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PATTERNS OF SEMEN ANALYSIS: EXPERIENCES OF A LABORATORY OF B.J.MEDICAL COLLEGE, AHMEDABAD, GUJARAT.

Pathology

Dr. Poorva Kalsariya Senior Resident, Department Of Pathology, B.J.Medical College, Ahmedabad, India

Dr. Hemina Desai Professor; Department Of Pathology, B.J.Medical College, Civil Hospital, Ahmedabad

ABSTRACT

Introduction: Infertility is defined as failure of a couple to conceive after one year of regular sexual intercourse. It remains both prevalent and problematic among couples worldwide. The analysis of semen remains the preliminary investigation for males in the workup of infertility in couples. It is a key element in the fertility evaluation of men and permits male reproductive potential to be evaluated in association with possible risk factors. **Aim:** To assess and analyse the semen characteristics of all the males who presented to our hospital, irrespective of primary or secondary infertility. **Material and Methods:** This is an observational study conducted in the Department of Pathology, B.J. medical college Ahmedabad. Semen of 118 subjects were evaluated and results analyzed. **Results:** The present study included 118 subjects whose age ranged from 20 years to 45 years with a mean age of 21.60 years. Patients were divided into oligospermia (47.45%), normospermia (41.52%) and azoospermia (8.47%). 15.25% of the cases had sperm counts in the range of 51-80million/ml. Asthenospermia was seen in 14.5% of the cases. **Conclusion:** In present study, mainly oligospermia was significantly contribute to the overall infertility. Routine semen analysis remains the backbone of the evaluation of the male factor infertility, but it is important to acknowledge the limitation of semen analysis with respect to collection, processing, evaluation, biological variation of the parameters. Due to this limitations, a normal semen analysis does not guarantee the fertilization potential.

KEYWORDS

Semen analysis, male infertility.

INTRODUCTION

Infertility is failure of a couple to conceive after one year of regular sexual intercourse[1]. Semen quality is usually considered to be a measure of male fertility, and changes in semen quality are an indication of reproductive potential. The male factor is known to be solely and partially implicated in 20-50% of the cases of infertility. The fertility potential of any male can be predicted through the evaluation of his semen. The analysis of semen remains the preliminary investigation for males in the workup of infertility in couples[1].

Semen analysis is a key element in the fertility evaluation of men and permits male reproductive potential to be evaluated in association with possible risk factors. Currently, routine semen analysis remains the backbone of the evaluation of male factor infertility, along with detailed medical history and thorough physical examination. This relies on the fact that the semen parameters such as sperm concentration, motility, and morphology are significantly associated with conception[2].

Semen analysis 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(count), but sperm quality (motility, morphology) as well.[3]

Abnormal sperm morphology and insufficient sperm motility remains a significant contributor to overall infertility[4].In our society infertility of a couple is mainly attributed to the female, and males are hesitant to undergo counselling or tests which may question their virility. In this scenario semen analysis is an easy non invasive test which provides baseline information and a prelude to further investigations. The present study is an attempt to assess and analyse the semen characteristics of all the males who presented to our hospital, irrespective of primary or secondary infertility[1].

Aim: To assess and analyze the semen characteristics of all the males who presented to our hospital, irrespective of primary or secondary infertility.

MATERIAL & MATHODS:

This is an observational study comprised of 118 male patients conducted in the Department of Pathology, B.J.Medical college, Ahmadabad, Gujarat; from Jan 2021 to June 2021.

- **Sexual Abstinence:** a minimum of 48 hours but no longer than 7 days.
- Liquefied within1hour of collection.
- **Wet preparation:** to determine the dilution of semen.
- **Sperm Concentration :** Improved Neubauer counting chamber after an appropriate dilution.(per unit volume of semen)
- **Sperm Motility:** by direct visualization under the microscope.
- **Sperm Morphology:** the semen sample was centrifuged and smears prepared and stained with hematoxylin and eosin stains.
- **Sperm Vitality:** <40% motility, whether sperms are alive or dead.

RESULTS:

In present study 118 cases of semen were analyzed and following result were observed.

Table I: Age wise distribution of cases

Age group	No. Of cases (%)
20-30	70 (59.32%)
31-40	44 (37.28%)
41-50	04 (3.38%)

Table II: Sperm count wise distribution of cases

Sperm count (in millions/ml)	No. of cases (%)
0 - 14	56 (53.33%)
15 – 20	9 (8.57%)
21 – 50	5 (4.76%)
51 – 80	18 (17.14%)
81 – 100	17 (16.19%)

Table III: Distribution according sperm quality and motility

Sperm quality and motility	% of cases
Oligospermia	56 (47.46%)
Normospermia	49(41.52%)
Azoospermia	10 (8.47%)
Astenospermia	21(14.5%)
Sperm morphology	
> 4	102(97.14%)
< 4	03(32.85%)
Sperm motility	
>40	84 (80%)
<40	21(20%)

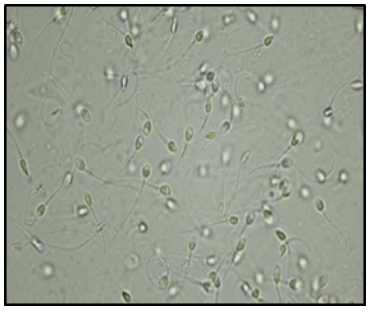

Figure I: Normal sperms (Wet preparation)

DISCUSSION

Ejaculated seminal volume is a parameter that reflects abnormalities in accessory sex glands fluid synthesis i.e seminal vesicle It can also be indicative of a physical obstruction somewhere in the reproductive tract or in cases of incomplete retrograde ejaculation[1].

WHO quality parmeters Normal seminal fluid analysis.[5]

- Volume -> 1.5 ml
- Liquefaction time -20 to 30 minutes
- pH -7.2 to 8.0
- Sperm concentration ->15 million/ml
- Total motility -40%(Progressive motility + non progressive motility)
- Progressive motility -32%
- Morphology -> 4% normal forms.

In present study, 118 subjects whose age ranged from 20 years to 45 years with a mean age of 21.60 years and maximum no. Of cases were in 20-30 years of age which was correlated with the Jairajpuri ZS et al[1] study with mean age of 29.42 years with a maximum number of cases were in the age range 20-30years.

Table IV: Comparison of seminal parameters with other studies

Parameters	Jairajpuri ZS et al[1]	Dr. Kurdukar et al[6]	Emmaneul et al [7]	Present study
No. of cases	139	40	308	118
Sperm count <15million/ml	17%	33.3%	47.6%	53.3%
>/=15 million/ml	83%	66.6%	52.4%	46.67%
Total motility <40%	2.05%	30.6%	60.3%	20%
Total motility >40%	97.95%	69.40%	39.7%	80%
Sperm morphology <4%	33.5%	0%	33.3%	2%
Sperm morphology>4%	66.5%	100%	66.7%	98%

CONCLUSION:

Oligozospermia being the most common semen quality abnormality. This condition is an indication for the need to focus on the prevention and management of male infertility. Abnormality in semen analysis still stands as a dominant factor responsible for infertility either as a sole or contributory factor. Semen analysis remains mainstay in the investigations of infertility. The present study did not investigate the etiological factors. Hence more elaborate studies and research are needed to establish exact relationship of poor semen quality and infertility.

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