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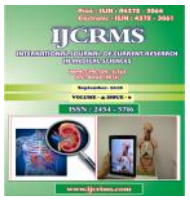

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Study on Sperm count among Infertile men - An Annual report in and around Madurai

Balachandran Sivaraja Ganesan[1], G. Sumathy[2]*, Sathish. R[3]

[1] Reader, CSI College of Dental Sciences and Research, Madurai.

[2] Professor and Head, Dept. of Anatomy, Sree Balaji Dental College and Hospital, BIHER, Chennai.

[3] Reader, Sri Sairam Siddha Medical College and Research Centre, Chennai.

*Corresponding Author: **G. Sumathy**, Professor and Head, Dept. of Anatomy, Sree Balaji Dental College and Hospital, BIHER Chennai.

Abstract

Objectives: The objective of the study is to find out the pattern of semen parameters and to find out the frequency and type of abnormal semen parameters.

Methods: This is a retrospective epidemiological study of the semen analysis. A total of 87 consecutive samples were analysed. The procedure and reference value were according to the WHO guidelines (5th edition, 2010).

Results: Semen parameters were abnormal in 31.2% of semen analysis. A severe male factor abnormality (oligoasthenozoospermia and oligozoospermia combined) was in 23% of the cases.

Conclusion: Oligoasthenozoospermia and oligozoospermia are the most common abnormalities among the infertile men.

Keywords: Infertility, Sperm count, Semen, Azoospermia, Oligozoospermia and Oligoasthenozoosperima.

Introduction

Semen analysis is routine laboratory techniques and procedure to evaluating male factor infertility. It should be noted that, semen parameter often shows significant difference time to time even in fertile man. Therefore, performing more than one examination in the evaluation semen analysis is important to increase the degree of accuracy.

The study was based on the reports of semen analysis performed at the andrology lab of sumathi fertility centre at Madurai during the year 2016-2017. The reference value at the andrology lab follows the WHO manual for examination of semen (5th edition, 2010).

Methods

This is a retrospective epidemiological study of the semen analysis performed at the andrology lab of Sumathi fertility centre at Madurai during the year 2016-2017 with the permission of Managing director of the fertility centre and Fertility centre Scientific committee approval. A total 0f 87

consecutive samples were analysed with their consent. Semen analysis in the andrology lab of sumathi fertility centre follows the WHO guidelines 2010, 5th edition[8].

To ensure standardization, semen sample should be collected following atleast a 3 days sexual abstinence. The specimen container was kept in room temperature for 30 minutes for liquefaction. Semen volume was measured by aspirating the semen into a graduated tube. Sperm concentration was measured by using Neubauer hemocytometer and Makler chamber. Evaluations of sperm motility performed by counting 200 sperm cells, at the depth of 20micrometer and in 200X or 400X magnification. Evaluation of sperm vitality by using Eosin Nigrosin test and hypo osmotic swelling(HOS) test are performed. Evaluation of sperm morphology by using papanicolaou stain are performed.

The reference values and terminology used are enumerated as follows:

Parameter	Lower reference limit
Semen volume (ml)	1.5(1.4-1.7)
Total sperm number (10^6 per ejaculate)	39(33-46)
Sperm concentration (10^6 per ml)	15(12-46)
Total motility (PR+NP, %)	40(38-42)
Vitality (live spermatozoa, %)	58(55-63)
Progressive motility (PR, %)	32(31-34)
Sperm morphology (normal forms, %)	4(3.0-4.0)

Statistical Tools

Data was entered and analyzed using computer program SPSS version 20.0. Frequencies and percentages were calculated for categorical variables such as Evaluation of abnormalities, Continuous data was analysed and 'p' values were calculated by One way ANOVA. The level of significance was set at $P < 0.05$.

Results

A total of 87 consecutive samples were analysed. The age of the subjects ranged from 25-50 years. The normospermia as well as other abnormalities causing infertility of the male. Abnormalities were present 31.2% of semen analysis. The most common abnormality was oligoasthenozoospermia and oligozoospermia which coincide with Shakeela et al [4] (23%).The least common abnormality was crytozoospermia, asthenozoospermia, and pyozoospermia (3.3%).(Table I & Figure 1) As age advances the sperm motility decreases, because motility is acquired during sperm transit through the prostate and the epididymis, the decrease in motility is suspected to be due to age related decline in the function of these post testicular glands. Age dependent alterations of the epididymis may also cause alterations in sperm mitochondrial functioning, which is paramount for sperm motility (Table II & Figure 2). Morphology appears to decrease with advancing male age.(Table III & Figure 3). Viability also appears to decreasing with advancing male age. (Table IV & Figure 4).

