most of the patients (28.2%) were suffering from STD/UTI. [Table-8]

Table no.9 Distribution of cases according to significant surgical disorder.

Surgical disorder	Primary n=51*		Secondary n=7**		Total n =58***		P. value
	No	%	No	%	No	%	
Hydrocele	20	39.2	1	14.2	21	36.2	<0.01
Varicocele	20	39.2	1	14.2	21	36.2	<0.01
Injury to testes	19	37.2	3	42.8	22	38	>0.05
Epididymi-tis	0	0	1	14.2	1	1.7	-
Psoas abscess	1	1.9	0	0	1	1.7	-
H/O Burn	0	0	1	14.2	1	1.7	-
Piles	0	0	1	14.2	1	1.7	-
Total	51	100	7	100	58	100	

*   Out of 83 patients of primary infertility 51 had surgical disorder (n=51)
**   Out of 17 patients of secondary infertility 7 had surgical disorder (n=7)
*** Out of 100 cases only 58 had surgical disorder (n=58)

Maximum no of patients presented with history of injury to testes 38% while 36.2% patients suffered hydrocele. [Table-9]

Table no.10 Distribution cases according to personal habits and / or addiction.

Frequency	No. of cases		Primary n=83		Secondary n=17		p.value
	No.	%	No.	%	No.	%	
Excessive smoking *	12	12	8	9.6	4	23.5	<0.01
Excessive alcohol	25	25	23	27.7	2	11.76	<0.01
Tobacco chewing	8	8	6	7.2	2	11.76	>0.05
Guthkha	39	39	34	40.96	5	29.4	>0.05
Ganja	1	1	1	1.2	0	0	-
Guthkha	4	4	3	3.6	1	5.8	>0.05
Tight Un-dergarment /pant	17	17	14	16.6	3	17.64	>0.05

*Excessive smoking =>12 cigarette /day

Maximum number of patients 39% were addicted to guthkha chewing while 25% were heavy drinkers and 12% patients were heavy smokers. [Table-10]

Table no.11 Distribution of cases according to frequency of intercourse.

Frequency	Primary n=83		Secondary n=17		Total n=100		P. value
	No	%	No	%	No	5	
Once a week	1	1.2	1	5.88	2	2	<0.001
Twice a week	10	12.0	5	29.4	15	15	<0.01
Thrice a week	52	62.6	9	52.9	61	61	>0.05
>4 time	19	22.8	1	5.88	20	20	<0.001
Irregular	1	1.2	1	5.88	2	22	<0.001
Total	83	100	17	100	100	100	

Maximum no. of patients 61% was having frequency of intercourse thrice weekly. Only patients with irregular frequency due to his job in military. **[Table-11]**

Table no.12 Distribution of cases according to urological examination.

Frequency	No. of cases N=49		Primary N=38		Secondary N=11		p. value
	NO.	%	No	%	NO	%	
Penile abnormality	7	14.2	7	18.42	0	0	-
Testicular size	7	14.2	7	18.42	0	0	-
Varicocele	11	22.4	8	21.0	3	27.2	>0.05
Epidiymitis	1	2.0	0	0	1	9.0	-
Underscended testis	1	2.0	1	2.6	0	0	-
Prostratitis	1	2.0	0	0	1	9.0	-
Hydrocele	21	42.8	15	39.47	9	54.5	>0.05
Total	49	100	38	100	11	100	

Hydrocele was the most common abnormality detected while performing urological examination (42.8%) .   2nd most common abnormality was varicocele (22.4%)
Least common abnormalities were epododymitis (2%) undescended testis (2%) prostatitis (2%). **[Table-12]**

Table no.13 Distribution of cases according to penile abnormality.

Abnormality	Primary n=7		Secondary n=0		Total n=7		P.value
	No.	%	No.	%	No.	%	
Hypospadias	3	42.8	0	0	3	42.8	
Epispadias	2	28.5	0	0	2	28.5	
Abnormal Curvature	1	14.2	0	0	1	14.2	
Scars	1	14.2	0	0	1.	14.2	
Plaques	0	0	0	0	0	0	
Total	7	100	0	0	7	100	

Most of the patients were having normal phallus (93%) with abnormality detected, out of which most common abnormality was hypospadias (42.8%). **[Table-13]**

DISCUSSION

With infertile couples one third of case can be due to a male factor. It is important to have a comprehensive yet efficient approach to identifying potential causes for appropriate counseling and treatment. We combined the experience of an urologist and a gynecologist, both fertility subspecialists, and reviewed current literature on the investigation of male infertility. A history and physical examination supplemented by relevant investigations will help unravel any signification diseases that can be associated with male sub fertility or any conditions that may be transmitted to future offspring .semen analysis is a common, convenient measure of assessing the male. It should precede any invasive test of the female.