Table I : Evaluation of abnormalities

Parameter	No.of patients	Percent
Normal	60	69.0
Azoospermia	4	4.6
Cryptozoospermia	1	1.1
Asthenozoospermia	1	1.1
Oligoasthenozoospermia	10	11.5
Oligozoospermia	10	11.5
Pyozoospermia	1	1.1
Total	87	100.0

Table II: Motility parameters in related with age groups

Parameter		Motility		
		Progressive	Non progressive	Non motile
Age	<30	46.7±17.9	17.3±6.9	35.9±18.8
	31-35	34.3±22.2	15.2±5.8	49.8±21.2
	36-40	34.5±16.2	17.4±7.4	48.1±22.2
	>41	19.6±15.3	16.1±7.2	64.2±18.0
P-Value		.009 Sig	.571 NS	.010 Sig

Note = Sig (Signification) NS (Non Signification)

Table III: Morphology appears to decrease with advancing male age.

Parameter		Morphology			
		Normal	Head defect	Mid piece defect	Tail defect
Age	<30	37.5±8.6	34.7±6.6	14.0±4.7	13.4±3.5
	31-35	35.0±12.4	37.3±12.3	15.1±6.4	11.9±3.4
	36-40	32.3±10.4	37.2±8.5	16.5±4.6	13.9±7.6
	>41	24.0±7.2	43.3±13.1	19.3±5.4	13.4±4.1
P-Value		.031 Sig	.299 NS	.134 NS	.515 NS

Note = Sig (Signification) NS (Non Signification)

Table IV: Viability appears to decreasing with advancing male age.

Parameter		Eosin nigrosin test	
		Viable	Non viable
Age	<30	62.0±114.8	38.0±14.8
	31-35	56.6±13.4	43.4±13.4
	36-40	57.8±10.6	42.1±10.6
	>41	44.3±16.9	55.6±16.9
P-Value		.032 Sig	.034 Sig

Note = Sig (Signification) NS (Non Signification)

Figure - 1 Figure showing the evaluation of abnormalities

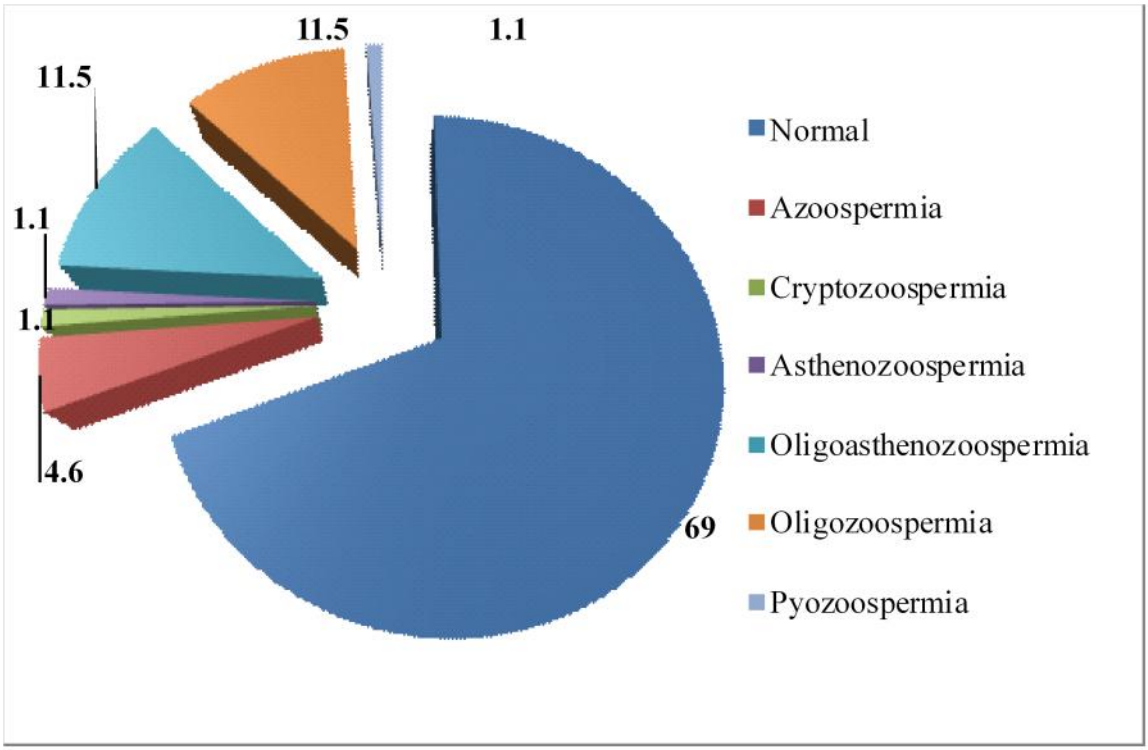


Figure-2: Figure showing the motility parameters in related with age groups

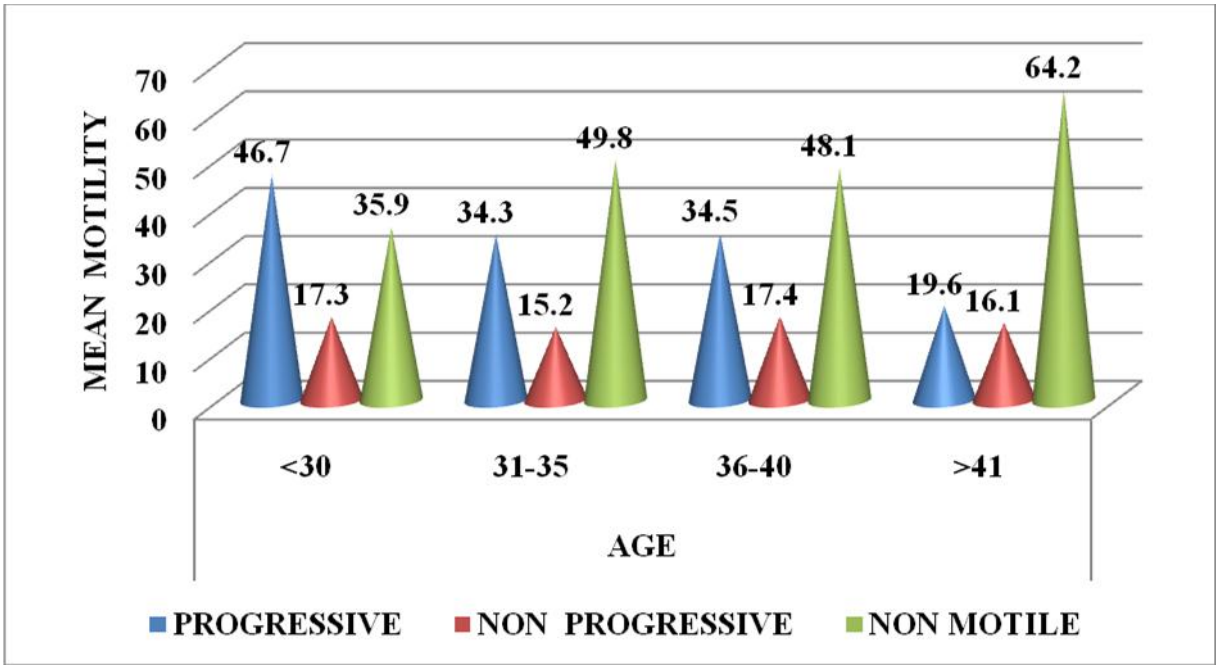


Figure-3: Figure showing the morphology appears to decrease with advancing male age.