Based on semen analysis male should be evaluated for potentially correctable cause and managed before applying any invasive procedures or artificial reproductive therapies.

In our present study out of 100 male patients 83 were of primary infertility and 17 were of secondary infertility.

Saleh RA et al 2002 reported that smoking was associated with a 48% increase in seminal leukocyte concentration (p=<0.0001), a 107% increase in ROS level (p=<0.001) and a 10 point decrease in ROS –TAC scores. (p=0.003)[7].

Muthuswami KR and chinnaswamy P 2005 reported that in alcoholics FSH, LH and E2 levels were significantly increased and T and P levels were decreased. Semenvolume, sperm count, motility and no of morphologically normal sperm were significantly decreased [8].

Gaur DS et al 2007 reported that only 3% of smokers were normospermic as compared to

39% of non smokers he also found that light smokers predominantly showed asthenozeospermia. Heavy smokers showed asthenozoospermia,oligospermiaterattozoospermia with overall impact of asthenozeospermia (p=<0.0001) and teratozoospermia (p=0.0328) but not of oligospermia [9].

Rantala ML and koskimies AI 1987 reported significant oligospermia in smokers [10]. Kunzle R et al 2003 reported that cigarette smoking was associated with a significant decrease in sperm density (-15.38%)Total sperm count (-17.5%), total no of motile sperm count (-16.6%) and citrate concentration (-22.4%) the % of normal forms significantly reduced in smokers and sperm vitality , ejaculate volume and fructose concentration were slightly but no significantly affected[11].

Many studies have shown no significant effects on semen quality (Dikshit et al 1987 marshurn et al 1989 rodriguezrigaue et al 1982)[12,13,14], other have shown reduced semen quality among male smokers (close et al 1990 ; Evans et al , 1981 vine et al 1996 ; vogt et al 1986 [15,16,17,18], other authors have found not effects of paternal smoking (Baird answicox 1985 joffe and li 1994) [19,20,21].

Chronic alcohol abuses, suffer direct effects of alcohol on testis hypoplasia of the spermatogonia and seminiferous tubule atrophy; along with secondary effects of hypogonadism due to liver damage and resultant testicular atrophy impotence (close et al lester and van theil) [15, 22].

Conversely light to moderate alcohol consumption has shown no adverse reproductive effects in studies (close et al; marsh burn et al oldereid et al) [13, 15, 23].

Tsujimura et al in 2004 showed alcohol use was significantly more common in infertile men (92%) Than in controls 80% (P<0.01) [24].

Gua H et al found that the normal morphologic sperm rates in cigarette alcohol consumption and sauna group were lower than those in the corresponding control groups

, respectively (p=<0.05, P<0.001) percentages of sperm head irregularity were higher than those in normal controls , respectively 9P<0.05)[9].

One of the study showed relationship between semen quality and tobacco hewing and found that sperm concentration percent motility , morphology and percent viability were significantly higher in mild tobacco chewers (<3/ days) vs. moderate (3-6/ days) chewers vs. severe tobacco chewers (>6/day)[25].

CONCLUSION

Infertility, after all, is not an individual , but rather is a couple based problems research in male infertility has progressed greatly in the last 20 to 30 years , but there is still much that is unclear about problems of male reproduction .

The main purpose of the male evaluation is to identify and treat correctable causes of sub fertility. The male infertility evaluation can uncover significant medical and genetic pathology that could affect the patient's health or that of his offspring.

Male Infertility is one of the most rapidly growing fields in medicine with dramatic advances in diagnosis and treatment. The evaluation of male infertility is cost effective doses not increase the risk of multiple births and it can spare the woman invasive procedures and potential complications associated with ART.

Thus evaluation of male infertility is a very important step in starting the evaluation of a couple'sproblem.

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