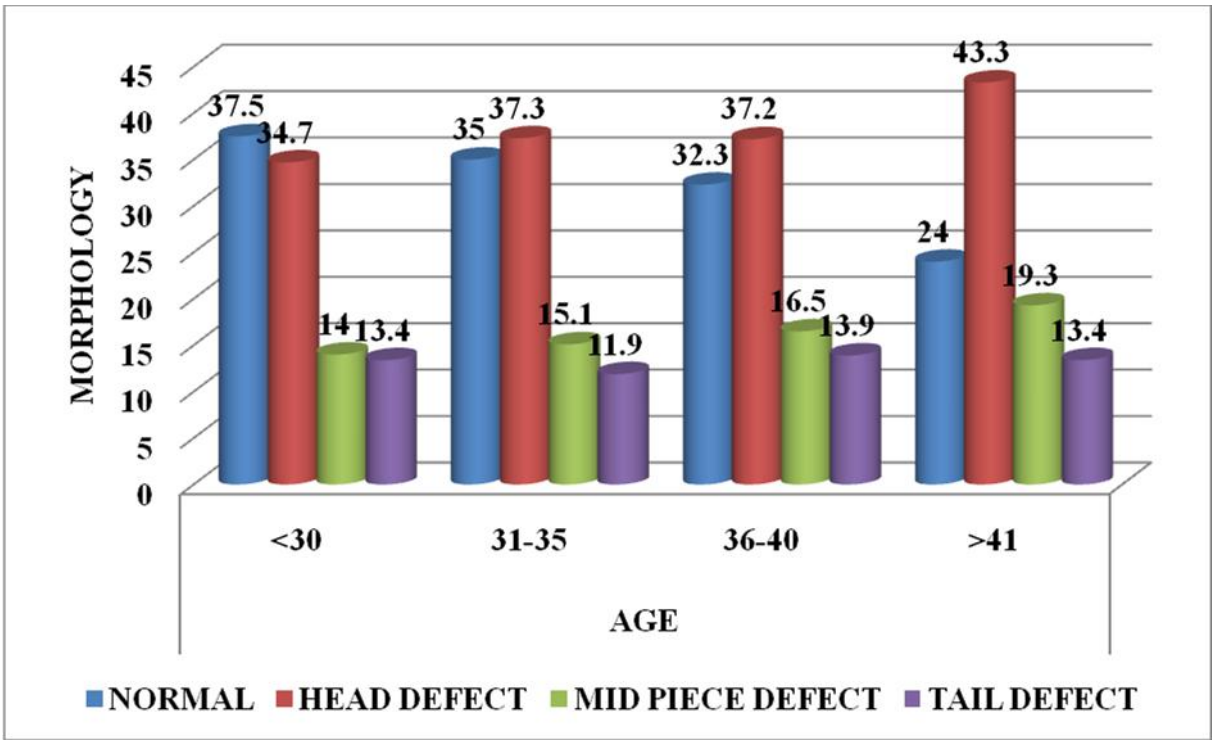
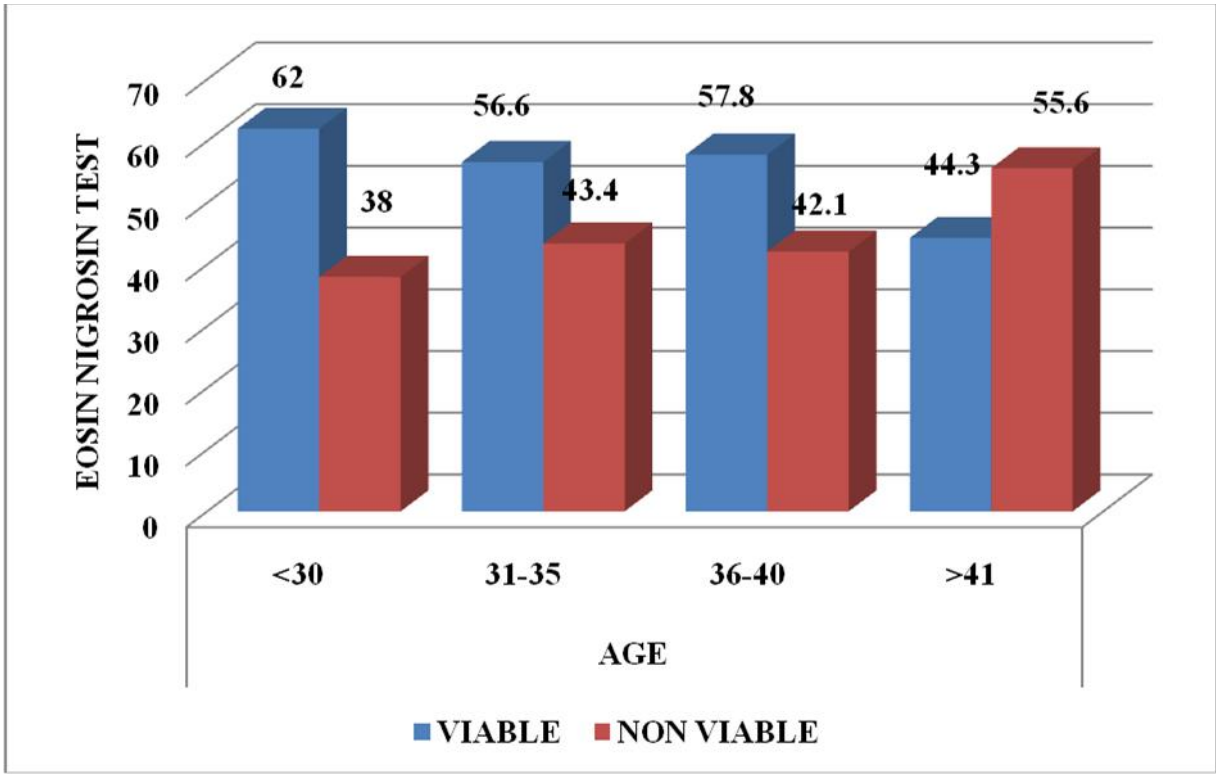


Figure-4: Figure showing the Viability appears to decreasing with advancing male age



Discussion

The objective of the study is find out the pattern of semen and the frequency and type of abnormal semen parameters. The findings are azoospermia (4%), oligoasthenozoospermia (11.5%), oligozoospermia (11.5%).

The difference may be attributed to the fact that less severe abnormalities of semen are mostly treated with success at primary level. Difficult cases like severe oligozoospermia and azoospermia are referred to Assisted Reproductive technique like Intracytoplasmic Sperm Injection (ICSI) which is a specialised form of In Vitro Fertilisation (IVF) that is used for the treatment of severe cases of male-factor infertility. ICSI involves the injection of a single sperm directly into a mature egg.

Isaiah and et al [1](2011) demonstrated motility decreased 0.8% per year of age and linear motion decreased 0.2%per year. Because motility is acquired during sperm transit through the prostate and epididymis, the decrease in motility is suspected to be due to age related decline in the function of these post testicular glands. They concluded clear that aging has a significant impact on male sexual function, sperm parameters, and fertility. These changes contribute to decreased fecundability, increased time to conception, and increased miscarriage rates. -The reason for poor semen quality and adverse trends are not well established, but some associations suggest a causal relationship, for example, with maternal smoking during pregnancy. The role of chemical exposures leading to endocrine disruption and detrimental reproductive effects has been in the focus of research that effect fertility could provide opportunities for effective prevention of reproductive health problems Helena & Niels [2] (2017).

In addition, evidence exists that testicular perfusion, Leydig cell numbers, and sertoli cells number decline with age, whereas accumulation of the aging pigment lipfuscin increases with age. It is clear that aging has a significant impact on male sexual function, sperm parameters, and fertility. These changes contribute to decreased fecundibility, increased time to conception and increased miscarriage rates. Kid et al [3] (2003) suggested that increased male age is associated with a decline in semen volume, sperm motility, and sperm morphology but not with sperm concentration. Hammiche and et al[5] (2011) showed a positive association between a rising age from 26 to 59 years. They conclude that the trend of delaying fatherhood in men undergoing IVF or ICSI treatment is detrimental to sperm quality. This was also coinciding with study of Hassan & Killick [6] (2003). Eskenazi & et al[7] (2003) concluded that the sample of healthy men from a non-clinical setting, semen volume and sperm motility decreased continuously between 22-80 years of age, with no evidence of a threshold. Our report seems to be similar to other reports concluding that severe oligoasthenozoospermia and oligozoospermia are the most common abnormalities among the infertile man.

Conclusion

Severe oligoasthenozoospermia and oligozoospermia are the most common abnormalities among the infertile man, presenting at the infertility unit between (2016-2017) at Sumathi infertility centre, Madurai. This is the major abnormalities finding in the study when compare with other abnormalities. This could be treated by our hospital. But Life style modifications are need to have healthy Semen.

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